

**An Investigatory Study of the Relationship  
Between Self-esteem, Loneliness, Self-efficacy,  
and Patterns of Facebook Usage**

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**Abstract**

The overwhelming popularity of social networking sites, such as Facebook, Twitter, and MySpace, has led to a more thorough examination of personality and individual differences in the way the sites are used. Facebook has become the leading social networking site in recent years. To date, a select few personality traits have been more widely studied than others in relation to Facebook. Narcissism and extraversion are two particular traits which have been widely studied. This study examines the relationship between self-esteem, loneliness, self-efficacy, and patterns of Facebook usage in the general population. Age and gender differences were expected in relation to patterns of Facebook usage. Facebook intensity, self-efficacy, self-esteem, and loneliness self-reports were collected from 96 Facebook users via an online survey. Correlation analysis revealed that the more frequently and intensely Facebook was used, the lower the self-efficacy of users. No correlation was found between patterns of Facebook usage and self-esteem, or between patterns of Facebook usage and loneliness. Age and gender differences were found in patterns of Facebook usage. 51-55 year olds were found to use Facebook the most frequently and intensely of all age groups and females used Facebook more frequently and intensely than males. Further studies of this sort should be conducted to check for consistency in results or lack thereof. Finally, gender and age differences in the use of Facebook are two areas that warrant more thorough investigation.

## **Introduction**

The Internet is transforming lives. It has become an invaluable tool for communication, information, and entertainment. Most Internet users find it indispensable and are using it in ways that enhance their lives. The overwhelming popularity of social networking sites, such as Facebook, Twitter, and MySpace, has led to a more thorough examination of personality and individual differences in the use of the sites.

According to Amichai-Hamburger (2002), this kind of research is crucial as “personality is a highly relevant factor in determining behaviour on the Internet”. The majority of research in this area has been based on broad models of personality. The Five-Factor Model, also known as The Big Five, is arguably the most commonly used model for this purpose. (Ehrenberg, Juckes, White, & Walsh, 2008; Landers & Lounsbury, 2006; Swickert, Hittner, Harris, & Herring, 2002; Tuten & Bosnjak, 2001). The Big Five is based on the theory that an individual’s personality can be evaluated by determining how they rank on five bipolar factors: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. (McCrae & John, 1992). Within each of these five broad factors, a range of more specific personality traits are represented. For example, individuals high on openness to experience tend to be creative, original, and curious, while individuals low in this factor tend to be down to earth, conventional, and have a narrow range of interests. (Costa & McCrae, 1992).

The importance of each of the Big Five personality factors is believed to be associated with the way individuals interact and maintain their social

relationships. For example, extraversion is positively correlated with both the size of social networks, and the amount of social interaction that an individual engages in. (Aspendorf & Wilpers, 1998). Due to its relevance to social behaviour, the Big Five factors have recently been employed to investigate the use of certain forms of online social media, such as social networking sites, (Amichai-Hamburger & Vinitzky, 2010; Correa, Hinsley, & de Zuniga, 2010; Ross et al, 2009) and in particular, Facebook. (Ryan & Xenos, 2011).

Facebook has become the leading social networking site in recent years. Today, the number of Facebook users is estimated at over 175 million worldwide (Mehdizadeh, 2010). This figure is rapidly increasing as more and more people are creating Facebook accounts every day. The literature reports that the average amount of time spent on Facebook ranges from 30 minutes to over 2 hours daily (Ellison et al., 2007). How do 'offline' personality traits manifest in an online social networking environment? Is Facebook enhancing individuals' self-esteem and as a result, causing individuals to use Facebook more? Are those who are lonely in real life benefitting from social networking sites, considering it provides them with a whole network of online friends? How do individuals rate in terms of self-efficacy and Facebook usage? Do some individuals find it more difficult to log off of Facebook or skip a day?

Very little research has been conducted in this field to date and no research has been conducted in this area in Ireland. Additionally, most previous Facebook studies have used only college students as Facebook was originally a forum for college students. At first, Facebook served a geographically-bound community (the campus) and membership was restricted to people with a specific host institution email address (Ellison et al., 2007). The exclusivity of

Facebook has changed, so that, today, anyone can become a member. Research in this area calls for similar studies to be conducted using a more general sample so as to examine variations in age. This research will examine the relationship between self-esteem, loneliness, self-efficacy, and patterns of Facebook usage in the general population.

To date, a select few personality traits have been more widely studied than others in relation to Facebook. Narcissism and extraversion (e.g. Ong et al., 2011) are two particular traits which have been widely studied. This study will focus on the constructs of self-efficacy and self-esteem, and on the emotional state of loneliness.

The construct of self-efficacy is based on Bandura's self-efficacy, which suggests that people will be able to act successfully only once they have experienced themselves as capable and in control. Perceived self-efficacy is concerned with people's beliefs in their capabilities to produce given attainments. (Bandura, 1997). The stronger the self-efficacy, the higher are the goals and the conviction to reach these goals. Self-efficacy has been shown to have a significant impact on individuals' adoption of technology. (Eastin & LaRose, 2000). The effect of self-efficacy on consumer decision-making and behaviour has been well documented in marketing literature (e.g. Fleming & Courtney, 1984) and information technology (e.g. Compeau & Higgins, 1995). Kramer & Winter (2008) showed that self-efficacy with regard to impression management on social networking sites is strongly related to the number of virtual friends, the level of profile detail, and the style of the personal photo. However, no studies to date have directly examined the role of Internet

self-efficacy on attitudes toward social networking sites and individuals' likelihood of adopting such Web sites. (Romm-Livermore & Setzekorn, 2009). This study will examine the self-efficacy of the individual in their ability to control patterns of Facebook use i.e. the ability to log off when other more important activities require to be attended to and the ability to skip a day without logging into Facebook.

In psychology, self-esteem is defined as a person's overall self-evaluation of his or her worth. (Weiten, 2004). All humans have a vital need to maintain and/or raise it. (Kramer & Winter, 2008). Rapacki (2007) argues that teens use places like MySpace as they help them express their ever-changing liquid self-concept in a non-permanent way. (Romm-Livermore & Setzekorn, 2009). It is likely that people with low self-esteem will engage in online activities that will raise their self-esteem. By doing so, it may provide an outlet for the aspirational possible self to be expressed. (Kramer & Winter, 2008).

Peplau and Perlman (1982) have noted that three themes underlie virtually all definitions of loneliness. First, by definition, loneliness results from deficiencies in the lonely person's social relationships. Second, loneliness is ultimately conceptualized as an internal and subjective psychological experience and is therefore not identical to physical isolation or solitude. Third, most theories define loneliness as an unpleasant and distressing psychological condition which, at least initially, stimulates efforts to overcome it. (Leitenberg, 1990).

Although the Internet is widely used to communicate with others (Pew Internet & American Life, 2002), loneliness has long been associated with



excessive use of the Internet. As use of the Internet spread to a broader population, early chroniclers of life online, such as Rheingold (1993) and Turkle (1995), continued to draw anecdotal links between loneliness and Internet use and abuse. Quantitative studies that followed confirmed that loneliness was associated with both increased Internet use (Kraut, Patterson, Landmark, Kiesler, Mukophadhyay, & Scherlis, 1998; Lavin, Marvin, McLarney, Nola, & Scott, 1999) and compulsive use of the Internet (Loytskert & Aiello, 1997; Morahan-Martin & Schumacher, 2000; Young, 1998). (Morahan-Martin & Schumacher, 2003).

Previous research has found results which both support and contradict the hypotheses of the current study. In light of this, it is important to conduct further studies in the area in order to discover if there is consistency in previous results. The following are some recent studies which have dealt with the construct of self-esteem in relation to Facebook usage.

### *Self-Esteem and Facebook*

Kalpidou, Costin, and Morris (2011) conducted a study which looked at the relationship between Facebook and the well-being of undergraduate college students. They expected to find a positive relationship between Facebook and social adjustment and a negative relationship between Facebook, self-esteem, and emotional adjustment. Participants were 70 undergraduate college students. A total of 35 students were first year and the rest were upper-class (junior or seniors in the second half of a four year program). The participants were recruited from a multidiscipline introductory and upper-level classes at a small,

Catholic, liberal arts institution in the northeastern part of the United States. Through self-reported measures (e.g. Facebook Intensity Scale, Rosenberg's Self-Esteem Scale, Student Adaptation to College Questionnaire), the researchers assessed demographic information, Facebook usage and attitudes, and psychological well-being (i.e. self-esteem and adjustment to college).

Those with a strong emotional connection to Facebook tended to report lower self-esteem. The study found that Facebook use does not fulfil emotional needs, but strengthens social adjustment to the institution. It also found that spending a lot of time on Facebook relates to low self-esteem. However, it noted that the increased number of Facebook friends might be a better predictor of well-being.

The study is valuable because two groups were compared (upper-class and first year). Overall, the study makes significant contributions in its conclusions that spending a lot of time on Facebook relates to low self-esteem, a finding that parallels the relationship between Internet use and self-esteem.

Mehdizadeh (2009) conducted a further study examining how narcissism and self-esteem are manifested on Facebook. In this study, 100 Facebook users, aged 18-25, were randomly recruited from York University, Toronto, Canada. Their Facebook pages were coded, to learn the extent to which they were self-promoting in the "about me" section, main photo, the first 20 photos on the "view photos of me" section, the "notes" section, and the "status updates" section. In addition to this, they were administered a four-part questionnaire. The first section required demographic information, the second section addressed Facebook activity, and the remaining sections assessed the two psychological

constructs: self-esteem and narcissism. This was done using the Rosenberg Self-Esteem Scale (Rosenberg, 1965) and the Narcissism Personality Inventory (NPI-16).

The study hypothesized that individuals with low self-esteem would be correlated with a greater amount of Facebook activity. It was also hypothesized that individuals with low self-esteem scores would use more self-promoting content on Facebook. A negative correlation was found between frequency of Facebook use and self-esteem. The study calls for future research to expand the results to a larger sample size that is more diverse in age, and selected across a variety of settings. (Mehdizadeh, 2009).

Steinfeld, Ellison, and Lampe (2008) conducted a longitudinal study investigating the relationship between intensity of Facebook use, measures of psychological well-being, and bridging social capital. Respondents were all students at a large midwestern university in the US. In addition to demographic questions and in-depth interviews, the study relied on four sets of measures drawn from Ellison et al. (2007). Internet use was assessed using a measure adapted from LaRose, Lai, Lange, Love, and Wu (2005). Facebook use was measured using an adapted version of the Facebook Intensity scale (as in Ellison et al., 2007). Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1989). An amended version of the Satisfaction with Life Scale (SWLS; Diener, Suh, & Oishi, 1997) was also used, as was an adapted version of Williams' (2006) Bridging Social Capital subscale. Over 200 participants were involved. 18 of these were interviewed. Steinfeld et al. hypothesized that psychological well being would moderate the relationship between Facebook use and bridging social capital.

The study found that Facebook facilitates communication, especially in initial social interactions, and perhaps mitigates fears of rejection. This may explain why students with lower self-esteem appear to gain more from Facebook than students with higher self-esteem. A social network site that makes it easier for students with lower self-esteem to engage with others outside of their close personal networks can therefore be expected to have a larger effect for them than for students with higher self-esteem. There was an increase in the Facebook Intensity (FBI) measure between 2006 and 2007. While the mean number of friends reported could be a sign of longevity of participation on the site, the increase in the Facebook Intensity measure is a more robust indicator of its growing importance to the respondents. Steinfeld et al. interpreted the increase to mean that Facebook has occupied a more central role in supporting the maintenance of social relationships among the undergraduates studied. Like many studies in the area, the sample consisted solely of undergraduate university students.

**H1:** *There will be a significant negative correlation between patterns of Facebook usage and self-esteem.*

#### *Loneliness and Facebook Usage*

Ryan and Xenos (2011) conducted a study which aimed to investigate how personality influences usage or non-usage of Facebook. The sample consisted of 1324 self-selected Australian Internet users (1158 Facebook users

and 166 Facebook non-users). They were between the ages of 18 and 44. Participants were required to complete an online questionnaire package comprising the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991), the Narcissistic Personality Inventory (NPI-29; Kansi, 2003), the Revised Cheek and Buss Shyness Scale (RCBS; Cheek, 1983), and the Social and Emotional Loneliness Scale for Adults – Short Version (SELSA-S; DiTommaso, Brannen, & Best, 2004). Facebook users also completed a Facebook usage questionnaire.

The results showed that Facebook users were more likely to be extraverted and narcissistic, but they also had stronger feelings of family loneliness. On the other hand, Facebook non-users were more likely to be conscientious, shy, and socially lonely. The prediction that Facebook non-users would have greater levels of loneliness than users was confirmed, although only for the sub-factor of social loneliness. Ryan and Xenos point out that although there has been no previous research in this area, the obtained results are plausible because people with smaller social networks would generally be less motivated to use a website such as Facebook. However, as Correa et al. (2010) point out, the Internet is an increasingly user-generated environment, and individuals who choose not to engage may be limiting their ability to advance socially. Ryan and Xenos point out that this is an area where further research is justified, as the results also show that Facebook users have significantly higher levels of family loneliness than non-users. Furthermore, the finding that lonely people tend to spend more time on Facebook per day, and have higher preferences for the passive features (e.g. viewing photos) of Facebook, is particularly concerning (Ryan and Xenos, 2011).

The strength of this study is the huge sample and the comparisons between users and non-users. Another strength is the wide age range (18-44) used in the study. For lonely people in particular, it appears that they are mainly using Facebook to partake in passive activities instead of providing active social contributions. Such findings suggest that not all Facebook users are utilizing the site to improve their social capital, unlike what other research had implied. (Burke et al., 2010; Ellison et al., 2007; Steinfield et al., 2008). Ryan and Xenos mention that due to the small effect sizes reported in their study, these arguments require further validation. It is therefore recommended that researchers continue to examine the relationship between the individual characteristics and specific patterns of Facebook usage, particularly in samples that are representative of typical Facebook users. (Ryan & Xenos, 2011).

The following two studies focus on loneliness and Internet use, as compared with loneliness and Facebook usage. This is due to the lack of literature on the latter.

Morahan-Martin & Schumacher (2003) conducted a study which compared lonely and non-lonely individuals in their use of the Internet and how Internet use affected social interaction. They hypothesized that lonely people would be more likely to spend time online, use e-mail, and use the Internet for emotional support. A survey that included Internet use and behaviours as well as the UCLA Loneliness Scale (Russell, 1996) was completed by 277 undergraduates in courses requiring Internet use, 150 male and 127 female.

No difference was found between the lonely and the non-lonely in the number of months they had been using the Internet. However, the two groups

differed significantly in the average weekly hours online, with lonely users reporting greater use than non-lonely users. The lonely also used e-mail more frequently than the non-lonely. A MANOVA of reasons for use by loneliness found significant overall differences, with significance found for six of the 17 given reasons for use. Lonely users were more likely than the non-lonely users to use the Internet for the following reasons: to relax, for work, to meet people, for emotional support, talking to others who share same interests, and to waste time. Similarly, lonely users were more likely to prefer communicating online to face-to-face communication, to find online anonymity liberating, to like the speed of communicating online, and to have surfed online. Lonely users were more likely than non-lonely users to agree that when online: they were more themselves than in real life, they opened up more to people than in other forms of communication, they were friendlier, they had shared intimate secrets, and they had pretended to be someone else. They also agreed more than the non-lonely users that: their online friends understood them better, most of their friends were known from an online environment, going online made it easier to make friends, and they had more fun with the people they met online.

The lonely also were more likely to use the Internet to modulate moods and be negatively impacted by their Internet use. The lonely agreed more that they had gone online when they felt down or anxious, when they felt isolated, and that they felt more engaged socially when online. Internet behaviour for the lonely was causing disruptions in their life. Specifically, they agreed more than the non-lonely that they: felt guilty about time spent online, had been told they spent too much time online, routinely cut sleep short to be online, had missed social engagements to be online, had missed work or school to be online, had

been unable to cut back time online, found it hard to stop thinking about going online, and had tried to hide how much time they spent online. (Morahan & Schumacher, 2003).

Amichai-Hamburger and Ben-Artzi (2003) conducted a study which aimed to explain the relationship between extraversion, neuroticism, differential Internet use, and loneliness. It compares to Kraut et al.'s (1998) model which argues that the Internet causes loneliness with an alternative model which claims that people who are already lonely and isolated spend large amounts of time on the Internet.

In the Amichai-Hamburger and Ben-Artzi study, 85 individuals took part (44 females and 41 males) who described themselves as Internet users, ranging in age from 16-58. Most were students drawn from the departments of Psychology at Bar-Ilan University and the Jordan Valley College in Israel. The Internet-Services Scale (Hamburger & Ben-Artzi, 2000) was used to measure frequency of Internet-usage. The Scale includes the 12 most popular Internet services: seeking information related to work, seeking information related to studies, seeking general information, discussion groups, games downloading, software downloading, chat, shopping, news, sex Web sites, random surfing, and people-address seeking. The Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1975) was also used as was the UCLA Loneliness Scale (Russell et al., 1980).

The results indicate that for men, the use of Internet services was not related either to loneliness, neuroticism, or extraversion. However, for women, loneliness was significantly related to both neuroticism and the use of social services on the Internet. Lonely women were found to be attracted to the



Internet. This contrasted with previous findings (e.g. Kraut et al., 1998) that the Internet is the cause of their loneliness. It is important to stress that these findings only pertain to the specific personality medium which was examined, the extroversion and neuroticism continuum. This is consistent with the findings of Hamburger and Ben-Artzi (2000) and Amichai-Hamburger (2002). They argue that Internet users are clearly not a homogeneous group, but one made up of different personality types who have differing need and motives. The results of the study show that neurotic women are lonelier and tend to use the social services, such as email, more. They do not necessarily support Hamburger and Ben-Artzi's (2000) suggestion that the high use of Internet social services should be seen as a positive solution to the problem of loneliness. This study lacks in the sample size which is relatively small. However the age range is wider than in most studies to date.

**H2:** *There will be a significant positive correlation between patterns of Facebook usage and loneliness.*

### *Overview of Research Findings*

The following is a brief overview of the findings of the research that have been discussed. Kalpidou et al. (2011) found that spending a lot of time on Facebook relates to low self-esteem, a finding that parallels the relationship that exists between Internet use and self-esteem. Mehdizadeh (2010) found a negative correlation between frequency of Facebook

use and self-esteem. Steinfeld et al. (2008) found that students with lower self-esteem appear to gain more from their Facebook than students with higher self-esteem.

Ryan and Xenos (2011) found that Facebook users have significantly higher levels of family loneliness than non-users and lonely people tend to spend more time on Facebook per day. Morahan-Martin & Schumacher (2003) discovered that the two groups they studied differed significantly in the average weekly hours online, with lonely users reporting greater use than non-lonely users. The lonely also used e-mail significantly more hours per week than the non-lonely. Amichai-Hamburger & Ben-Artzi (2003) found that for men, the use of Internet services was not related either to loneliness, neuroticism, or extraversion. However, for women, loneliness was significantly related to both neuroticism and the use of social services in the Internet.

Previous research has contributed significantly to the topic of self-esteem, loneliness, and the use of social networks and the Internet in general. However, there is room for improvement on existing research. To date, the sample sizes have been relatively small, with the exception of a few studies (e.g. Steinfeld, Ellison, & Lampe, 2008). The samples generally consist of university students, which was Facebook's original aim. The target age range is generally undergraduate students in their early twenties. However, Facebook has now become a site used by all age groups and by people from all walks of life. Therefore, more diverse samples are necessary. Another issue to consider is that of gender in the samples which is often not equally distributed. To date, all of the published studies on the topic have been conducted outside of Ireland. Finally, self-efficacy has only appeared in one study to date in relation to

impression management on Facebook (Kramer & Winter, 2008). It has yet to be studied extensively in relation to Facebook usage. It should be noted that social networking is still relatively new and, as a result, research on the topic is in its early stages.

### *Aim and Hypotheses*

The aim of the current study is: to explore the possibility that people with certain characteristics are likely to use Facebook more frequently and intensely.

The hypotheses are that:

- 1) *there will be a significant negative correlation between patterns of Facebook usage and self-esteem;*
- 2) *there will be a significant positive correlation between patterns of Facebook usage and loneliness;*
- 3) *there will be a significant negative correlation between patterns of Facebook usage and self-efficacy;*
- 4) *there will be significant age differences in patterns of Facebook usage; and*
- 5) *there will be a significant gender difference in patterns of Facebook usage.*

### *Research Question*

Will Facebook self-efficacy predict patterns of Facebook usage, which in turn predicts loneliness and self-esteem?

## **Methodology**

A self-report questionnaire was formulated which included demographic questions followed by measures for patterns of Facebook usage, self-efficacy, self-esteem, and loneliness. The questionnaire was created using SurveyMonkey, an online survey hosting site. The questionnaire was administered on Facebook.com and Twitter.com. Participants were Facebook users from the general public (n = 96). Data was collected over a period of approximately 3 weeks. Data-analysis of the results was conducted using SPSS Version 16.0.

### *Materials*

The Facebook Intensity scale (FBI; Ellison et al., 2007) was used to measure the frequency and intensity of Facebook usage, or Patterns of Facebook usage. The measure includes a series of Likert-Scale attitudinal questions designed to tap the extent to which the participant is emotionally connected to Facebook, the extent to which Facebook is integrated into their daily activities, the number of Facebook “friends”, and the amount of time spent on Facebook in a typical day. Response categories range from 1=strongly disagree to 5=strongly agree. An additional two questions were added just after the FBI scale to measure the intensity of the respondents’ activity on Facebook, which is not accounted for in the FBI scale. Response categories for the additional two questions added ranged from 1=never to 5=always. The alpha reliability of the scale is .83 and, with the additional two questions included, was .831. This

indicated that it was a reliable measure overall. The Facebook Intensity score is computed by calculating the mean of all of the items in the scale.

The Rosenberg Self-Esteem scale (RSE; Rosenberg, 1965) was used to measure self-esteem. Originally, the scale was designed to measure the self-esteem of high school students. However, since its development, the scale has been used with a variety of groups including adults. It is a ten-item Likert-type scale. Items are answered on a four-point scale (from strongly agree to strongly disagree). The scale is scored by totalling the individual 4 point items after reverse-scoring the negatively worded items. The RSE demonstrates a Guttman scale coefficient of reproducibility of .92, indicating a high level of internal consistency. Test-retest reliability over a period of 2 weeks reveals correlations of .85 and .88, indicating a high level of stability. (Rosenberg, 1979).

The UCLA Loneliness Scale (ULS version 3; Russell, 1996) was used to measure loneliness. Items for the original version of the scale were based on statements used by lonely individuals to describe feelings of loneliness (Russell, Peplau, & Ferguson, 1978). Due to concerns about how the negative wording of the items may have affected scores (i.e., response sets), a revised version of the scale was developed and published in 1980 that included 10 items worded in a negative or lonely direction and 10 items worded in a positive or non-lonely direction (Russell, Peplau, & Cutrona, 1980). Version 3 of the UCLA Loneliness Scale is the most recent version. The wording of the items in this version and the response format has been simplified to facilitate administration of the measure to less educated populations, such as the elderly. Items are answered on a four-point scale (from never to always). Items that are asterisked should be reversed (i.e. 1=4, 2=3, 3=2, 4=1) and the scores for each item then

summed together. Higher scores indicate greater degrees of loneliness. The measure is highly reliable, both in terms of internal consistency (coefficient  $\alpha$  ranging from .89 to .94) and test-retest reliability over a 1-year period ( $r = .73$ ). (Russell, 1996).

Facebook self-efficacy was measured using a model of Albert Bandura's self-efficacy scales. Five questions needed to be formulated due to the fact that measuring Facebook self-efficacy is a relatively new phenomenon and there are currently no scales which measure it. Individuals were presented with items portraying different levels Facebook demands, and they rated the strength of their belief in their ability to control their behaviour in the usage of the site on a scale from 0 to 100 (0=cannot do at all, 100=highly certain can do). Bandura's measurement scale was kept. The higher the score, the higher the self-efficacy. As Bandura calls for, items were phrased in terms of *can do* ('ability') rather than *will do*. *Can* is a judgement of capability; *will* is a statement of intention. (Bandura, 2006).

### *Participants*

Participants were 96 Facebook users from the general public recruited online with the use of two social networking sites, Facebook.com and Twitter.com. A total of 25 males and 71 females took part. They ranged in age from 18 to over 60, with the majority in the age range of 18-30 (67.7%). Younger females were slightly overrepresented in the sample. Participation was completely voluntary. No incentives were used. The questionnaire was made available to a wide audience as users of both sites were forwarding the survey

and thus creating more opportunities for more diverse users to take part. Data was collected over a period of approximately three weeks.

### *Design*

A correlational design was used. Pearsons' correlations were conducted to check for significant correlations between self-esteem, loneliness, self-efficacy, and patterns of Facebook usage. The predictor variable was Patterns of Facebook usage. The criterion variables were self-efficacy, self-esteem, and loneliness. In addition, an Independent Samples t-test was conducted to check for any significant gender difference in patterns of Facebook usage. A one-way between subjects ANOVA was conducted to check for significant differences between age groups and patterns of Facebook usage. A post hoc analysis was then conducted to compare the differences in the means between age groups in patterns of Facebook usage.

### *Procedure*

Ethical clearance was obtained from the DBS Department of Psychology Ethics Committee. The survey was hosted on SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)), an online survey hosting site. A total of 96 (out of 113) completed the online survey, yielding a response rate of 84.96%. Upon coming across the survey link, participants clicked into it and were met with a brief to the survey. This included information on why the survey was being conducted, through which institution, and whose supervision it was under. They

were informed that it was anonymous and that they had the right to withdraw at any time. If they had any questions or comments, contact details were given in the form of email addresses. Participants were asked if they were willing to take part, and if they agreed, the survey opened up. Participants were required to answer all questions in order to proceed through to the end of the questionnaire. There were no time restrictions to complete the survey.

### *Data Analysis*

As the data did not violate the assumptions of normality, Pearson's correlation tests were conducted to identify correlations between self-esteem, loneliness, self-efficacy, and patterns of Facebook usage. An Independent Samples t-test was conducted to check for any significant gender difference in patterns of Facebook usage. A one-way between subjects ANOVA was conducted to check for significant differences between age groups and patterns of Facebook usage. A post hoc analysis was then conducted to compare the differences in the means between age groups in patterns of Facebook usage. SPSS version 16.0 was utilized for all statistical analysis.



## Results

### *Descriptive Statistics*

Table 1 *Frequency and Percent for Age of Respondent*

		Frequency	Percent
Valid	18-25	42	43.8
	26-30	19	19.8
	31-35	8	8.3
	36-40	5	5.2
	41-45	5	5.2
	46-50	2	2.1
	51-55	4	4.2
	56-60	7	7.3
	61 or older	4	4.2
	Total	96	100.0

Table 2 *Mean, Standard Deviation, Variance, and Range for Age of Respondent*

N	Valid	96
	Missing	0
Mean		2.93
Std. Deviation		2.539
Variance		6.447
Range		8

Table 3 *Frequency and Percent for Gender of Respondent*

		Frequency	Percent
Valid	Male	25	26.0
	Female	71	74.0
	Total	96	100.0

Table 4 *Mean, Standard Deviation, Variance, and Range for Gender of Respondent*

N	Valid	96
	Missing	0
Mean		1.74
Std. Deviation		.441
Variance		.195
Range		1

*Distribution*

The four variables tested confirmed normal distribution.

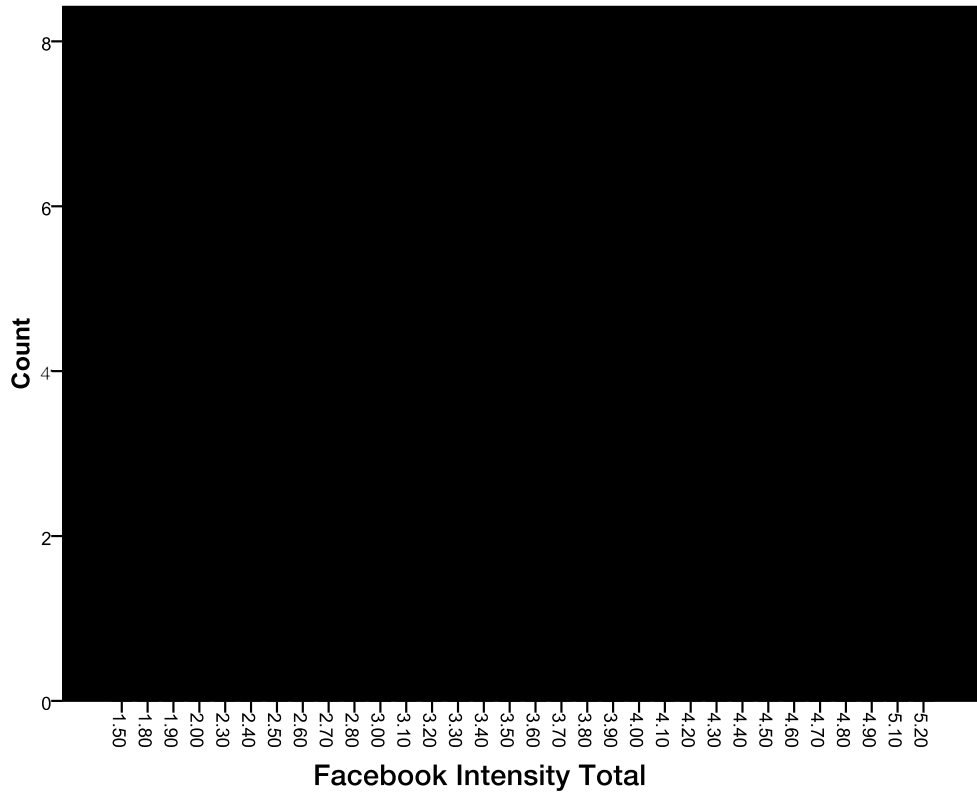


Figure 1 *Respondents' Scores for Patterns of Facebook Usage*

Table 5 *Range, Mean, Standard Deviation, and Variance for Patterns of Facebook usage*

	N	Range	Mean	Std. Deviation	Variance
Facebookintensitytotal	96	3.70	3.6448	.86643	.751

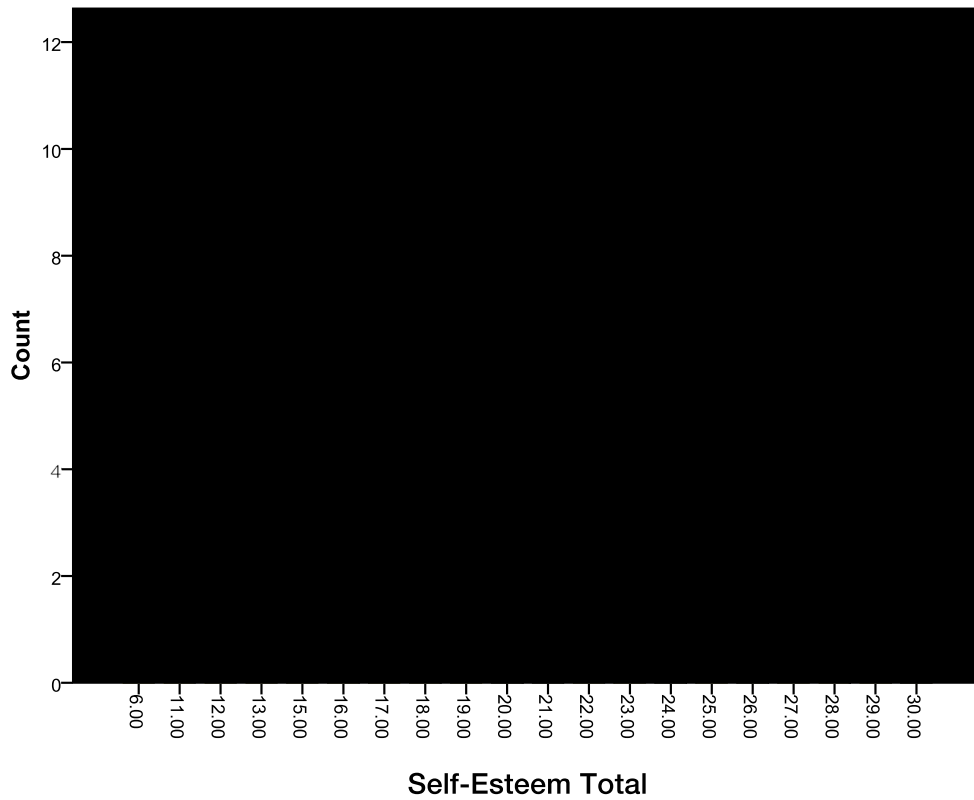


Figure 2 Respondents' Scores for Self-Esteem

Table 6 Range, Mean, Standard Deviation, and Variance for Self-Esteem

	N	Range	Mean	Std. Deviation	Variance
Selfesteemtotal	96	24.00	21.1667	5.27889	27.867

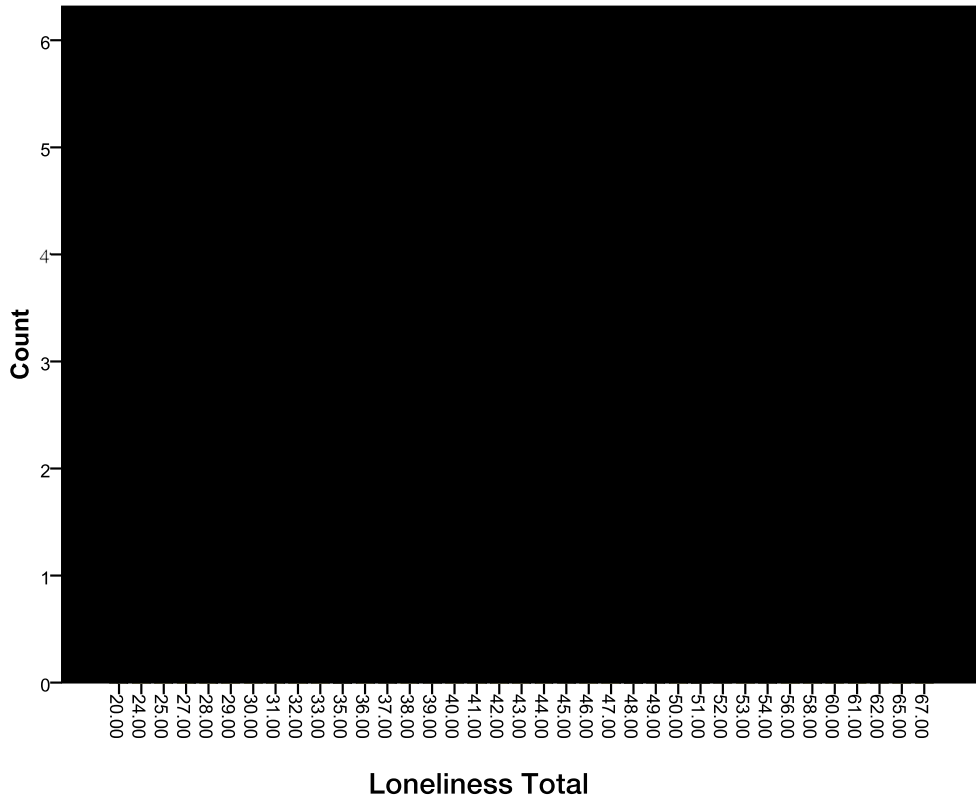


Figure 3 Respondents' Scores for Loneliness

Table 7 Range, Mean, Standard Deviation, and Variance for Loneliness

	N	Range	Mean	Std. Deviation	Variance
Lonelinesstotal	92	47.00	42.4783	10.88146	118.406

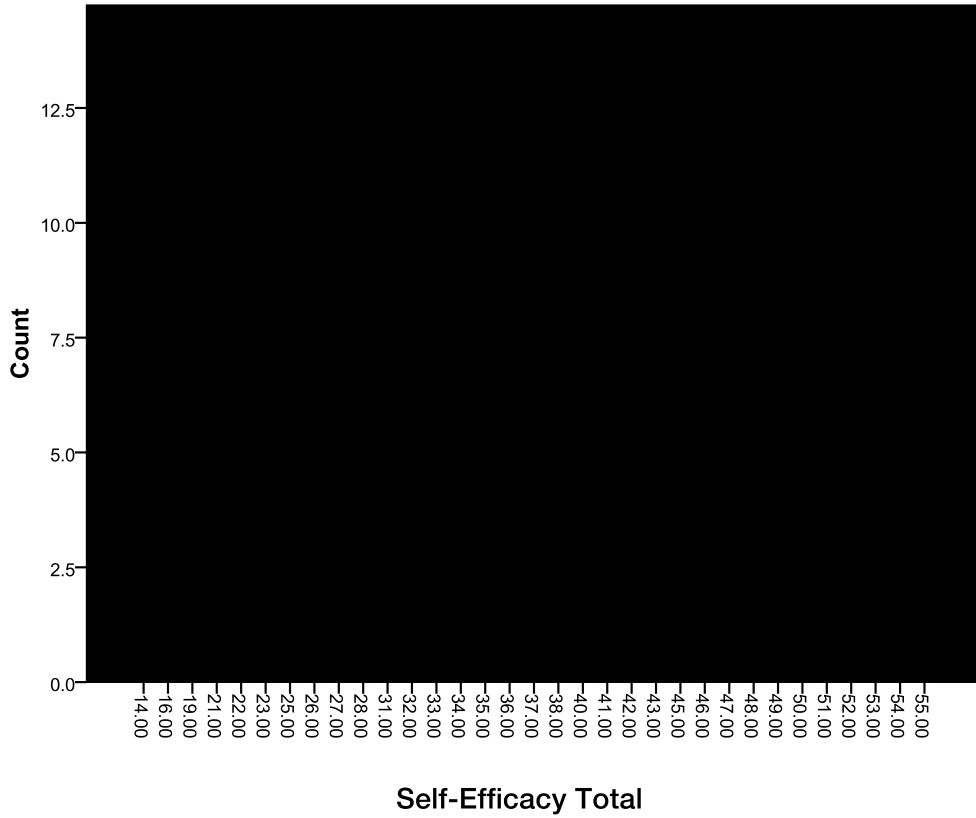


Figure 4 Respondents' Scores for Self-Efficacy

Table 8 Range, Mean, Standard Deviation, and Variance for Self-Efficacy

	N	Range	Mean	Std. Deviation	Variance
Selfefficacytotal	96	41.00	40.3437	11.52373	132.796

*Inferential Statistics*

Hypothesis 1 (There will be a significant negative correlation between patterns of Facebook usage and self-esteem) was not supported. No significant correlation was found between patterns of Facebook usage and self-esteem ( $r=.055$ ,  $n = 96$ ,  $p>.05$ ).

Hypothesis 2 (There will be a significant positive correlation between patterns of Facebook usage and loneliness) was not supported. No significant correlation was found between patterns of Facebook usage and loneliness ( $r= -.109$ ,  $n = 92$ ,  $p>.05$ ).

Hypothesis 3 (There will be a significant negative correlation between patterns of Facebook usage and self-efficacy) was supported. A Pearson's Correlation was conducted to assess the relationship between patterns of Facebook usage and self-efficacy. A strong negative correlation was found between patterns of Facebook usage and self-efficacy ( $r= -.528$ ,  $n = 96$ ,  $p < .01$ ).

Table 9 *Pearson Correlation of Patterns of Facebook usage and Self-Efficacy*

		Facebookintensitytotal	Selfefficacytotal
Facebookintensitytotal	Pearson Correlation	1	-.528**
	Sig. (2-tailed)		.000
	N	96	96
Selfefficacytotal	Pearson Correlation	-.528**	1
	Sig. (2-tailed)	.000	
	N	96	96

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 4 (There will be significant age differences in patterns of Facebook usage) was supported. Significant differences were found in patterns of Facebook usage between age groups. A one-way between subjects ANOVA was conducted to test for significant differences between age groups and patterns of Facebook usage. There was a significant difference in patterns of Facebook usage across age groups at  $p < .05$  [ $F(8, 87) = 2.43, p = 0.020$ ].

Table 10 *One-way Between Subjects ANOVA of Age Groups and Patterns of Facebook Usage*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.020	8	1.627	2.429	.020
Within Groups	58.298	87	.670		
Total	71.317	95			



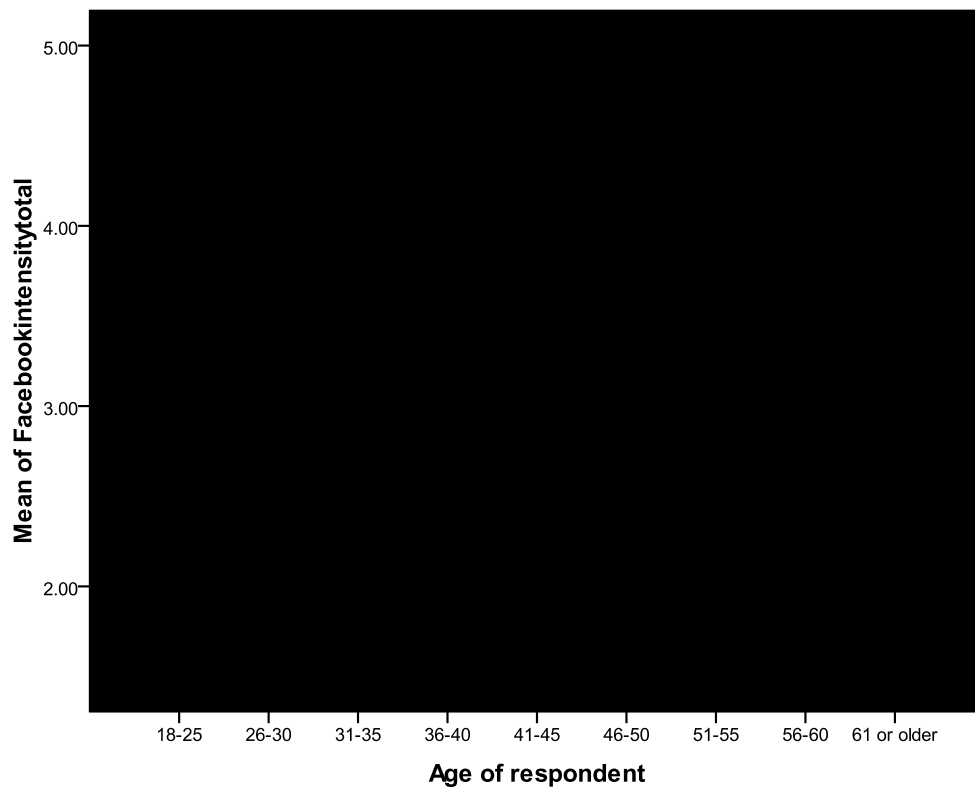


Figure 5 *Age and Patterns of Facebook usage*

Due to a significant difference between age groups from a one-way ANOVA test, a Post Hoc analysis was conducted to compare mean differences in patterns of Facebook usage between age groups. Post hoc comparisons using the Tukey HSD test indicated that the mean score for 46-50 year olds ( $M = 1.95$ ,  $SD = 0.64$ ) was significantly different to the mean score for 51-55 year olds ( $M = 4.56$ ,  $SD = 0.29$ ).

Table 11 *Multiple Comparisons for Age and Patterns of Facebook Usage*

(I) Age of respond	(J) Age of respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower	Upper
18-25	26-30	-.24875	.22632	.973	-.9687	.4712
	31-35	-.11190	.31578	1.000	-1.1165	.8927
	36-40	-.25190	.38726	.999	-1.4839	.9801
	41-45	-.39190	.38726	.984	-1.6239	.8401
	46-50	1.63810	.59245	.141	-.2466	3.5228
	51-55	-.96190	.42834	.386	-2.3246	.4008
	56-60	.51667	.33419	.830	-.5465	1.5798
	61 or older	.08810	.42834	1.000	-1.2746	1.4508
26-30	18-25	.24875	.22632	.973	-.4712	.9687
	31-35	.13684	.34501	1.000	-.9607	1.2344
	36-40	-.00316	.41144	1.000	-1.3121	1.3057
	41-45	-.14316	.41144	1.000	-1.4521	1.1657
	46-50	1.88684	.60853	.062	-.0490	3.8227
	51-55	-.71316	.45032	.811	-2.1457	.7194
	56-60	.76541	.36193	.470	-.3860	1.9168
	61 or older	.33684	.45032	.998	-1.0957	1.7694
31-35	18-25	.11190	.31578	1.000	-.8927	1.1165
	26-30	-.13684	.34501	1.000	-1.2344	.9607
	36-40	-.14000	.46667	1.000	-1.6246	1.3446
	41-45	-.28000	.46667	1.000	-1.7646	1.2046
	46-50	1.75000	.64715	.162	-.3087	3.8087
	51-55	-.85000	.50128	.747	-2.4447	.7447
	56-60	.62857	.42366	.860	-.7192	1.9763
	61 or older	.20000	.50128	1.000	-1.3947	1.7947
36-40	18-25	.25190	.38726	.999	-.9801	1.4839
	26-30	.00316	.41144	1.000	-1.3057	1.3121
	31-35	.14000	.46667	1.000	-1.3446	1.6246
	41-45	-.14000	.51772	1.000	-1.7870	1.5070
	46-50	1.89000	.68488	.143	-.2888	4.0688
	51-55	-.71000	.54913	.931	-2.4569	1.0369
	56-60	.76857	.47932	.800	-.7563	2.2934
	61 or older	.34000	.54913	.999	-1.4069	2.0869
41-45	18-25	.39190	.38726	.984	-.8401	1.6239
	26-30	.14316	.41144	1.000	-1.1657	1.4521
	31-35	.28000	.46667	1.000	-1.2046	1.7646
	36-40	.14000	.51772	1.000	-1.5070	1.7870
	46-50	2.03000	.68488	.088	-.1488	4.2088
	51-55	-.57000	.54913	.981	-2.3169	1.1769
	56-60	.90857	.47932	.619	-.6163	2.4334
	61 or older	.48000	.54913	.994	-1.2669	2.2269

(I) Age of respondent	(J) Age of respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper
46-50	18-25	-1.63810	.59245	.141	-3.5228	.2466
	26-30	-1.88684	.60853	.062	-3.8227	.0490
	31-35	-1.75000	.64715	.162	-3.8087	.3087
	36-40	-1.89000	.68488	.143	-4.0688	.2888
	41-45	-2.03000	.68488	.088	-4.2088	.1488
	51-55	-2.60000*	.70892	.012	-4.8552	-.3448
	56-60	-1.12143	.65633	.740	-3.2094	.9665
	61 or older	-1.55000	.70892	.424	-3.8052	.7052
51-55	18-25	.96190	.42834	.386	-.4008	2.3246
	26-30	.71316	.45032	.811	-.7194	2.1457
	31-35	.85000	.50128	.747	-.7447	2.4447
	36-40	.71000	.54913	.931	-1.0369	2.4569
	41-45	.57000	.54913	.981	-1.1769	2.3169
	46-50	2.60000*	.70892	.012	.3448	4.8552
	56-60	1.47857	.51308	.108	-.1537	3.1108
	61 or older	1.05000	.57883	.673	-.7914	2.8914
56-60	18-25	-.51667	.33419	.830	-1.5798	.5465
	26-30	-.76541	.36193	.470	-1.9168	.3860
	31-35	-.62857	.42366	.860	-1.9763	.7192
	36-40	-.76857	.47932	.800	-2.2934	.7563
	41-45	-.90857	.47932	.619	-2.4334	.6163
	46-50	1.12143	.65633	.740	-.9665	3.2094
	51-55	-1.47857	.51308	.108	-3.1108	.1537
	61 or older	-.42857	.51308	.995	-2.0608	1.2037
61 or older	18-25	-.08810	.42834	1.000	-1.4508	1.2746
	26-30	-.33684	.45032	.998	-1.7694	1.0957
	31-35	-.20000	.50128	1.000	-1.7947	1.3947
	36-40	-.34000	.54913	.999	-2.0869	1.4069
	41-45	-.48000	.54913	.994	-2.2269	1.2669
	46-50	1.55000	.70892	.424	-.7052	3.8052
	51-55	-1.05000	.57883	.673	-2.8914	.7914
	56-60	.42857	.51308	.995	-1.2037	2.0608

Hypothesis 5 (There will be a significant gender difference in patterns of Facebook usage) was supported. There was a significant gender difference in patterns of Facebook usage. An Independent-samples t-test was conducted to compare patterns of Facebook usage in males and females. There was a significant difference in the scores for males ( $M = 3.3$ ,  $SD = 0.8$ ) and females ( $M = 3.8$ ,  $SD = 0.85$ );  $t(94) = -2.72$ ,  $p = 0.008$ .

Table 12 *Independent Samples T-test of Gender and Patterns of Facebook Usage*

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Facebookintensitytotal	.511	.476	-2.723	94	.008	-.53110	.19502	-.91832	-.14388
variances assumed									
Equal variances not assumed			-2.810	44.634	.007	-.53110	.18901	-.91187	-.15032

### *Research Question*

Will Facebook self-efficacy predict patterns of Facebook usage, which in turn predicts self-esteem and loneliness? Facebook self-efficacy predicted patterns of Facebook usage. Patterns of Facebook usage, however, did not predict self-esteem and loneliness.

## **Discussion**

The aim of the current study is to explore the possibility that people with certain characteristics are likely to use Facebook more frequently and intensely. Based on the literature, it was postulated that individuals with low self-esteem would use Facebook more frequently and intensely; individuals with high levels of loneliness would use Facebook more frequently and intensely; and individuals with lower self-efficacy would use Facebook more frequently and intensely. Correlation analysis revealed that the more frequently and intensely Facebook was used, the lower the self-efficacy of users. No correlation was found between patterns of Facebook usage and self-esteem, or between patterns of Facebook usage and loneliness. It was further postulated that there would be age and gender differences in patterns of Facebook usage. Age and gender differences were found. An Independent samples t-test revealed a significant gender difference in patterns of Facebook usage. Females used Facebook more intensely and more frequently than males. A one-way between subjects ANOVA was conducted to check for significant differences between age groups and patterns of Facebook usage. Due to significance from the one-way ANOVA, a post hoc analysis was then conducted to compare differences in the means between age groups in patterns of Facebook usage. It was found that 51-55 year olds were the most frequent and intense Facebook users of all age groups.

The research question was: Will self-efficacy predict patterns of Facebook usage, which in turn predicts loneliness and self-esteem? Self-efficacy predicted patterns of Facebook usage. Patterns of Facebook usage, however, did

not predict loneliness and self-esteem. These findings go against previous research. Possible reasons for these results are discussed.

Patterns of Facebook usage was the predictor variable in this study. The maximum possible score for patterns of Facebook usage was 5.2 and the minimum was 1. The higher the score, the higher the patterns of Facebook usage. The results were normally distributed. The most frequent score was 3.9 (8 respondents). Most respondents scored between 2.7 and 4.7, indicating quite diverse scores for patterns of Facebook usage. This suggests wide variability in the frequency and intensity of Facebook usage by respondents.

Hypothesis one predicted that there would be a significant negative correlation between patterns of Facebook usage and self-esteem. The results of the current study did not fit with the results of the studies discussed in the literature review. Kalpidou et al. (2011) found that spending a lot of time on Facebook relates to low self-esteem, a finding that parallels the relationship between Internet use and self-esteem. Mehdizadeh (2010) found a negative correlation between frequency of Facebook use and self-esteem. Normally, this might be due to a small sample size. However, Kalpidou et al. (2011) only had a sample size of 70 and Mehdizadeh (2010) had a sample size of 100. Another possibility for the conflicting findings is that respondents might have answered in a less than honest way. It is possible that respondents may have had a perceived sense of self-esteem that was higher than what it actually is. They may also have felt that the questionnaire was not in fact anonymous and confidential and as a result, not answered as honestly as possible. The maximum possible score for self-esteem was 30 and the minimum was 0. The higher the score, the higher the self-esteem. Most respondents scored between 15 and 18 out of a

possible 30. Scores were quite evenly spread between 19 and 30. Very few respondents (only 4) scored lower than 15, indicating high levels of self-esteem overall.

Hypothesis two predicted that there would be a significant positive correlation between patterns of Facebook usage and loneliness. As with self-esteem and patterns of Facebook usage, the results for Hypothesis two contradicted numerous studies on the topic. Ryan & Xenos (2011) found that lonely people tend to spend more time on Facebook per day, and have higher preferences for the passive features of Facebook. They also found that Facebook users have significantly higher levels of family loneliness than nonusers. Morahan-Martin & Schumacher (2003) discovered that the two groups they studied differed significantly in the average weekly hours online, with lonely users reporting greater use than non-lonely users. Lonely users also used e-mail significantly more hours per week than non-lonely users. Amichai-Hamburger & Ben-Artzi (2003) found that for men, the use of Internet services was not related either to loneliness, neuroticism, or extraversion. However, for women, loneliness was significantly related to both neuroticism and the use of social services in the Internet. The sample size in the Ryan & Xenos (2011) study was 1324. This is a much larger sample size than the current study and could be the reason as to why the results of the current study did not fit with the literature. Morahan-Martin & Schumacher (2003) had a sample size of 284, which is more than twice the size of the current study's sample. As with the self-esteem questionnaire, respondents may have felt uncomfortable to answer as honestly as possible. The maximum possible score for loneliness was 80 and the minimum was 20. The higher the score, the higher the loneliness. No respondent scored as

high as 80. The highest score (1 respondent) was 67. Three respondents had a score of 20. Scores were relatively normally distributed. Most respondents scored between 35 and 52, indicating relatively high levels of loneliness overall. It is interesting to note that the majority of respondents scored relatively high on loneliness and at the same time, relatively high on self-esteem.

Hypothesis three predicted that there would be a significant negative correlation between patterns of Facebook usage and self-efficacy. This hypothesis was supported. A strong negative correlation was found between patterns of Facebook usage and self-efficacy. The more frequently and intensely Facebook was used, the lower the self-efficacy of users. No study to date has investigated individuals' self-efficacy in their ability to control patterns of usage on Facebook. The construct of self-efficacy is based on Bandura's self-efficacy, which suggests that people will be able to act successfully only once they have experienced themselves as capable and in control. Perceived self-efficacy is concerned with people's beliefs in their capabilities to produce given attainments. (Bandura, 1997). The stronger the self-efficacy, the higher are the goals and the conviction to reach these goals. The results of this study suggest that the stronger the self-efficacy, the stronger the ability to resist using Facebook. Interestingly, there was extensive variability in self-efficacy scores. There was a very even distribution of scores across the scale. Only 13 respondents scored a maximum score of 55 (highest possible self-efficacy score). This indicates that users varied significantly in their ability to control their use of the site. Some showed virtually no control, while some showed maximum control. Approximately 50 were somewhere in the middle. Kramer & Winter (2008) demonstrated that self-efficacy, with regard to impression



management on social networking sites, is strongly related to the number of virtual friends, the level of profile detail, and the style of the personal photo. Self-efficacy appears to be an important and valuable variable to use in the study of the dynamics of the social networking environment. Although there have not been many studies to date on the topic, self-efficacy, in its various forms, appears to yield significant results.

Hypothesis four predicted that there would be significant age differences in patterns of Facebook usage. Significant age differences were found within the sample in relation to patterns of Facebook usage. It must be noted, however, that the sample size of the two age groups which differed significantly from one another was very small. There were only 4 respondents in the 51-55 age group and 2 respondents in the 46-50 age group. Significance presumably resulted due to the small numbers represented within each group. If the age groups were evenly distributed, results of the post hoc test would have been more valuable. Due to the small sample size, there was a larger sampling error. It is interesting to note that there was not much variability in patterns of Facebook usage from the age of 18-45. These results indicate that Facebook is being used by a wide range of age groups in an equal frequency and intensity. Facebook was originally a forum for college students. At first, Facebook served a geographically-bound community (the campus) and membership was restricted to people with a specific host institution email address (Ellison et al., 2007). The exclusivity of Facebook has changed, so that, today, anyone can become a member. The fact that Facebook is being used in an equal manner by 18-45 year olds suggests that it has indeed become a site for all age groups. 56-60 year olds also appeared to use Facebook as frequently and intensely as the 18-45 year

olds. This is further evidence that there is widespread use of the site, regardless of the age of the user. Facebook has now become a community which is free of age boundaries. It would be interesting, based on results, to study patterns of usage depending on age. 18-25 year olds are likely to be busy university students, while 55-65 year olds might be retired with more time. Hence, patterns of usage across age groups should differ significantly as a result of lifestyle.

Hypothesis five predicted that there would be significant gender differences in patterns of Facebook usage. Males had a mean score of 3.3 for patterns of Facebook usage, while females ranked higher at 3.8. The results suggest that females are using Facebook more frequently and intensely than males. This, in turn, meant that females' self-efficacy was lower. A total of 96 individuals took part. 26% and 74% of respondents were male and female respectively. Females (n=71) were overrepresented as compared with males (n=25) and this could have been why such results were found. Amichai-Hamburger and Ben-Artzi (2003) found that lonely women were found to be attracted to the Internet whereas lonely men weren't. This somewhat supports the findings of the current study in that a gender difference exists online, with females using the Internet more frequently and intensely than males. This gender difference in online behaviour could be due to the fact that men might live more active lives and don't talk about themselves to the same extent that females would. As a result, females might update their Facebook pages at a greater rate. Contrary to the stereotype that women are more open than men, women might use Facebook or some form of online communication when they feel lonely. Lonely men, on the other hand, might become overtly social and seek real-life

social interaction at a greater rate than females. Amichai-Hamburger & Ben-Artzi (2004) support this idea.

### *Weaknesses and Implications for Future Research*

The interpretation of the findings warrants caution because of the small sample size and uneven representation of gender. A bigger sample would have increased the precision of results and allowed for advanced statistical analysis. Chance variation would have been ruled out and results would have more accurately reflected the true states and behaviours of Facebook users. Given that small and non-notable differences can be found to be statistically significant does not always accurately reflect practical significance. This was evident, for example, in the multiple comparisons between age groups. 56-60 year olds had the highest frequency and intensity of Facebook usage. However, there were only seven respondents in this group, indicating the occurrence of chance variation.

Out of 96 respondents, 92 completed the loneliness section of the questionnaire (UCLA Loneliness Scale, Version 3). A possible reason for this less than full completion was the fact that it was too long (20 questions). Participants might also have been hesitant to answer questions measuring loneliness as it is a sensitive topic. Future researchers in the area might utilize a shorter loneliness scale (e.g. the Revised UCLA Loneliness Scale eight-item version). However, the validity and reliability of the measure would decrease with the use of a shorter scale. In addition, being more specific in the brief section of the questionnaire might filter out respondents who refuse to answer

questions on loneliness. Although, there was a measure of progression at the top of the survey so that respondents could keep track of their progress, randomization of the various sections might have helped. This would have meant that the questionnaire would have been in a different order for different respondents. However, this randomization option was not included in the chosen SurveyMonkey package.

Ideally, a less selective sample would have been preferred and would have generated more balanced results in terms of gender and age distribution. The self-selected sample consisted of more females than males (ratio of 75:21). Although, there was a varied sample with regard to age, the majority of respondents fell into the 18-30 range. A possible solution to this issue would have been to pay for SurveyMonkey to deliver questionnaires to respondents who meet a given set of criteria, i.e. an equal number of males and females and equally distributed age groups. However, this is very costly (at roughly 1 euro per survey). SurveyMonkey and Facebook both offer this service, along with a number of survey websites. Boards.ie, an Irish forum website, would not allow the survey to be posted, classifying it as 'survey spam'. Facebook and Twitter were the main sites used to administer the survey.

Another variable which could have been interesting to include is that of nationality. Considering that the survey was being forwarded by so many users, a question on nationality or country of residence could have been included. No study to date on the psychology of Facebook has researched how the use of the site varies from country to country. It would be interesting to propose a further study to learn if Irish users use Facebook differently to users in other countries. Considering Facebook has gone global and has no boundaries, the results of such

a study would be relevant. Another possible question which could have been included was an open question on users' attitudes toward Facebook. This question could have been in comment form and allowed users to put forward their opinion. It would have been interesting to discover how users felt when on the site, how they felt about their ability to control their behaviour while on the site, how they felt about their Facebook friends, and their general attitudes toward Facebook. Respondents' answers to this question could have been related or correlated with the constructs of self-esteem and loneliness. For example, comments on the way users use the site could have been correlated or compared to their levels of loneliness.

Possible future research might replicate the current study with a larger sample size, even representation of gender, and even representation of age. This would allow for more advanced statistical analysis. Future research might examine the way in which self-esteem and loneliness interrelate for the individual. The results of the current study suggest that you can be relatively lonely, but at the same time have a high level of self-esteem. Future research might further examine this idea in relation to online behaviour. Future research might also look at the personality trait of conscientiousness in relation to patterns of Facebook usage as it might link in well with the current study's findings on self-efficacy and the user's ability to control their use of the site. Due to the extensive variability in self-efficacy scores, a further study might look at self-efficacy and Facebook in a larger sample to see if any trends occur. Facebook self-efficacy could be further examined in relation to Bandura's social learning theory. It would be useful to discover how users model each other's profiles and habits on Facebook. Possible future research might also look at the

personality trait of conscientiousness in relation to patterns of Facebook usage as it might link in well with the current study's findings on the user's ability to control their use of the site. In the technological age we are now living in, this finding could also be linked to internet addiction.

Further research on age differences would add to the research findings. It would be compelling to discover if there truly is no difference in patterns of Facebook usage between age groups and why this is. There has been virtually no literature on the topic. Similarly, it would be interesting to investigate the concept of Facebook as a community without age boundaries. Studies of this sort might provide insight into the changing state of online and offline interpersonal relationships across a wide range of age groups. Finally, a study on gender differences in the use of Facebook would also be beneficial. It would be of value to discover whether further studies would yield the same gender differences in patterns of Facebook usage. Does Facebook have a predominantly female base? Females used Facebook more frequently and intensely suggesting that their ability to control their use of the site is weaker than males. What are the possible reasons for this? Similarly, it would be interesting to discover the main differences in the way females use Facebook as compared with males.

### *Conclusions*

The findings of the current study are noteworthy in the sense that they contradict findings of previous studies on the subject where the constructs of self-esteem and loneliness are concerned. Further studies of this sort should be conducted to check for consistency or lack thereof. The finding that the more

frequently and intensely Facebook is being used is relating to low levels of self-efficacy is an area that should be researched further. Finally, age differences and gender differences in the use of Facebook are two areas that warrant more thorough investigation.

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## **Appendix 1**

### *Questionnaire Cover Letter*

Hello, my name is Aoife. I am conducting a research project that is examining personality and Facebook usage. This project is part of my Higher Diploma in Psychology course in Dublin Business School. A questionnaire has been developed to qualify aspects of personality in relation to patterns of Facebook usage.

The questionnaire will take approximately 10 minutes. Upon agreeing to complete it, participants will be asked a few demographic questions followed by a number of personality measures. Your involvement would be very much appreciated.

As a participant of this study you should please read and understand the following:

- All participants should be 18 years of age or older.
- Participants should only complete this study once.
- Your participation in this study is voluntary and you may withdraw at any time.
- Study participation is anonymous and confidential.
- The study has been approved by the DBS Department of Psychology Ethics Committee.
- If you have any questions or comments you can contact me at  
[REDACTED].
- My supervisor, Dr. Ciarán McMahon, can be contacted at  
[REDACTED].

## **Appendix 2**

### *Facebook Intensity Scale (Ellison et al., 2007)*

Facebook is part of my everyday activity

I am proud to tell people I'm on Facebook

Facebook has become part of my daily routine

I feel out of touch when I haven't logged onto Facebook for a while

I feel I am part of the Facebook community

I would be sorry if Facebook shut down

Approximately how many TOTAL Facebook friends do you have?

In the past week, on average, approximately how much time PER DAY have you spent

### *Additional questions added to Facebook Intensity Scale*

How often do you update your Facebook page?

How often do you comment on friends' postings?

*Self-Efficacy Scale*

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately can do					Highly certain can do

Ability to go a day without using Facebook?

Ability to logout of Facebook when you need to complete a task?

Ability to resist logging into Facebook when you feel disconnected from friends?

Ability to resist using Facebook when you are bored?

Ability to avoid using Facebook while socialising?

*Rosenberg Self-Esteem Scale (Rosenberg, 1965)*

On the whole, I am satisfied with myself

\*At times, I think I am no good at all

I feel that I have a number of good qualities

I am able to do things as well as most other people

\*I feel I do not have much to be proud of

\*I certainly feel useless at times

I feel that I'm a person of worth, at least on an equal plane with others

\*I wish I could have more respect for myself

\*All in all, I am inclined to feel that I am a failure

I take a positive attitude toward myself



*UCLA Loneliness Scale (ULS version 3; Russell, 1996)*

\*How often do you feel that you are “in tune” with the people around you?

How often do you feel that you lack companionship?

How often do you feel that there is no one you can turn to?

How often do you feel alone?

\*How often do you feel part of a group of friends?

\*How often do you feel that you have a lot in common with the people around you?

How often do you feel that you are no longer close to anyone?

How often do you feel that your interests and ideas are not shared by those around you?

\*How often do you feel outgoing and friendly?

\*How often do you feel close to people?

How often do you feel left out?

How often do you feel that your relationships with others are not meaningful?

How often do you feel that no one really knows you well?

How often do you feel isolated from others?

\*How often do you feel that you can find companionship when you want it?

\*How often do you feel that there are people who really understand you?

How often do you feel shy?

How often do you feel that people are around you but not with you?

\*How often do you feel that there are people you can talk to?

\*How often do you feel that there are people you can turn to?