

**Facebook; changing more than just statuses? A Study investigating relationships
between Facebook use and levels of self-esteem and loneliness.**

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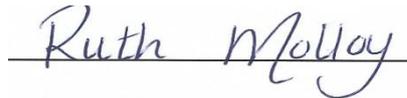
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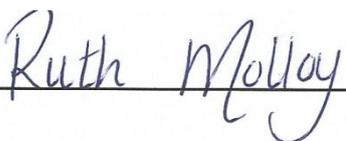
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Abstract

The aim of this study was to investigate if there is a relationship between Facebook use (time spent on Facebook and amount of Facebook friends) and both self-esteem and loneliness levels. This was carried out using a cross sectional field based quantitative design. Participants in this study included 112 college students (Males: N = 23, Females: N = 89) and were recruited online via Facebook. Participants were required to complete the Rosenberg Self-esteem scale to measure self-esteem levels and the UCLA Loneliness scale to measure loneliness levels. On top of this participants were required to answer questions regarding age, gender and Facebook usage. It was found that there was no significant relationship between 1) Time spent on Facebook and self-esteem levels. 2) The amount of Friends on Facebook and self-esteem levels. 3) Time spent on Facebook and loneliness levels. 4) The amount of Facebook friends and loneliness levels. There was however a significant relationship found between self-esteem and loneliness levels in females.

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Introduction

Social Media can be defined 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. The nature and nomenclature of these connections may vary from site to site.’ (Boyd & Ellison, 2010). Social media plays a huge part of a very large proportion of people’s lives. According to recent research 2.08 Billion people worldwide use social media actively as of January 2015 (“Digital, social & mobile worldwide in 2015 - we are social UK,” 2015). Current statistics also show that 42% of the world’s population now have access to the internet and this statistic is rising every day. Social media includes a broad range of social network sites that let users interact with others online such as Facebook, Instagram, Pinterest, Twitter, Skype and many more. Research has indicated that an average person spends 1.99 hours a day on social media websites alone (Globalwebindexnet, 2016). Statistics show that men and women use social media at similar rates, young adults have higher rates of social media use than older adults and a higher socio economic background predicts higher use of social networking sites (Duggan, Ellison, Lampe, Lenhart & Madden, 2015) .The use of the word ‘network’ or ‘networking sites’ highlights the relationship which can often be made between strangers and the ability for a person to publish their social relations online (Boyd & Ellison, 2010). The use of social media has changed rapidly throughout the years. While it was originally meant as a way of communication, social media is now used in every aspect of life such as in business, marketing, education, employment and more. Social media allows one to observe another person’s profile anonymously via his or her personal online profile e.g. Facebook (Walter, Van Der Heide, Kim, Westerman & Tong, 2008). This exposure

online can result in both positive and negative outcomes. Positive effects can be both personal and financial. Financially businesses can use social media as a way of advertising and communicating with costumers and the public. Personal benefits of social media use include social connectivity and involvement, entertainment and learning information (education) (Khan, Swar & Lee, 2014). However, recently negative sides of social media have surfaced. In a tragic case the negative use of the social media site 'Ask.fm' resulted a young girl commit suicide. Similar cases have begun to appear more often in the media. This leads to questions regarding the relationship between social media use and a person's self-esteem.

Facebook

Facebook is the leading site among social media with 71% of online adult users active on Facebook (Duggan, Ellison, Lampe, Lenhart & Madden, 2015). Facebook is an online social networking site that was first launched in 2004 by Harvard student Mark Zuckerberg. It started out as a small college site available only to Harvard students. However when Zuckerberg realised the potential it had due to its popularity he began to open it to other colleges in America and then eventually to all universities in both America and Canada. The success of Facebook was clear due to its high demand and use, by September 2006 Zuckerberg released Facebook to the world. There is no sign up fee to Facebook and the only requirement needed to set up a Facebook page is to be over the age of 13 years. The boom of Facebook was phenomenal and it quickly became popular. Facebook has played such a huge role in society that films have been made and books written about the site and its success. As mentioned above, over 2.08 billion of the world's population now have a registered account on Facebook. Every month over

20 billion pieces of information are posted on Facebook such as web links, news, politics, pictures and music etc. (Kirkpatrick, 2010, p. 11). This is a huge proportion of the human race that all have one thing in common; Facebook. In Ireland, as of April 2015 over 2,281,680 people have a registered Facebook account. 50% of these people have access to Facebook on their mobile phone making it easily accessible while predictably, Dublin Airport is the most popular 'check-in' place (Social Media Ireland, 2015). Facebook 'check in' refers to a person publicly sharing their location at a certain time. A person sharing their location to the public may make them vulnerable to danger however research has showed that users who 'check in' online have very few concerns for their privacy (Kim, 2016). Younger people are also more likely to have fewer concerns regarding online privacy than older people, this perhaps suggesting again that younger people are more vulnerable online than older people due to their lack of concern for privacy (Kim, 2016). Facebook 'check in's' are quickly becoming a norm within college students (Chang & Chen, 2014). This study found that college students are influenced to share their location if their peers are doing the same. This finding could once again link back to Facebook having an influence on both self-esteem and loneliness. Seeing other peers checking in online may make a person feel left out and lonely or perhaps when a person checks in online it makes them feel better about themselves and less lonely. Again, suggesting that there may be a relationship between Facebook use and self-esteem/loneliness levels.

These days' people will nearly always be able to find an easy access to the internet and Facebook no matter where they are. However it can be clearly noticed on Facebook that the majority of posts people display publicly are positive rather than negative. This does not necessarily mean that the person posting these positive displays are feeling this way. Facebook and social media may often be used as an illusion to cover up any negative

feelings one is experiencing. In a very interesting and powerful article on social Medias impact on our mental health Cliodhna O'Connor claims that Facebook has such a strong impact on people that it actually activates the brains reward centre (O'Connor, 2016). When a person receives a 'like' on Facebook the brains reward system is activated and the person feels good about themselves. The problem with the brains reward system being activated is the fact that this can lead to becoming addicted to this feeling of pleasure and reward, which in turn leads to an addiction of Facebook and posting on Facebook. O'Connor goes on to suggest that people are then more likely to spend more time scrolling through their Facebook newsfeed rather than physically being surrounded by their friends. On top of this a number of large issues are addressed in this article such as how the posting of 'Selfies' can lead to a self-obsession, how the use of Facebook can affect the way in which people trust others and how Facebook can effect current relationships due to past relationships being visible on a person's public profile. This suggests that the use of Facebook can lead to a huge range of problems such as isolation, loneliness and effects on self-esteem. Statements from this article have been confirmed by many studies investigating Online Addiction. The stimulation of the amygdala-striatal is a common feature in people who have addictions such as gambling and alcohol. Facebook use has been positively associated with the stimulation of this area of the brain implying that Facebook can become an addiction just like gambling and alcohol addicitons (Turel, Qinghua, Gui, Lin, & Bechara, 2014).

Facebook like many other activities needs to be controlled and used in moderation (Zaremohzzabieh, Samah, Omar, Bolong & Kamarudin, 2014). A study investigating the impact of Facebook addiction in college students found that Facebook was beginning to become such a large part of participant's lives that it was affecting how they controlled both their feelings and behaviours. Another finding of this study

suggested that participants were using Facebook as a way to avoid any offline responsibilities including relationships and social activities (Zaremohzzabieh, Samah, Omar, Bolong & Kamarudin, 2014). It's clear that Facebook has quickly become a part of many people's daily lives. The impact it has on these people's lives need to be investigated due to the broad range of things that people are exposed to both on Facebook and social media networking sites.

Self-esteem

Self-esteem is 'an individual's sense of self-worth or the extent to which the individual appreciates values or likes him or herself' (Passer et al, 2009, p.608). The importance of self-esteem can be seen in crucial parts of humans 'motivation, development, performance, coping ability, relationship formation, psychopathology, and mental health or overall well-being.' (Mruk, 2010). Self-esteem can be related to a wide range of social, physical, psychological concerns that can effect adolescence development including mood disorders e.g. depression, anxiety, eating disorders, substance use and violent behaviour (McClure, Tanski, Kingsbury, Gerrard & Sargent, 2010). While this indicates that self-esteem is hugely important in both mental and physical health, self-esteem is a very broad and complex topic that can often be difficult to measure and understand. Interesting statistics give an insight into the importance of positive self-esteem and the problems that can result from low self-esteem. People who hold high self-esteem are less likely to 'abuse drugs, commit crimes, fail to benefit from education, suffer from stress, develop eating disorders, become chronically dependent on the state for financial support, get depressed or make suicide attempts.' Emler (2002).

On the other hand, research suggests that there is a strong relationship between low self-esteem and the involvement in criminal behaviour (Kelley, 1978). The characteristics evident in adolescence with low self-esteem include obesity or overweight, sensation seeking, rebelliousness and daily TV time (McClure, Tanski, Kingsbury, Gerrard & Sargent, 2010). While those with better school performance, team sports involvement and stricter parents were less likely to report feelings of low self-esteem. These facts highlight how self-esteem levels can have a negative effect on mental and physical well-being and that problems related to low self-esteem need to be addressed immediately before the negative effects progress.

Social networking sites are often used as for comparison against peers, self-worth and evaluation and self-enhancement (Haferkamp & Kramer, 2011). In a recent study the relationship between the use of Facebook and self-esteem levels was investigated (Vogel, Rose, Roberts, & Eckles, 2014). The purpose of this study was to examine (1) whether Facebook use was associated with lower self-esteem (2) examine the impact of exposure to Facebook and social networking sites on self-esteem and self-evaluation.

Vogel et al. (2014) used the Rosenberg Self-esteem Scale, a Facebook Use questionnaire and a social comparison on Facebook questionnaire. Results from study 1 suggest that there was a negative correlation between Facebook use and self-esteem levels. This signifying that the more time one spent on Facebook the more likely they were to have feelings of low self-esteem. Higher frequency use in Facebook also showed results of higher social comparisons to peers and online profiles. Study 2 results supported the hypothesis that participants exposure to an upward comparison target resulted in lower reported levels of self-esteem. The conclusion of this research states that the most harming effects of Facebook use are due to upward comparison participants make when exposed to Facebook. The main harmful effect of these

comparisons is low levels of self-esteem. While this study showed reliable and valid results limitations must be noted. A limitation of this study occurred in study 2 when participants were exposed to a Facebook profile. Each participant was only exposed to one profile and results were based off this exposure. Participants were exposed to either positive or negative factors of social comparison. This study does not take into account how participants would feel if they were exposed to both negative and positive Facebook profiles. However these results give conclusion to the importance of the question being proposed in the current study. This study sets a base for the current study being proposed and gives a background into the effects of Facebook use and highlights what can be done to improve results. Results of this study are supported by Faraon & Kaipainen (2014); Lee & Cheung (2014). A similar study supports these results when a correlation between the amount of Facebook logins and depressive symptoms was found (Steers, Wickham & Acitelli, 2014).

In a more detailed and complex study the relationship between Facebook and self-esteem levels was once again explored (Faraon & Kaipainen, 2014). Supporting the cited evidence, results once again show that high Facebook intensity resulted in low levels of self-esteem. This leads to the assumption that low self-esteem caused by high usage of Facebook can ultimately result in depressive symptoms. Yet, more research found Facebook to have an effect on psychological wellness (Ellison, Steinfield & Lampe, 2007). 286 undergraduate students took part in this research investigating Facebook use and the formation and maintenance of social capital. This study suggests that those experiencing low self-esteem may benefit from the use of Facebook by using it as a way to connect with others. The strongest relationship in this study was shown between Facebook use and the linking of social relationships. Similar results were also shown in research conducted by Johnston, Tanner, Lalla, & Kawalski (2013). 'Intensity

of Facebook use plays a role in the creation of social capital, but is particularly significant regarding the maintenance of social capital' Johnston, Tanner, Lalla, & Kawalski (2013). From the above evidence it is clear how important self-esteem is in daily life. It can have a huge impact on one's physical and mental well-being. The results of the studies mentioned above show how the use of Facebook can have both positive and negative results on self-esteem. This leads to the question of whether there is a correlation between Facebook use and self-esteem levels and if so is it a positive or negative correlation.

Loneliness

Another aspect that has been associated with Facebook use is Loneliness. Loneliness can be defined as 'the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitatively or qualitatively' (Peplau & Perlman, 1981). Most people experience some sort of loneliness throughout their life time resulting from a wide range of situations such as job loss, death and many more. The length of time that this loneliness lasts for is also another factor that varies depending on the person and the situation. However, the importance of loneliness is ironically too often forgotten. Loneliness can be explained as the feeling of being alone despite longing for others (Younger, 1995). There are four major components associated with loneliness; these include physiological and behavioural distress, self-criticism, self-produced social detachment and immobilization (Masi, Chen, Hawkley & Cacioppo, 2011). When loneliness combines with factors such as low self-esteem, anxiety, and certain personality traits, it can result in prolonged or constant loneliness throughout life (Verhaegen, Quilter, Bungee, Vandals, MAs, Ladder & Harris, 2015). Surprisingly loneliness not only negatively affects mental well-being but it can also have an impact on physical well-being. Loneliness can in fact reduce physical activity and act as an

independent risk factor for mortality in older adults (Newall, Chipperfield, Bailis & Stewart, 2013). A New Zealand general social survey on loneliness has found that 18% of young adults and 11% of elderly feel lonely (Findings NZ General Social Survey, 2013). This seems to be a high number regarding young adults. In Ireland however there is a lack of research regarding loneliness and young adults. Instead a lot research has been completed on loneliness in the elderly.

Much research with young people and loneliness seems to include social networking sites such as Facebook as a potential factor of loneliness. In a study investigating loneliness and Facebook use results indicate high-levels of loneliness predicted high-levels of Facebook use (Kross et al., 2013). From this study it was clear that the amount of time spent on Facebook had an impact on ones well-being and loneliness. On top of that results showed that people were more likely to use Facebook when they felt down or bad about themselves. These findings can be seen again in a study investigating whether loneliness was a motive for internet use (Kim, LaRose & Peng, 2009). The main assumption for this study was that psychological problems such as loneliness or depression were a motive for internet use. However this study had very mixed results. While initially results indicated that internet use was beneficial to those who suffer from loneliness due to online social reaction, it was later noted that the benefit of online social reaction was actually doing more harm to the individual than good. It was suggested that this was due to the individual using the internet to compensate for their own problems in a way that is potentially harmful to other internet users. These harmful outcomes included negative outcomes in work, school and relationships. It could be assumed from this study that internet use only adds to problems of people who are already suffering from loneliness.

However while the majority of the evidence above shows the negative consequences of social media and Facebook use there is a different side that needs to be considered. As mentioned above Facebook is a way in which people can interact, share their lives, learn about upcoming events, advertise and feel part of society. It is clear from recent research that Facebook can have a negative effect on one's psychological wellbeing. On top of loneliness and low levels of self-esteem it is also believed through evidence that Facebook use indicates a higher rate in depression particularly in teenage girls (Mok, Sing, Jiang & See, 2014).

Overview of Literature Review

Facebook is one of the world's most powerful social networking sites. With the growing number of active Facebook users this study will be important to show whether the use of social media sites such as Facebook affects an individual's mental well-being.

Facebook has been linked to a wide variety of psychological problems including depression, low self-esteem, loneliness and most dangerously suicide (McClure, Tanski, Kingsbury, Gerrard & Sargent, 2010; Vogel et al. 2014). However there is a large amount of inconsistencies when it comes to comparing results of studies in this area.

While some research indicates that Facebook use can have negative effects on the user such as isolation and low-self-esteem, other research suggests that Facebook use can actually have a positive effect on users such as increase reward feelings and developing new relationships. It is predicted that by the end of 2016 there will be nearly 3 billion people active on social media sites. The proposed study aims to determine whether there is a true relationship between Facebook use and self-esteem levels and Facebook use and loneliness levels without taking any other environmental factors into consideration. This study may lead to an explanation in levels of self-esteem in college students and whether loneliness levels play a key role in the amount of Facebook use. The results

from Chen (2013) and Ellison, Steinfield & Lampe (2007) on self-esteem levels and Facebook use differ greatly. This study aims to determine whether studies such as Chen (2013) whom suggested that Facebook use causes distress or those similar to Ellison, Steinfield & Lampe (2007) who proposed Facebook is a key factor in the development of social relationships in high school are more significant. On top of that the statistics from NZ General Social Survey imply that young people feel lonelier than elderly people; the proposed study hopes to find if this is due to the increased amount of time spent on social media in the younger generation. The change and use of social media is constantly progressing which is leading to research on this area going out of date very quickly. This study will provide up to date information on the use and effect of Facebook use.

Rationale

Before stating the hypothesis for this research it is vital to understand why this research is important. The evidence above stated the clear facts and statistics between Facebook use, self-esteem levels and loneliness levels. However every different study came with different results. It is clear that there is a vast inconsistency regarding the results in this area therefore this study hopes to shed some light on these inconsistencies. The present study was performed due to the inconsistencies in this area of research. This study also shows some individuality as the majority of research done on this topic test relationships of Facebook use and self-esteem levels or loneliness levels with a 3rd variable such as comparison or self-evaluation. The present study was performed on college students as research states that more than 74% of college students are active users of Facebook which once again contributed to the selection of participants (Duggan, Ellison, Lampe, Lenhart & Madden, 2015). As mentioned above college students are less likely to have privacy concerns regarding online activity (Kim ,2016;

Chang & Cheng,2014). The lack of research on loneliness levels in college students and young people also provided a rationale for this study. Based on this information it could be believed that there is a gap on research in this area which this study will hope to close. Based on the forgoing literature it is hypothesised that results from this study will find:

1. A relationship between the total amounts of time spent on Facebook and self-esteem levels.
2. A relationship between the numbers of friends a person has on Facebook and self-esteem levels.
3. A relationship between loneliness levels and the amount of time spent on Facebook.
4. A relationship between loneliness levels and the amount of friends a person has on Facebook.

Method Section

Participants

To carry out this study the population of interest involved college students who are active Facebook users. Participants had to be over the age of 18 years as if they were under the age of 18 years consent would be needed from a parent or guardian. Before data could be collected participants were required to read and agree to the consent form provided (See Appendix A). Once participants agreed to the consent form they were guided to answer two essential questions;

- Question 1: Are you currently attending college?
- Question 2: Are you over the age of 18 years?

These questions were vital as data could not be used if a participant was under the age of 18 or not a college student. It was also required for each participant to indicate whether they were male or female and which age category they fell into. The sample size of this study was aimed to be 100-150. According to Stevens (1996) a sample size of 100 or more participants indicates that power will not be an issue, making the sample size of this study effective. Participants were obtained for this study through the use of the social networking site Facebook. The ratio of gender could not be controlled for in this study due participants being recruited using a convenient sample. Participant's identity and information will remain completely anonymous. Participants had the opportunity to remove themselves from the study at any time simply by emailing the researcher with the email provided. 128 people took part in this study. However as this study required data from college students 16 results had to be removed as participants confirmed that they were not currently attending college when answering Question 2.

Meaning 112 participants remained in this study. All participants completed the study entirely and no questions were left unanswered.

Design

This study was completed using a cross sectional field based quantitative design. A between group design was used to obtain results. No intervention was applied in this study. Independent variables in this study include participant's age, gender and whether they attend college or not. Dependent variables in this study include self-esteem levels, loneliness levels and the amount of time spent on Facebook.

Materials

Through self-reported measures participants' age, gender and college year was assessed. To measure levels of self-esteem participants must complete the Rosenberg Self-Esteem Scale (Rosenberg, 1989) (See Appendix B). This is a 10item scale measured on a 4point Likert scale measuring both positive and negative feelings about the self. The 4points range from strongly disagree to strongly agree (0-4). Participants must tick which point on the scale they feel represents them in relation to the corresponding statement. The scale ranges from 0-30. The sum of scores is added upon completion. Higher scores indicate higher levels of self-esteem. Low scores indicate low levels of self-esteem. This scale has proven to be reliable in previous studies with a Cronbach Alpha of .86 (McKaya, 2014, p.654-660).

To assess Facebook use participants were required to answer questions regarding time spent on Facebook and the amount of friends they have on Facebook. To collect information on the time spent on Facebook participants selected which category they

felt described themselves most. There were 6 categories participants could choose from

-

1. Less than 1 hour.
2. 1 – 2 hours.
3. 2 – 3 hours.
4. More than 3 hours.
5. Every second day.
6. Twice a week.

Information regarding Facebook friends was collected the same way. Participants could choose between 5 categories including –

1. 1: Less than 50 friends.
2. 51 – 100 friends.
3. 101 – 200 friends.
4. 201 – 300 friends.
5. More than 300 friends.

Loneliness levels were assessed using the UCLA Loneliness Scale Version 3 (Russell, 1996) (See Appendix C). This is a 20-item scale that measures an individual's feelings of loneliness and feelings of isolation. Participants are required to answer each question on a scale ranging from 1 (never) to 4 (often). Participants must mark which answer indicates how they feel. This scale has proven to be reliable with a Cronbach Alpha ranging from .89 - .94 (Russell, 1996). 9 items on this scale are reverse scored.

Participants were required to complete all three scales and questionnaire through an online web-page made for this experiment. Participants who volunteered to take part

were given a link to the questionnaires. Data was collected through the internet and sent straight to the experimenter.

Procedure

Participants for this study were obtained via Facebook. All participants had a choice to take part and were not directly targeted. To obtain these participants a link was posted on a Facebook page inviting participants to take part in this study. It was explained with the link that participants must be over 18 years and attending college. Once participants clicked into the link they were brought to the consent form. In order to proceed to the next page the participant had to click agree to the information on the consent form. If the participant selected disagrees the study would terminate. Upon agreeing to the consent form participants were required to specify their age group, gender and whether they were attending college. Once completed participants proceeded to take the Facebook Intensity Scale, where they were required to answer questions on their Facebook use. Only one answer could be chosen for each question. Participants were then required to answer two more surveys – The Rosenberg Self-esteem Scale and a loneliness survey. Once completed the data was sent straight to the researcher. The overall study could be completed at any time over the 2 month period that results were being collected. This study took no longer than 15 minutes to complete and read all the conditions.

Results

In this section tables for the descriptive statistics will be displayed below. Results from the inferential statistics carried out on the 4 hypothesis in this study will also be provided.

Descriptive statistics were carried out in this study in order to calculate participants Mean (M), Mode (MD), Standard Deviation (SD) and Cronbach Alphas in both the Rosenberg Self-esteem scale and the UCLA loneliness scale.

The frequencies of participant's gender and age are displayed in the table below, Table 1.

Table 1. *Frequencies of Gender and Age.*

Variable	Frequency	Valid Percentage
Gender		
Male	23	20.5
Female	89	79.5
Age		
18 - 21 years	66	58.9
22 - 25 years	31	27.7
26 - 30 years	10	8.9
31 - 35 years	4	3.6
36 years and older	1	.9

The sample was made up of 112 participants in total: 23 males (20.5%) and 89 females (79.5%). Females clearly take up a much larger part of this sample than males. 58.9% of participants were aged between 18 -21 years, 27.7% were aged between 22 – 25 years, 8.9% were aged between 26 – 30 years, 3.6% were aged between 31 – 25 years and less than 1% of participants were 36 years or older. All participants were college students.

Table 2: Descriptive statistics and reliability of the Rosenberg Self-esteem scale and the UCLA Loneliness Scale.

	Mean	SD	Cronbach's Alpha
Self-Esteem	18.1	4.9	.91
Loneliness	27	3.13	.93

In order to calculate the results of the Rosenberg Self-esteem scale and the UCLA Loneliness scale descriptive statistics were run. The scoring of the Rosenberg self-esteem can be complicated and involves reverse scoring 5 negatively worded responses before undertaking any descriptive statistics. The overall average score in the Rosenberg self-esteem scale was 18.1. Normal scores in the Rosenberg self-esteem scale range between 15 – 25 (Heatherton, Wyland & Lopez, 2003). The results suggest that participants in this study have normal levels of self-esteem and do not suffer from low self-esteem which would require an average score falling below 15. However it could be noted that participants average score did fall towards the lower end of what is classed as normal self-esteem. A Cronbach Alpha was completed in order to calculate the reliability of this scale. The result of the Cronbach Alpha on the Rosenberg Self-esteem scale was measured at .91 which indicates that it is a reliable scale. The mean score in the UCLA Loneliness scale was 27 and had a Cronbach Alpha of .93 which once again indicates that this scale is highly reliable. The scoring of this scale involved reversing a total of 11 negatively worded responses. Participants who scores range from 21 – 30 in the UCLA Loneliness scale struggle slightly with social interactions and experience loneliness occasionally (Russell, 1996).

Table 3. *Frequencies of Total Facebook Friends and Total Time spent on Facebook.*

Variable	Frequency	Valid Percentage
Facebook Friends		
Less than 50	0	0
51 – 100	2	1.8
101 – 200	11	9.8
201 – 300	24	21.4
More than 300	75	67.0
Time Spent on Facebook		
Less than 1 Hour	26	23.2
1 – 2 Hours	52	46.4
2 – 3 Hours	21	18.8
More than 3 Hours	12	10.7
Every 2 nd Day	1	.9
Twice a week	0	0

Table 3 displays the scores of participants total time spent on Facebook and total amount of Facebook friends. The most frequent category chosen by participants regarding total Facebook friends was ‘More than 300’ (67%). Zero participants in this study had less than 50 friends on Facebook. The results of the question regarding the amount of time spent on Facebook indicated that 46.4% of participants spend between 1 – 2 hours on Facebook each day. None of the participants in this study went on

Facebook twice a week and 1 participant goes on Facebook every 2nd day. These results propose that 99% of participants in this study use Facebook daily.

Before correlating results a scatterplot was generated for the Rosenberg self-esteem scale and the UCLA Loneliness scale in order to check for violation of assumptions of linearity.

Table 4. Spearman Correlation.

Variables	1	2	3	4
1. Self-esteem	1	-.276**	.089	-.033
2. Loneliness	-.276**	1	.021	-.011
3. Facebook Friends	.089	.021	1	.124
4. Time spent on Facebook	-.033	-.011	.124	1

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

A Spearman correlation test was carried out in order to examine any relationships between the four variables used in this study.

The Spearman's rho revealed a non-significant positive relationship between self-esteem levels and amount of Facebook friends ($r = -.089$, $N = 112$, $p > .05$). The effect size was calculated at 0.18 which indicates a small effect size (Cohen, 1988). This test also revealed that there is a non-significant negative weak relationship between self-esteem and the amount of time spent on Facebook ($r = -0.033$, $N = 112$, $p > .05$).

The Spearman's rho was once again used to calculate any correlation between Loneliness levels and Facebook friends. Results indicate that there is a non-significant positive relationship between loneliness levels and total amount of Facebook friends, ($r = .021$, $N = 112$, $p > .001$). A non-significant negative weak relationship was found between loneliness levels and time spent on Facebook ($r = -.011$, $N = 112$, $p > .05$).

The relationship between self-esteem (measured on the Rosenberg self-esteem scale) and loneliness (measured on the UCLA loneliness scale) was explored using Spearman's rank order correlation. Preliminary analysis were undertaken to confirm

there were no violations in assumptions of normality, linear and homoscedasticity.

There was a significant weak negative correlation between the two variables ($r = -.276$, $N = 112$, $p < .001$).

There was no significant relationship between the time participants spent on Facebook and the total amount of Facebook friends.

Table 5. Spearman Correlation controlling for gender.

Variables	1	2	3	4
<i>Females</i>				
1. Self-esteem	1	-.341**	.053	.016
2. Loneliness	-.341**	1	.050	.018
3. Facebook Friends	.053	.050	1	.060
4. Time spent on Facebook	.016	.018	.060	1
<i>Males</i>				
1. Self-esteem	1	-.276	.265	-.172
2. Loneliness	-.276	1	-.038	.011
3. Facebook Friends	.265	-.038	1	.124
4. Time spent on Facebook	-.172	-.011	.124	1

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

When controlling for gender the Spearman’s rho results indicated that there is a significant negative weak relationship between self-esteem levels and loneliness levels in Females and not in Males.

DISCUSSION

The aim of this study was to investigate whether the amount of friends one has on Facebook and the amount of time one spends on Facebook correlates with levels of self-esteem and loneliness. It can be clearly seen through the results that there were no significant relationships in any of the four relationships being investigated. It was hypothesized that there would be a relationship between 1) Self-esteem levels and time spent on Facebook 2) Loneliness levels and time spent on Facebook 3) Self-esteem levels and total amount of friends on Facebook and 4) Loneliness levels and total amount of friends on Facebook. In order to reveal any relationships between the four factors a cross sectional field based quantitative study containing 112 participants was undertaken. This study showed strength in the largely significant numbers of participants. Information was obtained for this study using two highly beneficial questionnaires, *The Rosenberg Self-esteem Scale* and *The UCLA Loneliness Scale Version 3*. All of the data collected from participants was done anonymously leading to the assumption that participants were more honest with their answers. As this study was aimed at young people currently attending college it was important to collect information regarding age, gender and whether the participant was currently attending college. Results show that the most common age category in this study was aged between 18 – 21 years all of whom currently attend college. While all correlations in this study were very weak, other aspects of the results have been informative.

Self-esteem

The overall average score on the Rosenberg self-esteem scale was 18.1. Females scored lower in this scale with an average score of 17.6 compared to males with an average score of 20. This suggests that females in this study have slightly lower levels of self-

esteem than males. 18 – 21 year olds scored the lowest in this scale with an average score of 16.9. While 26 – 30 years olds scored the highest with a score of 21.5.

Hypothesis 1 stated that there would be a relationship between time spent on Facebook and levels of self-esteem. Results of the correlation run between time spent on Facebook and self-esteem levels were positive weak relationship. Yet these results were nonsignificant meaning that no relationship exists. This assumption is not consistent with former studies. Many studies have measured the relationship between self-esteem levels and internet use such as Facebook. Results from these former studies indicate that as time spent on Facebook increases, levels of self-esteem decreases (Vogel et al., 2014). While another study also found that low levels of self-esteem were related to Facebook when controlling for profile comparisons (Johnston, Tanner, Lalla, & Kawalski, 2013). Although a correlation was found between self-esteem and Facebook use the main aim of the study was to investigate the impact of profile comparison (Johnston, Tanner, Lalla, & Kawalski, 2013). A correlation has also been previously identified between low self-esteem and motivation for people to engage in online activity (Lee & Cheung, 2014).

When exploring hypothesis 2 – which investigated the relationship between self-esteem levels and total amount of friends on Facebook, results showed a positive weak relationship. This relationship was nonsignificant leading to the assumption that no relationship exists. Previous studies state otherwise. The use of Facebook and the benefits of online friends can play a key role in psychological wellbeing (Johnston, Tanner, Lalla, & Kawalski, 2013). Yet, very little research has been conducted regarding whether the number of friends a person has on Facebook impacts their self-esteem levels. This is another gap in the research of this area that this study hoped to close. However this would need to be investigated into further detail.

Further analysis involved the splitting of males and females results. Whilst the relationships between self-esteem levels, time spent on Facebook and amount of friends on Facebook were all stronger in males than in females, none of the relationships were significant implying that there is once again no relationship. Again this area lacks reliable research. Most of the research conducted in this area involves a confounding variable that may act as causation to the correlation found. Again it could be noted that limitations mentioned in the section below could have had an impact on data resulting in the weak correlations.

The only significant relationship obtained from these results was between loneliness levels and self-esteem levels. Overall there was a negative weak relationship, suggesting that as loneliness levels increase levels of self-esteem decrease. When investigating the difference in males and females there was a significant relationship between the two variables in females but a non-significant relationship in males. This implies that females are more likely to have lower levels of self-esteem when faced with loneliness. This result is supported by a study that found higher levels of loneliness and depression in young teenage girls (Mok, Sing, Jiang & See, 2014). Females are more likely to suffer from lower self-esteem levels than males (Furnham, Badmin & Sneade, 2002).

Loneliness

Loneliness levels in this study scored at an average of 27. This score indicates that overall participants have a moderate level of loneliness. Males scored slightly higher in the UCLA loneliness scale with a mean score of 28, while females scored an average of 26. Both age categories '18 – 21 years old' and '22 – 25 years old' scored the highest with a joint average of 27. When investigating hypothesis 3 - the relationship between total time spent on Facebook and levels of loneliness, results indicates a negatively

correlated relationship, however this relationship was non-significant. A negative correlation implies that as one variable increases the other variable decreases. However as this relationship was not significant it is clear that there is no relationship between loneliness levels and time spent on Facebook in this study. These results are not in line with previous research mentioned in the literature review. Previous studies on this topic have found that as time spent on Facebook increases, loneliness levels decrease (Deters & Mehl, 2013). Deters & Mehl (2013) found that increased Facebook activity such as updating statuses and pictures more frequently leads to lower levels of loneliness. This is thought to be caused by the increase feeling of being connected to friends and receiving feedbacks from friends via updated statuses. The relationship found in this earlier study is supported by results that internet use such as social media use has an overall positive effect on psychological well-being (Morahan-Martin and Schumacher, 2003). However Kross et al., (2013), found that a high level of Facebook use is associated with high levels on loneliness. This study consisting of 82 participants suggests that while on the surface Facebook seems to fulfil the basic human need for social interaction but under the surface it is clear that many of these online social interactions are false and can lead to high levels of loneliness. Loneliness levels can also predict Facebook use and be used as a motive to engage in Facebook (Kim, LaRose & Peng, 2009). It is clear that the results in the present study are not supported by previous research, although it must be noted that previous research on this area is very vague and has mixed results.

Hypothesis 4 aimed to investigate the relationship between the amount of friends on Facebook and loneliness levels. Correlation was once again very weak here, although this time they were correlated in a positive direction. A positive correlation implies that as one variable increase or decreases so does the second variable, however once again

this was a nonsignificant relationship implying that there was no relationship between the two variables. Very little research has previously been done on determining if there is a relationship between loneliness and Facebook friends. This gap in research was a motive behind conducting the present study. Many past studies have focused on the effects of time spent on Facebook rather than the amount of friends one has on Facebook. It would be highly recommended that this topic is examined further.

Overall no significant relationships were found between self-esteem levels/loneliness levels and time spent on Facebook/amount of friends on Facebook while other studies have found relationships. However in other studies there may have been a confounding variable. Studies mentioned in the literature reviews that have found a relationship between Facebook use and self-esteem and loneliness levels often have a 3rd variable that is controlled for. A third variable may lead to the causation of the correlation. These 3rd variables that are controlled for include up-ward comparison (Vogel et al., 2014), problematic online use (Lee & Cheung, 2014) and emotional connectedness to Facebook (Kalpidou, Costin & Morris, 2011)

Facebook Use

Over 71% of online users are members of Facebook (Duggan, Ellison, Lampe, Lenhart & Madden, 2015). This is a very large portion of the world's population considering over 3 billion people use the internet daily ("Internet Users", 2016). 67% of participants who took part in this study have over 300 friends on Facebook. An interesting result showed that zero participants had less than 50 friends on Facebook. As Facebook involves a lot of sharing personal information such as photographs, this means that for 67% of participants over 300 people have quick accesses to very personal details such

as their date of birth, where they live and where they work or go to college. Both males and females mode for amount of friends on Facebook was 'more than 300'.

46.4% of participants spend 1-2 hours a day on Facebook. Although Facebook is so easily accessible these days via smart phone, tablet, laptop, iPod etc. that perhaps people do not realise how much time they are spending on Facebook. Yet this is in line with recent statistics that show on average people spent 1.99 hours on social media (Globalwebindexnet, 2016). Nowadays it is normal to see people in a public place, such as the train not looking down on their phone. Perhaps people do not realise the time they spend on Facebook due to the information they receive from it. For example if a piece of news appears on a person's timeline, they can click into it and be redirected to another website. While they may think they are now off Facebook they are not. Facebook is the base site and they are reading this piece of news or article via the Facebook website.

Results also suggest that females admit to spending more time on Facebook than men. However the difference in the amount of females who took part in this study compared to males need to be considered. Overall the results obtained from this study do not support previous literature this may be down to past studies including a confounding variable or one of the limitations mention in the section below. However as these results are more novel than ordinal it proposes a question of whether Facebook use only effects self-esteem and loneliness levels when there is a confounding variable.

Limitations

The results in this study were very weak. However this may be due to many limitations faced during this research. The first limitation that arose in this study involved the participants. Participants were recruited voluntarily via an online survey. The aim of this study was to investigate relationships between Facebook use and both self-esteem and loneliness levels in college students. At the beginning of the survey participants were required to select if they were in college or not. 128 participants took part in the study, however based on the survey results only 112 participants indicated that they were in college. This resulted in 16 participants being removed from this study.

The second major limitation in this study can be seen in the survey that was used to collect the data. When asking participants age, number of friends on Facebook and total amount of time spent on Facebook participants were required to select which category they fell into. While this form of data collection seemed reasonable initially, it later caused problems when statistically analysing the results. This form of collecting data through categories prevented access to finding the overall mean age, mean time spent on Facebook and total friends on Facebook. By allowing participants to select which category they felt they belonged to only the mode could be calculated. However if participants were allowed to enter their age, total time spent on Facebook and total amount of friends on Facebook manually then an overall mean could have been calculated. This also led to problems when calculating any correlations. As the mean time and friends on Facebook could not be calculated the only piece of information that could be correlated with results of both the self-esteem and loneliness results were the categories participants identified themselves in. This meaning that some participants may have selected the category 'More than 3 hours' spent on Facebook a day but actually spent a lot more of their day on Facebook e.g. 5 or 6 hours. This may have had

an effect on the results of the Spearman Correlation that was run and could explain why there were no relationships found. The same could also be said when looking at the results of amount of Facebook friends participants had and results of loneliness and self-esteem levels. The categories given on the survey to participants were very limited. The highest category participants could select was 'More than 300'. The average amount of Facebook friends in young Americans aged between 18 – 24 years in 2014 was 649 ("Average number of friends of U.S. Facebook users" 2014). The obvious problem here was that 300 friends on Facebook may have been only a small portion of Friends to some participants who took part in this study. Therefore it could not be correctly correlated whether an increase in the amount of Facebook friends had an effect on self-esteem and loneliness levels.

A third limitation of this study once again came from the method in which data was collected. As data was collected via Facebook, the sample was a convenience sample. The survey for this research was posted on a private Facebook page inviting Facebook friends to take part. This meant that most, if not all participants were online friends with the researcher and perhaps one another. This may have had an effect on results as perhaps online friends are more likely to have things in common and live in a similar way. It could also be assumed that most of these participants come from the same area. This may have affected the results and a broader range of participants from different areas may have provided more accurate results.

Strengths

While this study did contain many limitations, there were also some areas of strength. This study was unique in that it was investigating a direct link between Facebook use and self-esteem and loneliness levels, while other studies have had a third variable.

Strength, of this study was shown in the large sample size used. The present study investigated loneliness levels in college students which is lacking research in Ireland.

Conclusion

In conclusion all hypotheses in this study were rejected. Therefore the present study suggests that there is no relationship between 1) Self-esteem levels and the amount of time spent on Facebook 2) that there is no relationship between self-esteem levels and the total amount of friends on Facebook, 3) that there is no relationship between the amount of time spent on Facebook and loneliness levels and finally 4) that there is no relationship between the amount of friends one has on Facebook and loneliness levels. However although the study did not aim to investigate if there was a relationship between self-esteem levels and loneliness levels there was a significant relationship between the two. It would be recommended that future research is done on this area which focuses solely on the relationships between Facebook use and both self-esteem and loneliness levels without factoring for a confounding variable. Another recommendation for future research would be to collect data as such as time spent on Facebook as ratio data.

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Appendix A

RESEARCH INFORMED CONSENT FORM

What are the objectives of the study? To investigate the relationship between (1) Facebook use and Self-esteem levels (2) Facebook use and loneliness levels (3) Amount of friends on Facebook and Self-esteem levels.

Why have I been asked to participate? I would like to gather information from college students aged 18-25years.

What does participation involve? You are being asked to complete 3 questionnaires in total measuring self-esteem levels, loneliness levels and Facebook use. This should take no longer than 20-30 minutes for you to complete. These questionnaires will be completed anonymously.

Right to withdraw: Please be aware that you are free to withdraw from this study at any time even after you have signed the consent form. If you do wish to remove yourself from this study or have any questions regarding this study please contact Ruth.Molloy@student.ncirl.ie.

Are there any benefits from my participation? There is no direct benefit upon completing this study however the results from this study hope to show significant results in self-esteem levels among college students and hope to determine a healthy amount of time to spend on Facebook.

Are there any risks involved in participation? There are no risks associated with participation in this study. However if you have any concerns about self-esteem and loneliness after completing the questionnaires please visit www.SpunOut.ie or contact the researcher.

Confidentiality: All individual information collected as part of the study, will be used solely for experimental purposes. They will be stored safely and will not be publicly displayed or published without prior consent. All results and documentation obtained during this study will be kept in a safe box only accessible by the researcher. These documents will be held here for 5 years in case the study needs to be revised before being destroyed using a paper shredder.

Contact Details

If you have any further questions about the research you can contact:

Researcher: Ruth Molloy – Ruth.Molloy@student.ncirl.ie

- I confirm that I have read and understood the information and rationale for this study.
- I understand that my participation is voluntarily and I have the ability to withdraw from this study at any time.
- I understand that all data collected in this study will be and will remain completely anonymous.
- I am aged 18 or over.
- I agree to participant in this study.

Please Select:

Agree

Disagree

Participants Name: _____

Date: _____

Appendix C

UCLA Loneliness Scale

INSTRUCTIONS: Indicate how often each of the statements below is descriptive of you.

1 = Never 2 = Rarely 3 = Sometimes 4 = Often

- *1. How often do you feel that you are "in tune" with the people around you? – 1, 2, 3, 4
- 2. How often do you feel that you lack companionship? - 1, 2, 3, 4
- 3. How often do you feel that there is no one you can turn to? - 1, 2, 3, 4
- 4. How often do you feel alone? - 1, 2, 3, 4
- *5. How often do you feel part of a group of friends? - 1, 2, 3, 4
- *6. How often do you feel that you have a lot in common with the people around you? 1, 2, 3, 4
- 7. How often do you feel that you are no longer close to anyone? - 1, 2, 3, 4
- 8. How often do you feel that your interests and ideas are not shared by those around you? – 1,2,3,4
- *9. How often do you feel outgoing and friendly? - 1, 2, 3, 4
- *10. How often do you feel close to people? - 1, 2, 3, 4
- 11. How often do you feel left out? – 1, 2, 3, 4
- 12. How often do you feel that your relationships with others are not meaningful? – 1, 2, 3, 4
- 13. How often do you feel that no one really knows you well? - 1, 2, 3, 4
- 14. How often do you feel isolated from others? - 1, 2, 3, 4
- *15. How often do you feel you can find companionship when you want it? – 1, 2, 3, 4
- *16. How often do you feel that there are people who really understand you? – 1, 2, 3, 4
- 17. How often do you feel shy? – 1, 2, 3, 4
- 18. How often do you feel that people are around you but not with you? - 1, 2, 3, 4
- *19. How often do you feel that there are people you can talk to? – 1, 2, 3, 4
- *20. How often do you feel that there are people you can turn to? - 1, 2, 3, 4