Social media use and its connection to gender, self-esteem and anxiety
Foreword

Submitted in partial fulfillment of the requirements of the BSc Psychology degree, Reykjavik University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.
Abstract

Facebook is a way for people to keep tabs on their friends and family while also constructing an image and identity for themselves. One of the main reasons why individuals use Facebook is to get attention and recognition from peers, friends and family. Research has shown that self-esteem decreases considerably during adolescence and that anxiety disorders have in most cases an onset in childhood or adolescence. Therefore, the aim of the study was to look at whether Social Media has an impact on self-esteem and anxiety with adolescents and whether there was any gender difference. Participants in the study were students in the 8th to 10th grade in Iceland in February 2016. The implementation and interpretation of the study was commissioned by ICSRA at Reykjavik University. The results showed that with increased use of social media both genders experienced higher levels of anxiety and lower self-esteem. Results also showed that girls experienced higher levels of anxiety and lower self-esteem than boys and the social media use seems to affect their anxiety and self-esteem more than it does for the boys.

Keywords: self-esteem, anxiety, gender differences, social media, Facebook.

Útdráttur

Self-esteem and anxiety are two separate concepts that work together in the organizational context. Self-esteem is best described as pride or self-respect. Self-esteem has a relationship with life satisfaction, academic success, social relationships and mental and physical health. Self-esteem goes through many changes across the entire lifespan and research suggests that it is high in childhood, decreases considerably during adolescence, increases in adulthood and becomes steadier in middle adulthood and then decays again in old age (Gruenenfelder-Steiger, Harris, & Fend, 2016). Anxiety is a personal feeling of worry, fear or ominousness escorted by a diversity of signs and symptoms, with or without a demanding situation (Gebhart & Schmidt, 2013). Anxiety disorders have in most cases an onset in childhood or adolescence (Wu et al., 2010).

**Social Media**

Social media is defined as “a group of Internet-based applications that build on the ideological and technological foundations of World Wide Web, and allow the creation and exchange of user-generated content”. Without any doubt, social media and user-generated content have become a reality for millions of individuals and corporations (Kaplan, 2014). People use social media to share information about themselves (Picard, 2013).

Instagram is a social networking site, which allows users to share photographs with others. Instagram has approximately 500 million monthly active users who share over 95 million photographs and videos per day. With such a high level of activity, it is important to understand the psychological impact that it can have on people. A research performed by Tobin and Chulpaiboon looked at whether Instagram had a
connection to self-esteem and life satisfaction. In the research, participants were asked to revisit photographs they had previously shared on Instagram. The results showed that participants were overall happy with themselves and the photos and videos they posted (Tobin & Chulpaiboon, 2016).

Facebook is a popular social media application that allows people to keep tabs on their friends and family while also constructing an image and identity for themselves. One of the main reasons why individuals use Facebook is to get attention and recognition from peers, friends and family (Richter, 2013).

How young people present themselves on Facebook is a central element in their identity development (Yang & Brown, 2015). In Sweden’s largest Facebook study Leif Denti found out that women spend more time on Facebook than men do. He also found that individuals that have low education or low income spend more time on Facebook and describe feeling less happy and less satisfied with their lives. Well-being and time spent on Facebook is also significant for women (Denti et al., 2012).

**Social Media and self-esteem**

Facebook is a medium that has radically changed how we conduct our lives, however the effects of this use remain understudied. On a daily basis over 500 million users interact with Facebook but whether it has an impact on well being over time is still unknown. Kross and colleagues tried to figure out if “Facebook has an impact on well-being”, “how people feel moment to moment” and “how satisfied they are with their lives”. They text messaged an experience sampling of young adults five times a day for two weeks. The results showed that the more people used Facebook the worse
the felt and the more they used Facebook over the two week period the less their life satisfaction was. The results also showed that on the surface Facebook seems to fulfil the need for social connection but it does not enhance well-being, it appears to undermine it (Kross et al., 2013).

A research performed by Kalpidou, Costin and Morris investigated how Facebook use and attitudes relate to self-esteem. They examined undergraduate students that completed the Facebook measures “time, number of friends, emotional and social connection to Facebook” and the “Rosenberg Self-Esteem Scale”. The students were split into two groups by age. Results showed that first year students had a better emotional connection and spent more time on Facebook but had fewer friends than the older students. Results also showed that students who spent the most time on Facebook had lower self-esteem. The results suggested that with older age the relationship with Facebook becomes more normal and positive (Kalpidou, Costin, & Morris, 2011).

Social Media and Anxiety

Fleuriet, Cole and Guerrero studied “people’s perceived likelihood of experiencing negative emotion in response to a potentially jealousy-inducing Facebook wall post that was ostensibly sent by a rival”. Participants got a variety of Facebook messages that included a “text only, text plus either an attractive or unattractive photo of the sender, an emoji that had a winking face, words in all capitals or triple exclamation points”. Results showed that the participants reported a greater chance of feeling negative emotion like anxiety if they were high in inattentive attachment and low in indifferent attachment. Results also showed that women were more likely to feel negative interpersonal affect in their responses to the Facebook
posts then men did (Fleuriet, Cole, & Guerrero, 2014). Sheldon performed a study that involved 172 students as participants where he looked at the different reasons behind Facebook use. The results showed that individuals that suffered from anxiety used Facebook to feel less lonely but they had fewer Facebook friends then other participants. Results also indicated that individuals who have relationships in real life are more involved in online communications. The results are not coherent with findings that individuals with anxiety have a greater possibility of forming online relationships (Sheldon, 2008). Another study researched the connection between Facebook, anxiety, time spent on Facebook and the need for approval. The study had 280 participants who all attended a university. Results showed that the more time individuals spent on Facebook the more likely they were to experience anxiety. Their results also led them to believe that the highly anxious individuals might be spending more time on Facebook to get confirmation from others. They also thought that it might increase anxiety to see both negative and positive posts from friends or posts about events happening around them. A factor in increasing anxiety could also be seeing how happy their Facebook friends are compared to themselves (Steers et al., 2016).

**Gender differences in self-esteem**

Many perspectives have been given to explain the gender difference in self-esteem. One explanation is that it is more traditional for men to have a better self-esteem because of their different socialization experiences. Dominance and assertiveness is more encouraged by peers and in schools for men leading to an environment that encourages better self-esteem. Females however experience from the culture that there is more weight on their physical appearance and that can cause
disappointment with appearance and reduction in complete self-evaluations (Kling, Hyde, Showers, & Buswell, 1999).

Facebook seems to be the application that has been researched the most but there are more applications that today make up the concept of social media. The literature reviewed suggests that the use of social media impacts people’s self-esteem and anxiety. The hypotheses of the current study therefore are whether self-esteem decreases with increased use of social media and, in the same way, whether anxiety increases with more use. The study will also look at whether there is any gender difference between these factors.

Method

Participants

This study used data from Icelandic Centre for Social Research and Analysis (ICSRA), Ungt fólk (e. Youth in Iceland) 2016. Participants were students in the 8th to 10th grade in Iceland in February 2016. All students who were in class the day of the survey answered the questionnaire. Total obtained valid responses from 3,478 students in the 8th grade, 3,507 students in the 9th grade and 10th grade in 3,572. In addition there were 130 individuals that did not respond to the question in what grade they were. Total number of participants was 10,557, however, a random sample of 2,021 participants was used. The total response at a national level was 86.0%. Participants in the chosen sample were 2,021 in total and there were 1,041 girls (51.1%) and 980 boys (48.1%) and they ranged from the age 13 to 16.

Instruments and measures

The instrument used in this study was a detailed questionnaire, which was designed for students in the 8th-10th grade. The questionnaire has been in
development since 1998 from year to year by ICSRA. Experts in social science who follow strict requirements so the quality of the results, reliability and integrity are always in the forefront in the questions. The questionnaire for the 8th-10th grade in 2016 includes 88 questions in different sub-themes on 31 pages. The studies Ungt fólk (e. Youth in Iceland) are population studies which means they are not based on conventional samples but they attempt to reach a maximum in the sampling frame within the population. This is done by a questionnaire to all students who are in school, with the aim of minimizing the tolerances of the results. The results of these surveys are therefore very reliable, both in regard to specific regions or different groups. In this study only four questions were used from the questionnaire.

Gender. The first question used was gender and the available answers were either 1 = “male” or 2 = “female”.

Self-esteem. The self-esteem scale consisted of a few questions, the first question was: when I think about what I will look like in the future I am happy, the second question was: I feel that I am unattractive or ugly most of the time, the third question was: I am happy with my body, the fourth question was: I am happy with the physical changes that have occurred with me over the past few years, the fifth and last question on this scale was: I am happy with my life. The available answers were on a 4 point scale and were: describes me very well, describes me pretty well, doesn´t describe me that well and doesn´t describe me at all. The question: I feel that I am unattractive or ugly most of the time was negative while all the other questions on this scale were positive resulting in the variable being recoded. Therefore it was recoded to 1 = 4, 2 = 3, 3 = 2 and 4 = 1. Adding the five questions together the responses ranged on a
nominal scale from 1 – 20. The inner reliability was assessed using Cronbachs Alpha \( \alpha = .827 \)

Anxiety. The anxiety scale consisted of three questions, the first one was: how often last week did you feel anxious, the second one was: how often in the past week did you feel suddenly scared without a reason, the third one was: how often in the past week did you feel wound up. The available answers were on a 4-point scale and were: never, seldom, sometimes and often. Adding the three questions together responses ranged on an nominal scale from 1 – 12. The inner reliability was assessed using Cronbachs Alpha \( \alpha = .808 \). One question was removed from the scale “ I feel strong and healthy” because with that question the Chronbachs Alpha was only \( \alpha = .548 \) and that is not acceptable.

Social media. The last question used was how much time on average do you spend on social media (f.e. Facebook, Instagram, Snapchat and Twitter). The available answers were on a 8 point scale and were: 1= almost no time, 2= half an hour to an hour, 3= about one hour, 4= about two hours, 5= about three hours, 6= about four hours, 7= about five hours and 8= 6 hours or more. This scale was split into two groups where 1 to 4 were put together in a group called: little to none time – 2 hours and 5 to 8 were put together in a group called: 3 hours - 6 hours or more.

Procedure

The data in this document are based on a survey of all students in the 8th to 10th grade in Iceland in February 2016. The implementation and interpretation of the study was commissioned by ICSRA at Reykjavik University. Questionnaires were sent to all the schools in the country where teachers were in charge to submit them
with clear instructions. With each questionnaire an unmarked envelope followed where the participants put the questionnaires when they completed them. Participants were repeatedly told not to write their name nor identification number on the questionnaires so that it would be impossible to trace the answers to them. Moreover, they were kindly requested to answer all questions to the best of their knowledge and ask for help if they needed it. The research is performed at a similar time in all schools. ICSRA delivers the questionnaire to each school in the same week and the schools are all given one week to submit the questionnaire. Parents or guardians received a letter from ICSRA where they were informed about the questionnaires and told they could say no to their child being a participant by either notifying the school or ICSRA.

**Design and data analysis**

This study is a quantitative research and looked at the difference between and within the groups. The dependent variable in this study was social media and the independent variables were anxiety, gender and self-esteem. A Factorial Analysis of Variance (Fanova) was conducted to examine the effects of gender, anxiety and self-esteem on social media. At first the Fanova used to determine whether social media usage had an impact on anxiety and if there was any gender difference. Secondly, Fanova was used to determine whether social media usage had an impact on self-esteem and if there was any gender difference. All pairwise comparisons were run for each simple main effect with reported 95% confidence intervals and \( p \)-values were Bonferroni-adjusted within each simple main effect. Normality was assessed using Kolmogorov and Smirnov and the Levene’s test was used to assess homogeneity of variances.
Those interested in the questionnaire are advised to contact staff of ICSRA to request further explanations. The analytics software SPSS was used to analyse the data.

**Results**

**Descriptive Statistics**

Table one shows us that the highest mean was with boys that have a high self-esteem and spend no more than 2 hours on social media every day and they had the lowest standard deviation (.590). The lowest mean was with girls that spend three to six hours or more on social media every day and have a low self-esteem and they had the highest standard deviation (.763). These results indicate that there was a clear difference between the genders. Social media use appears to have an impact on self-esteem as both genders show a decrease in self-esteem as their social media use increases. It can be assumed that the girls self-esteem is more affected by their social media use.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Social Media</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Little to none time- 2 hours</td>
<td>3.33</td>
<td>.590</td>
<td>656</td>
</tr>
<tr>
<td></td>
<td>3 hours- 6 hours or more</td>
<td>3.24</td>
<td>.661</td>
<td>300</td>
</tr>
<tr>
<td>Girls</td>
<td>Little to none time- 2 hours</td>
<td>3.05</td>
<td>.684</td>
<td>537</td>
</tr>
<tr>
<td></td>
<td>3 hours- 6 hours or more</td>
<td>2.74</td>
<td>.763</td>
<td>491</td>
</tr>
</tbody>
</table>

Table two shows us that girls have the highest mean when it comes to having anxiety and spending three to six hours or more on social media every day. They also had the
highest standard deviation (.957). The lowest mean was with boys that spent little to none time on social media and have low anxiety and they also had the lowest standard deviation (.624). The results in table two indicate similar results as the symptoms of anxiety increased with more social media use. There is also a clear gender difference, as the girls seem to show more anxiety symptoms in both little use and more use of social media.

Table. 2

*Descriptive statistic for Social Media with Anxiety as the dependent variable*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Social Media</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>Little to none time- 2 hours</td>
<td>1.48</td>
<td>.624</td>
<td>658</td>
</tr>
<tr>
<td></td>
<td>3 hours- 6 hours or more</td>
<td>1.59</td>
<td>.748</td>
<td>312</td>
</tr>
<tr>
<td>Girls</td>
<td>Little to none time- 2 hours</td>
<td>1.83</td>
<td>.832</td>
<td>538</td>
</tr>
<tr>
<td></td>
<td>3 hours- 6 hours or more</td>
<td>2.24</td>
<td>.957</td>
<td>496</td>
</tr>
</tbody>
</table>

**Main effects**

Table three shows us that there was a significant difference in “self-esteem” score between boys and girls who spent little to none time on social media $F (1, 1980) = 48.13 \ p < .001$. partial $\eta^2 = .024$. There was also a significant difference with boys and girls who spent 3-6 hours or more on social media $F= (1, 1980) = 104.09 \ p = .001$. partial $\eta^2 = .050$. 
Table. 3

*Main effects for Social Media with self-esteem as a dependent variable*

<table>
<thead>
<tr>
<th>Social Media</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys-Girls - little to none time</td>
<td>1</td>
<td>21.780</td>
<td>48.129</td>
<td>.000</td>
<td>.024</td>
</tr>
<tr>
<td>2 hours</td>
<td>1980</td>
<td>.453</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys-Girls - 3 hours - 6 hours or more</td>
<td>1</td>
<td>47.104</td>
<td>104.09</td>
<td>.000</td>
<td>.050</td>
</tr>
<tr>
<td>3 hours - 6 hours or more</td>
<td>1980</td>
<td>.453</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When looking at table four we can see that there is a different score in “anxiety” between boys and girls who spend little to none time on social media, we can see that it is significant $F (1,2000) = 58.33 \ p < .001$. Partial $\eta^2 = .028$. It is also significant between boys and girls who spend 3-6 hours or more on social media $F (1,2000) = 125.34 \ p < .001$. partial $\eta^2 = .059$.

Table. 4

*Main effects for Social Media with anxiety as a dependent variable*

<table>
<thead>
<tr>
<th>Social Media</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys-Girls - little to none time</td>
<td>1</td>
<td>36.602</td>
<td>58.33</td>
<td>.000</td>
<td>.028</td>
</tr>
<tr>
<td>2 hours</td>
<td>2000</td>
<td>.627</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys-Girls - 3 hours - 6 hours or more</td>
<td>1</td>
<td>78.645</td>
<td>125.341</td>
<td>.000</td>
<td>.059</td>
</tr>
<tr>
<td>3 hours - 6 hours or more</td>
<td>2000</td>
<td>.627</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
There was a significant interaction between gender and social media for the “self-esteem” score $F(1,1980) = 13.51$, $p < .001$. partial $\eta^2 = .007$. There was a significant interaction in “anxiety” score for males and females $F(1,2000) = 182.54$, $p < .001$. partial $\eta^2 = .084$. There was also a significant interaction between gender and social media for the “anxiety” score $F(1,2000) = 15.50$, $p < .001$. This tells us that social media has a different effect on self-esteem depending on gender. The gender difference is also noticeable within anxiety and the same goes for social media and anxiety together.

Assumptions

When it comes to Fanova, there are five assumptions to keep in mind. First, it is said that the data must be normal distributed. When the Kolmogorov-Smirnov exam was examined, the data was different from a normal distribution. For that reason, the assumption was broken.

Secondly, the assumption of homogeneity variances in groups is discussed, and it was examined by Levene's test, which provides for intra-group variability. The assumption of homogeneity was violated as assessed by the Levene’s test for equality of variances. Since the test was significant $p=.001$, this assumption was also broken, therefore the variations in the groups were different.

Thirdly, it is said that the independent variables should be continuous and at an interval or ratio scale, but the variables may be nominal, as long as they are divergent. Otherwise, they should be in series, interval or ratio scale, and this assumption was met.

Fourth, it is said that the metrics must be independent, and that assumption was also met, the survey performed by ICSRA was independent because each student only submitted one questionnaire.
Fifth and last, there is the assumption of randomization in groups. Obviously, groups of sex do not overlap; youths cannot use social media both rarely and often, have high and low self-esteem and anxiety. As a result, the groups did not overlap and this assumption was met.

**Discussion**

The hypotheses of the current study were whether self-esteem decreased with increased use of social media and, in the same way, whether anxiety increased with more use. The study also looked at whether there was any gender difference between these factors. The results of this study supported the hypotheses. The first hypothesis whether self-esteem decreased with increased use of social media was correct and seems to be supported by a research performed by Kalpidou, Costin and Morris. The research showed that the students who spent the most time on Facebook had lower self-esteem (Kalpidou et al., 2011). Also in support of this is a research that Kross and colleagues performed. The research showed that the more people used Facebook the worse they felt and the more they used Facebook over a two week period the less their life satisfaction was (Kross et al., 2013).

The second hypothesis was whether anxiety increased with more social media use and it was supported in this report. The results showed that the more time individuals spent on Facebook the more likely they were to experience anxiety (Steers et al., 2016).

The third hypothesis was whether there was any gender difference between these factors and it was also proven to be correct in this research. A research performed by Fleuriet, Cole and Guerrero supports these findings. The results showed that women were more likely to feel negative interpersonal affect in their responses to the
Facebook posts then men did (Fleuriet et al., 2014). Leif Denti also found that women spend more time on Facebook than men do which could be an explanation as to why the feel worse.

This study had some important strengths that are worth mentioning. The study was performed by ICSRA and is implemented into all elementary and high schools in Iceland. The scales in the questionnaire have been tested many times, which is a good indicator for high internal validity. The data used was a sampling from the entire population of the research. The participants in the selected sample were 1984 and the total response at a national level was 86.0%. Which means that the research can be applied on to the population and has a high external validity. Gender was equally distributed and because this study looked at gender difference this was very important. The high ratio of school kids that participated in this research and the equally distributed genders are the two biggest reasons this research was significant. The research conditions were good; the questionnaires were all submitted in the same week and the teachers that submitted the questionnaires had strict directions how to submit. Finally the participants had anonymity in hopes that they could be completely truthful in their answers.

This study was not without some limitations. Firstly, all the information in the research was gathered by using a self-reported questionnaire. That can lead to bias in the results and also affect how truthful participants were when they answered the questionnaire. The social media question was removed from the high school questionnaire and if the question had been in the high school questionnaire we could have truly seen the impact social media has on adolescence. If the question would have been in the high school questionnaire it could have been interesting to look at the difference between elementary and high school students. The social media scale was
created by ICSRA and it might be limited because it is very hard for a person to observe how much time was actually spent on each medium. There is a lack of similar researches and most of the researches found for this study involved Facebook and not Instagram, Snapchat and Twitter, which are mediums adolescents, use more than Facebook. But these are relatively where as Facebook is not. All information was gathered by using a self-reported questionnaire, which can lead to bias in the results and also affect how truthful participants were when they answered the questionnaire.

In conclusion the results indicate that boys spend less time on social media than girls do and girls seem to be more vulnerable to the effects of social media. The data showed us that there was a difference in self-esteem when it comes to gender, girls showed a lower self-esteem than the boys did. A lot of adolescence, if not everybody, has one or more of social media apps on their phone that includes Facebook, Instagram, Snapchat or Twitter and these apps send notifications when something happens making it hard to determine how much time you actually spend looking at your phone. Not to talk about the stimuli that are on these adolescents on a day to day basis so there is no wonder it can impact the anxiety levels. When posting a photo on social media the likes and comments are very important and therefore not receiving them could impact the self-esteem and it could have a negative impact on anxiety. For that reason it could be very important for parents or the adolescents to try to manage the time spent on social media. When searching for articles to use in these report the author hit a wall, Facebook is a highly researched medium but because Instagram, Snapchat and Twitter are relatively new to the world they have not been researched to the extent Facebook has. So the impact of these mediums is highly understudied which means future researches could look at the effect these new social media apps have on people.
References


