Much more to it: The relation between Facebook usage and self-esteem

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Abstract—The aim of this study was to examine closer the conflicting results from previous studies concerning the relationship between Facebook use and self-esteem using the Facebook Intensity Scale and Rosenberg’s Self-Esteem Scale (N = 107). In line with some previous studies, our data confirmed that there is a relationship between Facebook usage and self-esteem, but the applied scales allowed a more refined assessment of it. The results showed, after controlling for demographic variables, that participants with low Facebook intensity reported on average higher self-esteem than those who did not use Facebook or those with high Facebook intensity, while those with medium Facebook intensity had significantly higher self-esteem compared to the participants with high Facebook intensity. Future studies should address the underlying causal relations using a time-bound observation method.

I. INTRODUCTION

A large body of research has examined the relationship between the consumption of established media (e.g., television, newspaper, magazine content) and mental well-being [1], [2]. The findings have been mixed and show that the content in these media as well as the level of usage are positively or negatively related to individuals’ self-esteem, which Rosenberg has broadly defined as “a favorable or unfavorable attitude toward the self” [3, p. 15].

The emergence of social networking sites, described as media that offer both “many-to-many” communication and social interaction [4], are generating an array of questions related to a novel type of media usage. A frequently repeating concern is how the usage of social networking sites like Facebook interacts with self-esteem. Although this issue has been raised in the literature, findings concerning the relationship between Facebook usage and self-esteem are mixed. Some researchers have found hints that using Facebook is related to self-esteem [5], [6], while others have not found any links between Facebook usage and self-esteem [7], [8]. A potential explanation for the conflicting results could be methodological, i.e. how self-esteem and Facebook usage are defined and being measured. Studies finding inconclusive links between Facebook usage and self-esteem employ scales that focus merely on frequency and duration online on Facebook, leaving dimensions such as emotions to and daily routines of Facebook without consideration. To address this deficit, we infer that applying a refined scale for measuring the intensity of using Facebook may yield more accurate results. An increasingly prominent scale that aims to expand how Facebook usage is measured is the Facebook Intensity Scale [5]. It is based on items measuring frequency, emotional connectedness to the site and its integration into individuals’ daily routines of the social network.

Thus, the question of interest is in what way do various levels of intensity in using Facebook interact with self-esteem? From this point of departure, we addressed this question by applying the Facebook Intensity Scale to measure different levels of Facebook usage and Rosenberg’s Self-Esteem Scale to measure self-esteem. This approach allowed us to include more important dimensions of Facebook usage than mere frequency. The section that follows looks at certain theoretical aspects of self-esteem and factors that are known to influence the level of self-esteem in individuals, such as age, gender, and emotions among others. The second section aims to present findings concerning the relationship between Facebook usage and self-esteem. The third and fourth sections describe the methodology employed and the subsequent results, respectively. The final section provides a discussion of the findings, their implications to practice, limitations of the current study and suggestions for future directions.

II. PSYCHOLOGICAL WELL-BEING AND SELF-ESTEEM

The human being has a fundamental need to feel affinity and to be socially connected to others. This need is characterized by a motivation to develop and maintain interpersonal relationships [9]. The ability to form and establish long-term social relationships has been associated with positive emotions, while threats to relationships have strong tendencies to create negative emotions [10]. Reactions to emotionally polarized events are connected with self-assessment of self-esteem, which is broadly defined as “a favorable or unfavorable attitude toward the self” [3, p. 15]. This definition has later expanded to a three-component system consisting of “first, a cognitive element; self-esteem means characterizing some parts of the self in descriptive terms: power, confidence, and agency. It corresponds to asking what kind of person one is. Second, there is an affective element, a valence or degree of positiveness or negativeness attached to those facets identified; we refer to these as high respective low self-esteem. Third, and related to the second, there is an evaluative element, an
Self-esteem is known to be under the influence of multiple factors, for instance self-assessed emotions concerning being proud or happy vis-à-vis feeling humiliated or ashamed of a behavior. The former has a direct positive influence on self-esteem, while the latter leads to a negative outcome on self-esteem [12], [13]. In addition, age and gender differences have been linked to self-esteem. Concerning age, self-esteem is lower among children and increase during adolescence (10-19 years) up to young adult-hood (22-29 years). Thereafter, self-esteem decreases in middle age (40-60 years) and continue to decline again during the life stage independent elder, 60 years onward [14]. Another study showed that self-esteem increases from 25 to 60 years only to decrease thereafter [15]. Regarding gender, findings show that men by and large have higher self-esteem than women [13]. However, this depends on different domains, for example men demonstrate higher self-esteem in the domain of physical ability while women in the area of social behavior and moral self-perception [12].

A growing body of research shows that self-esteem has been particularly prone to decrease after engaging in behavior (e.g., social comparison) that could result in being socially rejected or disliked by others [7]. In fact, it does not require a real-life situation to experience social rejection in order for self-esteem to be negatively influenced. For instance, it suffices to imagine being socially rejected in order for self-esteem to be negatively impacted. One explanation behind this is described by the sociometer theory, defined as a psychological function that “(1) monitors the social environment for cues indicating disapproval, rejection, or exclusion and (2) alerts the individual via negative affective reactions when such cues are detected” [16, p. 129]. According to the theory, self-esteem is closely linked to social relationships and perceived social value, i.e., to which degree a person value his or her relationship with others and how this affects daily life. If a person is considered to have relational value, then they are more likely to have higher self-esteem [17], [18].

Social relations and acceptance have a profound influence on people’s overall perception of themselves and their overall well-being. Research demonstrates that using computer-mediated technologies to communicate and socially interact with peers increases perceived social support and thereby boosting self-esteem [19], [20]. In the beginning of the 21st century social networks such as Facebook have emerged, allowing people to socially communicate with each other through digital means. What does this imply for individuals psychological well-being? In the following section, we will examine the relationship between Facebook usage and self-esteem.

III. RELATIONSHIP BETWEEN FACEBOOK AND SELF-ESTEEM

Currently the largest social networking site is Facebook with 727 million daily active users and 1.19 billion monthly active users [21]. The amount of time spent on Facebook varies and ranging from 10-30 minutes per day to 90 minutes and 60-120 minutes per day. Studies have showed that one of the primary uses of Facebook is to keep in touch with old friends and make new ones [22], [23]. Other researchers found results indicating that Facebook is used for self-promotion and to impress others. For instance, one study surveyed about 500 college students and 93 adults to analyze their personality traits in relation to their Facebook usage [24]. The results showed that people who post constant statuses on Facebook score high on measures of exhibitionism. While some researchers have argued that this is an indication of a narcissistic behavior [25], [26], others have found no association between frequency of Facebook use, whether it was for personal status updates or to connect with friends, and narcissism [27].

Past findings suggest that Facebook can be beneficial for those with low self-esteem [5]. The social networking site facilitates communication and social interaction, which can help those with low self-esteem to overcome social barriers. For instance, Facebook offers a “Like”-functionality that is used to indicate whether peers are positive to the information being shared (e.g., status updates, photos, etc.), thereby acting as a feedback system for social acceptance. Consequently, this will provide benefits in terms of a strengthened social capital that could in turn lead to a rise in self-esteem.

However, not only those with low self-esteem can benefit from using Facebook but this also applies to those with high self-esteem. One study examined two competing hypotheses, the social enhancement hypothesis (i.e., rich get richer) versus the social compensation hypothesis (i.e., poor get richer). While the former proposes that those who are popular offline could enhance their popularity through Facebook, the latter suggest that those with inadequate offline popularity pursue to compensate for it by becoming popular on Facebook. The findings support both hypotheses and revealed that those who are sociable (extrverted) and with higher self-esteem are more popular both offline and on Facebook, while those who are less sociable (introverted), have lower self-esteem and are less popular offline compensate by seeking to become popular on Facebook [28]. These results are in line with the protection-enhancement hypothesis which states that high self-esteem users want to enhance their self-esteem, while low self-esteem individuals want to protect their self-esteem [29]. In other words, those with high self-esteem would utilize Facebook in order to achieve higher social status and those with low self-esteem would use it to repair deficiencies in order to be socially acceptable on the social networking site.

Aside from personality traits playing a role in regulating self-esteem, researchers suggest that the form of communication, whether it is face-to-face or through a computer, is an important part of modulating self-esteem. Gonzales and Hancock applied the Hyperpersonal Model to test the effects of Facebook exposure on self-esteem. The model suggests that computer-mediated communication "is more socially desirable than we tend to experience in parallel FtF [face-to-face] interaction" [30, p. 17] because the sender can employ an "optimized self-presentation" [30, p. 19], which refers to a greater ability to strategically develop and edit one’s self-presentation to others. The results demonstrated that participants who viewed and updated their profile on Facebook reported greater self-esteem, suggesting that a selective digital self-presentation could enhance it. While these findings reflect explicit self-esteem (i.e., what we say about ourselves), they also hold true for implicit self-esteem, which is immune to response bias (i.e.,
automatic responses such as how we associate words that have favorable or unfavorable connotations with ourselves) [31].

In contrast, Denti et al. examined the psychological effect of using Facebook on well-being and self-esteem. They measured Facebook usage by mere frequency (i.e., “Roughly how many minutes do you spend on Facebook a normal day?”) and asked a sample of 1011 participants to complete eight items about habitual Facebook usage (e.g., “I often begin logging in to Facebook before I realize I do it”) that were adapted from the Self-Report Habit Index [32]. Their results suggest that a larger proportion of women who spend more time on Facebook are, compared to men, less happy and satisfied with their lives. According to the authors, Facebook usage had a negative relationship with self-esteem, which indicated that participants who spent more time on Facebook tended to have lower self-esteem. However, after entering control variables such as age, gender, education, and income the relationship between Facebook usage and self-esteem was not significant [7]. This is in conflict with the results of other studies that in essence suggest the opposite [6], [5].

IV. AIM AND RESEARCH QUESTIONS

The aim of this study is to consolidate the ambiguity of the previous studies. Because of the mixed evidence, we infer that the measurements being used and the applied methodology may have been insufficient. Therefore, we aim to expand the scope of past studies by applying standardized measurements that have showed high reliability and validity elsewhere. Based on the literature review and previous studies, we elaborate further the following research questions:

- RQ1: Is there a correlation between Facebook usage and self-esteem?
- RQ2: How does self-esteem vary in relation to different levels of Facebook usage?

V. METHODS

To obtain answers to the aforementioned research questions, we asked participants to complete a survey consisting of three parts: a section about demographic variables (age, gender, education, and whether they had a Facebook account), the Facebook Intensity Scale to measure different levels of Facebook usage and Rosenberg’s Self-Esteem Scale to measure self-esteem. In addition, we used a control group consisting of users that never had a Facebook account, a condition ignored by other studies known to us.

A. Participants

Based on a convenience sampling, we invited 255 participants using e-mail to complete a web-based survey. The background of the participants were university students and seniors. A total of 107 participants completed anonymously the web-based survey on an ex gratia basis, resulting in a 42 per cent response rate. Before conducting statistical analyses to address the research questions, a total of six outliers were identified and were excluded from further processing. Remaining participants consisted of 28 men and 73 women, aged between 20 and 66 years ($M = 38.50; SD = 11.79$), and differed in highest education level: 3% completed elementary school ($n = 3$), 26.7% completed upper secondary school ($n = 27$), and 70.3% completed university or college ($n = 71$). In addition, 75 participants reported having a Facebook account opposed to 26 who disclosed not having one.

B. Materials

Through self-reported measures, we assessed demographic information (age, gender, education, and whether they had a Facebook account), Facebook usage and self-esteem. Facebook measures consisted of the Facebook Intensity Scale adapted from Ellison et al. The scale measures time spent on Facebook (1 = “less than 10 minutes,” 2 = “10-30 minutes,” 3 = “31-60 minutes,” 4 = “1-2 hours,” 5 = “2-3 hours,” 6 = “more than 3 hours”), number of Facebook friends (1 = “10 or fewer,” 2 = “11-50,” 3 = “51-100”, 4 = “101-500,” 5 = “151-200,” 6 = “201-250,” 7 = “251-300,” 8 = “301-400,” 9 = “more than 400”), and includes six statements that measure participants’ emotional connectedness to the site (e.g., “I would be sorry if Facebook shut down”), and its integration into individuals’ daily routines (e.g., “Facebook is part of my everyday activity”). Participants rated the statements on a 5-point Likert-type scale (1 = “strongly disagree,” 5 = “strongly agree”). Following the recommendations by Ellison et al., we standardized the first two items before averaging the scores to create a Facebook Intensity score. In the current study, the scale had excellent internal consistency with Cronbach’s Alpha being .95 [33].

Rosenberg’s Self-Esteem Scale was used to measure self-esteem. The scale consists of 10 items (e.g., “I feel that I am a person of worth, at least on an equal plane with others”) and statements were rated using a 5-point scale (1 = “strongly disagree,” 5 = “strongly agree”). Five items were reversed to indicate that higher scores reflected higher self-esteem (e.g., “I certainly feel useless at times”). The scale has showed both high reliability and validity [34], [35], ranging from .82 to .88. Cronbach’s Alpha in this study was .70, indicating good internal consistency.

C. Procedure

The survey was distributed by providing a link in an e-mail to the participants. Upon opening the link, participants were briefed with introductory information such as the purpose of the survey. Thereafter, participants answered the demographics items and continued to report whether they had a Facebook account. Those who indicated having a Facebook account were forwarded to complete the Facebook Intensity Scale and Rosenberg’s Self-Esteem Scale, while those who reported not having a Facebook account were inquired to only complete Rosenberg’s Self-Esteem Scale. By implementing control mechanisms in the web-based survey, no questions were left unanswered for each entry. Once completed, participants were thanked for their commitment. Thereafter, data was imported into Statistical Product and Service Solutions (SPSS) for statistical processing and analysis.

VI. RESULTS

A. Demographics

Descriptive analyses revealed, for those who used Facebook, that the average user reported having 151–200 Facebook
friends and spent 31-60 minutes every day on Facebook. A one-way analysis of variance (ANOVA) was applied to investigate potential age, gender and education differences on self-esteem. There was a tendency to significance between genders, $F(1, 99) = 3.41; p = .068, \eta^2_p = .03$, where men ($M = 4.25; SD = .57$) reported higher self-esteem than women ($M = 3.95; SD = .77$). After grouping participants into three age groups (1 = “31 years and younger;” 2 = “32-45 years;” 3 = “46 years and older”), the results revealed a significant difference between them, $F(2, 98) = 5.06; p < .01, \eta^2_p = .09$. A Bonferroni post-hoc revealed that those in the third age group ($M = 4.31; SD = .55$) had higher self-esteem than those in the first age group ($M = 3.77; SD = .79$). There was no significant difference between the second age group ($M = 4.08; SD = .71$) and the other groups. No significant differences were found for education. Subsequent results are organized in relation to the research questions.

B. Research question 1

We wanted to find out whether there was a correlation between Facebook usage (time spent on Facebook, number of Facebook friends, emotional connection and daily integration to the site) and self-esteem. The data revealed that self-esteem had a negative relationship with every component of the Facebook Intensity Scale. Time spent on Facebook, $r(75) = -.34, p < .01$, and the number of Facebook friends, $r(75) = -.22, p = .06$, had a negative correlation with self-esteem, indicating that using Facebook and the number of friends is related with lower self-esteem. Other aspects such as Facebook being part of everyday activity, $r(75) = -.38, p < .01$, feeling proud to tell people about being on Facebook, $r(75) = -.31, p < .01$, Facebook being part of a daily routine, $r(75) = -.42, p < .01$, feeling out of touch when not logged into Facebook, $r(75) = -.47, p < .01$, feeling a belongingness to the Facebook community, $r(75) = -.06, p = .59$, and being sad if Facebook shut down, $r(75) = -.37, p < .01$, were all negatively correlated to self-esteem.

C. Research question 2

We also set to find out how self-esteem vary in relation to different levels of Facebook usage. To measure the effect of Facebook intensity on self-esteem participants were divided into four groups (1 = “No Facebook account,” 2 = “Low Facebook Intensity;” 3 = “Medium Facebook Intensity;” 4 = “High Facebook Intensity”) based on the mean value of the Facebook Intensity Scale. After controlling for age, gender, and education, analyses of variance showed a significant difference between the groups on self-esteem, $F(3, 94) = 5.11, p < .01, \eta^2_p = .14$.

A post-hoc Tukey test revealed a curvilinear function such that the group with low Facebook intensity ($M = 4.37; SE = .13$) had significantly higher self-esteem than the group without a Facebook account ($M = 3.98; SE = .13$) and the group with high Facebook intensity ($M = 3.61; SE = .15$). In addition, the group with medium Facebook intensity ($M = 4.13; SE = .13$) had significantly higher self-esteem compared to the group with high Facebook intensity ($M = 3.61; SE = .15$). None of the other group differences yielded significant results.

VII. Discussion and conclusions

The aim of the current study was to assess the relationship between Facebook intensity and self-esteem, beyond the more or less confusing picture created by previous studies. A motivation to our work was that some researchers have demonstrated that using Facebook is strongly associated with self-esteem and might contribute with benefits for users with low self-esteem, while others have found no significant links between Facebook usage and self-esteem. We reasoned that one explanation behind the mixed results could be how Facebook and self-esteem are defined and being measured. Unlike previous researchers, we applied the Facebook Intensity Scale to capture important dimensions, such as emotional connectedness to the site and its integration into individuals’ daily routines, that allowed a more refined assessment of it.

Another potential explanation is the way how Facebook is used and what social capital it can generate for the user. Earlier studies have given hints of this where it has showed that the primary use of Facebook is to keep in touch with old friends and make new ones, which could motivate those who do not use Facebook to join the social network in order to increase their social capital and consequently their self-esteem [22], [23]. For instance, as Facebook intensity elevates, the number of activities on Facebook increases, such as comparing yourself with others, which in turn could lead to an increased risk of being rated. There are also findings suggesting that comparing yourself with others on Facebook could lead to lower self-esteem. Consequently, we used a web-based survey consisting of demographic measurements, the Facebook Intensity Scale and Rosenberg’s Self-Esteem Scale. We wanted to know whether there was a correlation between Facebook usage and self-esteem as well as how self-esteem vary in relation to different levels of Facebook usage.

With regards to the first research question, if there is a correlation between Facebook usage and self-esteem, our data revealed a negative relationship between Facebook usage and self-esteem. More specifically, both time spent on Facebook and the number of Facebook friends correlated negatively with self-esteem, suggesting that extensive use of the social networking site and having many friends are related to lower self-esteem, although it is not determined in what manner.

Concerning our second research question, how self-esteem vary in relationship to different levels of Facebook usage, the results revealed a curvilinear relationship which emanated in comparison between groups that had different Facebook intensity. Our data shows that participants with low Facebook intensity reported on average higher self-esteem than those who did not use Facebook or those with high Facebook intensity, while those with medium Facebook intensity had significantly higher self-esteem compared to the participants with high Facebook intensity. One explanation behind this could be that as participants with low or medium Facebook intensity start to generate social capital, their self-esteem start to elevate. However, when Facebook intensity increases so do activities such as social comparison that could lead to rejections and consequently to a decrease in self-esteem.

Further analyses demonstrated a tendency to significance between the genders in self-esteem. Men reported higher self-esteem than women, which gives support for past studies [13].
Similarly, age differences were found and indicated that those who were 46 years and older had significantly higher self-esteem than those being 31 years and younger. Confirming past research regarding age and self-esteem, our data indicates that self-esteem is lower in the age of 25 in order to increase up to the age of 60 years [15]. In addition, both the number of friends and time spent on Facebook correlated negatively with self-esteem. Participants in the current study indicated using Facebook for 31-60 minutes every day, which is higher than the 10-30 minutes reported by Ellison et al. but consistent with more recent studies [36], [37].

However, our results should be interpreted with a degree of caution because of certain limitations in the study. First and foremost, we used a survey as an explicit measurement of self-esteem that is not immune to response bias, i.e. participants answer questions in the way they think the questioner wants them to answer. Future research should utilize an implicit measure to counter any social desirability effects that may arise. Second, the sample size in the different groups that were used to compare levels of Facebook intensity and self-esteem was small. Future studies are recommended to aim for larger samples in order to strengthen the reliability of the statistical analyses. Third, the current study had a skewed gender distribution where women were overrepresented, which could have influenced the results. Fourth and finally, other factors such as a low educated sample, income level, ethnic group, rural versus urban sample might have yielded different results. Despite these shortcomings, the satisfactory effect size we found for the main results provides support for our interpretations.

In addition, the results provide new insights on the complex relationship between Facebook usage and self-esteem. The curvilinear relationship between between self-esteem and the different levels of Facebook intensity suggests that there may be more complex underlying factors beyond our present data, and therefore implies further studies. Obviously, self-esteem is a complex emotional evaluation of an individual’s own worth that is influenced by a number of social elements and functions, such as acceptance among friends, parenting, early life experiences, sense of being loved, etc.

The data does not, however, give any indication on whether it is participants initial low self-esteem that makes them use Facebook so intensely or whether their high reliance on Facebook has a lowering effect on their self-esteem. It will be important to clarify the direction of this causality, because the implications of the alternative directions are different. While the former could guide the way of future design of social networking services, the latter might provide insights about the potential negative effects of intensive Facebook use on self-esteem and call for recommendations concerning their usage. Future studies should seek for a time-based observation method to unveil potential causality effects. In addition, data should be collected in everyday settings to strengthen the ecological validity of the inferences and to understand more profoundly why as well as how Facebook use relates to self-esteem.

REFERENCES


