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Facebook and people's state self-esteem: The impact of the number of other users' Facebook friends

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ABSTRACT

The present two experimental studies examined the extent to which upward and downward comparison processes on Facebook influence people's state self-esteem. Participants were exposed to mock-up Facebook profiles of female and male targets with many or few Facebook friends. Participant sex was also included in the experimental design. In Study 1, a 2 (number of Facebook friends) × 2 (profile owner sex) × 2 (participant sex) experimental design was employed. Unexpectedly, the manipulation had no significant impact on people's state self-esteem. In Study 2, it was examined whether there would be a curvilinear relationship between the number of other's Facebook friends and participant's self-esteem, in that exposure to others with many or few Facebook friends increases self-esteem compared to others with a moderate number of Facebook friends. Hence, Study 2 employed a 3 (number of Facebook friends) × 2 (profile owner sex) × 2 (participant sex) between-participants experimental design. However, there was neither a linear nor a curvilinear impact of the number of other's Facebook friends on participant's level of state self-esteem. Both studies also revealed that the effects were not more pronounced when participants were exposed to same-sex rather than other-sex Facebook profiles.

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1. Introduction

The use of social networking services has become an important part in most people's daily lives. A nationally representative survey of U.S. adults shows that as of January 2014, 74% of online adults use social networking sites (PewResearchCenter, 2015). The world's most popular online social network is Facebook, with about 936 million daily active users on average (Facebook, 2015). The main motivation to use Facebook is to facilitate social relationships, such as forming new relationships and maintaining existing friendship networks (Cheung, Chiu, & Lee, 2011; Muscanell & Guadagno, 2012). Facebook users can add friends to their profile by initiating requests for friendship to other registered users. If the other user accepts the invitation, their friendship is displayed in the network of friends. Social networks communication may thus satisfy but also thwart the powerful need to belong (Baumeister & Leary, 1995). In fact, whereas the acceptance of a Facebook friendship request makes people proud (Lewis & West, 2009), rejection is associated with emotional numbness (Filipkowski & Smyth, 2012) and being unfriended on Facebook leads to rumination and negative emotions (Bevan, Pfyl, & Barclay, 2012). Overall, there is a positive association between the number of people's Facebook friends and subjective well-being (Kim & Lee, 2011).

Hence, it appears that one's own Facebook friends may have an impact on people's emotional well-being. The present research addresses whether people are also influenced by other user's Facebook friends. Concretely, it was examined whether the number of other's Facebook friends would affect people's state self-esteem. It was proposed that participants exposed to profile owners with many Facebook friends would have a lower state self-esteem than participants exposed to profile owners with few Facebook friends. To the best of my knowledge, this hypothesis has never been empirically tested, although it receives indirect support from past research.

2. Literature review

According to social comparison theory (Festinger, 1954), individuals have an intrinsic tendency to compare themselves to others to learn where they stand and that these comparisons can have an impact on the individual's subjective well-being. In fact, social comparisons are a crucial determinant how people judge themselves (e.g., Wayment & Taylor, 1995). Depending on whether

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people compare themselves with others who are better off (upward comparison) or worse off (downward comparison), these comparisons make oneself feel good or bad (Gibbons & Gerrard, 1989; Wills, 1981). For example, one study revealed that people who are in the presence of socially undesirable others report higher self-esteem, whereas when in the presence of socially desirable others self-esteem decreases (Morse & Gergen, 1970). Likewise, comparing oneself to others who are inadequate compared to oneself raises self-esteem (Crocker, 1993), whereas other's superiority lowers self-esteem (Major, Sciacchitano, & Crocker, 1993).

Hence, it was reasoned that exposure to Facebook profile owners that are better off than oneself would have a negative impact on one's self-worth compared to exposure to Facebook profile owners that are worse off than oneself. Previous research has shown that the number of Facebook friends has consequences how the profile owner is perceived by others. For example, one study employed mock-up Facebook profiles and varied the number of the profile owner's friends (Kleck, Reese, Behnken, & Sundar, 2007). Results showed that profile owners with many friends (261) were perceived as being more popular than profile owners with few friends (15 or 82). Subsequent research replicated this finding, in that a profile owner was perceived as more popular when she had 382 friends than when she had 82 friends (Utz, 2010). Overall, it appears that profile owners with many Facebook friends are perceived more favorably than profile owners with few Facebook friends. That is, exposure to Facebook profile owners with many friends would constitute an upward comparison, whereas exposure to Facebook profile owners with few friends would constitute a downward comparison. Hence, it was reasoned that exposure to profile owners with many Facebook friends would decrease participant's self-esteem compared to exposure to profile owners with few Facebook friends (cf. Gibbons & Gerrard, 1989; Morse & Gergen, 1970; Wills, 1981).

Research on social comparison has shown that individuals are particularly likely to compare themselves with others who are similar to them (Wood, 1989) and who are viewed as relevant to the self (Lockwood & Kunda, 1997). Hence, it was further examined whether exposure to same-sex Facebook profiles would have a larger impact on participant's state-self-esteem than other-sex profiles.

3. Study 1

Study 1 provides a first test of the idea that the number of other user's Facebook friends influences people's state-self-esteem. Participants were randomly exposed to either profile owners with many Facebook friends or profile owners with few Facebook friends. Because it was also addressed whether exposure to same-sex Facebook profiles would have a larger impact on participant's state-self-esteem than other-sex profiles, participants were either exposed to same-sex or other-sex Facebook profiles.

3.1. Method

Participants were 509 students of an Austrian university (354 female participants, 151 male participants, four participants did not indicate their gender; mean age = 23.0, $SD = 4.5$). Only individuals who had a Facebook account were allowed to participate. All participants were randomly assigned to one of four experimental conditions. One-hundred and twenty-five participants were exposed to female profile owners with many Facebook friends, 119 participants were exposed to male profile owners with many Facebook friends, 136 participants were exposed to female profile owners with few Facebook friends, and 129 participants were exposed to male profile owners with few Facebook friends. Because

participant sex was also included in the experimental design, a 2 (number of Facebook friends: many vs. few) × 2 (profile owner sex) × 2 (participant sex) experimental design was employed. At the onset, participants learned that they would take part in two unrelated studies. All participants responded to an online questionnaire.

After participants provided their demographic data (i.e., sex, age), they were asked to report their number of Facebook friends ($M = 266$, range = 0–900). Then, they were exposed to 3 mock-up Facebook profiles. (Participants were exposed to more than one profile to strengthen the experimental manipulation.) Among other information (e.g., photo of profile owner,[1] favorite music), the profiles contained information about the number of Facebook friends. In the condition many Facebook friends, the targets had 753, 623, and 545 friends. In the condition few Facebook friends, the targets had 42, 38, and 29 friends. Previous work (Sagioglou & Greitemeyer, 2014) employing a similar participants' pool revealed that participants had on average 352 friends, so we added to and reduced from, respectively, this number several hundred friends to create the many and few number of Facebook friends experimental conditions. Apart from the number of friends, the profiles were identical across experimental conditions. Participants were either exposed to 3 female or 3 male profiles. Among other items, participants were asked how attractive and how popular, respectively, they perceive each profile owner. Both items were assessed on a scale from 1 (very unattractive and very unpopular, respectively) to 5 (very attractive and very popular, respectively). These items were then averaged into a perceived popularity scale ($\alpha = .66$).

To assess participant's state self-esteem, participants filled out a well-established 20-item scale (Heatherton & Polivy, 1991) ($\alpha = .90$). Sample item: "I feel inferior to others at this moment" (recoded). Items were averaged using the mean. (Measures of positive and negative mood and some filler items were also employed; however, there were no significant effects for these measures so they are not considered further). As a manipulation check, participants were asked to indicate how many Facebook friends the profile owners had on average. The scale for all items was from 1 (not at all) to 5 extremely). Afterwards, participants were asked what they thought this study was examining. None of the participants noted the correct assumption about the purpose of the study, although some were relatively close (e.g., effect of Facebook profiles on self-ratings). When those participants were excluded, the pattern of findings was very similar so they were kept in all of the following analyses. The same applies to Study 2. After the study was over, all participants were thanked and thoroughly debriefed.

3.2. Results

The manipulation check was successful in that profile owners with many Facebook friends were perceived as having more friends ($M = 4.55$, $SD = 0.69$) than profile owners with few Facebook friends ($M = 1.61$, $SD = 0.85$), $t(505) = 42.54$, $p < .001$, $d = 3.80$. State self-esteem ratings were subjected to a 2 (number of Facebook friends: many vs. few) × 2 (profile owner sex) × 2 (participant sex) analysis of variance (ANOVA). Participant's state self-esteem tended to be lower after they were exposed to a profile owner with many ($M = 3.77$, $SD = 0.59$) compared to few Facebook friends ($M = 3.86$, $SD = 0.57$), $F(1, 496) = 3.76$, $p = .053$, although the effect size was small, $\eta_p^2 = 0.01$. None of the interactions were significant (see

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[1] To rule out the possibility that other cues such as the physical attractiveness of the profile owners or their Facebook friends overrule the "friend number cue", the photos were distorted.