More Than Friends: Popularity on Facebook and its Role in Impression Formation*

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Social networking sites such as Facebook are becoming increasingly popular and important but it remains unclear which aspects of profiles convey information used to form impressions. This study expands on research investigating the role of popularity online and its impact on perceptions of targets’ personality and appearance. Facebook profile owners’ popularity was manipulated via number of friends and photos, and type of wall activity. Participants were 102 undergraduates who viewed 4 Facebook profiles (a popular and unpopular male and female) and judged the individuals represented by each. Popular targets were perceived to be more socially and physically attractive, extroverted and approachable than unpopular targets. Findings mirror offline effects and provide clues as to how profiles are examined and information extracted.

Key words: Facebook, popularity, impression formation, social attractiveness, physical attractiveness, computer-mediated communication, social networking.

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The past decade has seen an explosion in the use and popularity of social networking sites (SNSs). Naturally, researchers have become increasingly interested in how individuals represent themselves online, how these personas are perceived by others, and how this influences both on- and offline behavior. A literature is thus emerging focused on investigating which aspects of online personas are used to form impressions of others (Walther & Parks, 2002). Of particular interest has been which personality traits are most salient in online personas and how perceptions of these influence the overall impression formed of a target individual. This study seeks to expand existing knowledge by manipulating popularity on Facebook profiles and measuring profile owners’ perceived personality.

Facebook is the medium chosen for the present investigation as it is the world’s largest SNS with over 800 million users. It is consistently the second most visited site after Google in both the US and UK, even moving to number one on certain days in the past 2 years (Arthur, 2010; Kiss, 2011). Although used primarily to keep in touch with existing acquaintances (Ellison, Steinfield, & Lampe, 2007) users often meet new friends via the site, initiating relationships based on judgments made after exposure to individuals’ online personas (Donath & Boyd, 2004). Around 15% of Facebook networks are comprised of people who have never met in person (Stefanone, Lackaff, & Rosen, 2011).

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Facebook is also playing an increasingly important role in real-world affairs. Activity on the site, such as the viewing and updating of one’s own profile, has been associated with increased levels of self-esteem (Gonzales & Hancock, 2011), and its use has also proven beneficial for students connecting with academic peers (Kalpidou, Costin, & Morris, 2011). Additionally, almost 40% of employers use Facebook to gain information on job candidates and information disclosed on-line has been shown to influence both the likelihood of an applicant being offered an interview, and their potential starting salary (Bohnert & Ross, 2010). Given the site’s widespread popularity and use, Facebook seems to be the ideal medium through which we can continue to assess the representation and perception of personality online.

On- and Offline Impression Formation

When making initial offline judgments of individuals we tend to construct our impressions around certain key, salient features. This was perhaps most famously demonstrated in the ‘what is beautiful is good’ literature (Dion, Berscheid, & Walster, 1972) which showed physically attractive individuals to be universally rated higher on dimensions of social competence and interpersonal ease than unattractive ones (Bassili, 1981; Eagly, Ashmore, Makhijani, & Longo, 1991). The highly salient factor of physical attractiveness has been associated with, for example, altruism, sensitivity, warmth, popularity, sincerity, and kindness (Walther, Van Der Heide, Hamel, & Shulman, 2009). It should be noted that this halo effect is not all-encompassing: No correlation exists between physical attractiveness and measures of ‘integrity’ or ‘concern for others’ such as trustworthiness (Eagly et al., 1991; Dion, 1981) although there are gender differences on such dimensions, with women considered more trustworthy than men (e.g., Buchan, Croson & Slonick, 2008; Pearson, 1982). Physical attractiveness is therefore related to only specific aspects of ‘goodness’, so initial impressions of physically attractive individuals will include assumptions of many, but not all, positive traits.

A number of the traits associated with physical attractiveness have also been found to correlate with each other, e.g., popularity, another salient aspect of an individual’s character, naturally correlates with a number of positive characteristics such as attractiveness, leadership skills, humor, extroversion, academic achievement, and teachers’ favor (Babad, 2001). Popularity and extroversion are both related to happiness, but not physical attractiveness (Holder and Coleman, 2008). In a lab-based study males who were depicted as being more popular because they were being ‘smiled at’ by women were rated as more attractive by female participants, but less attractive by male participants, than nonsmiled at targets (Jones, DeBruine, Little, Burris, & Feinberg, 2007). Impressions such as these have been shown to influence behavior, with more attractive individuals approached and engaged in conversation more often than unattractive ones (Prestia, Silverston, Wood, & Zigarmi, 2002).

Evidence suggests that in online environments we also form initial impressions based on the most salient features of a persona, but there has been debate concerning the extent to which this occurs and the mechanisms behind it. Early models advocated a ‘Cues Filtered Out’ (CFO) perspective, speculating that virtual environments lacked the capacity to transmit the information necessary to formulate adequate impressions of others (Culnan & Markus, 1987). This was soon replaced by models which advocated a significant transfer of personality information via computer-mediated communication, albeit in a manner somewhat stunted when compared to real world transmission. Early experiments typically investigated task-focused communication in text-only, chat-room-like environments, but the theories they generated have evolved and can be applied to current social networking.

The Social Identification/ Deindividuation (SIDE) model (Lee & Spears, 1991; 1995) speculated that participants in CMC environments would, due to a lack of individuating cues available, anonymize their partners and place an over-reliance any available social cues. The extra weight afforded these would lead to a stereotyped conception of the target being formed, and an exaggerated final impression. The social
information processing theory (Walther, 1993) focused on the rate at which impression-relevant cues are exchanged during social interaction, pointing out that this will be considerably slower online than offline. It stated that accurate impressions of others could and would be formed in virtual environments, but that these would develop slowly.

From these two theories there developed the hyperpersonal model (Walther, 1996; 1997). This hypothesized that, in virtual environments, deindividuated individuals will form stereotyped impressions of others, leading to overattribution, but such impressions will take longer to form than in offline environments and the cues used to form them will not necessarily be the same. In a 5 minute figure-matching task participants interacting via an online chat system rated their partner on fewer traits than the face-to-face participants, but the intensity of these ratings were higher Hancock and Dunham (2001). So although overall impression formation was impaired in online vs. offline interactions, the impressions which were formed were stronger. Markey and Wells (2002) also demonstrated that judges were capable of making accurate personality judgments after interacting with individuals online.

This shows that impressions of others can be formed through only online interaction, but it tells us nothing of which specific cues are used to accomplish this. Gosling, Ko, Mannarelli, and Morris (2002) showed that, in offline environments, personality can be manifested through identity claims (symbolic statements made by individuals) and behavioral residue (traces of behavior left unintentionally) that, when taken together, lead to a reasonably accurate assessment of personality based on physical spaces (targets’ dorm rooms). The advent of personal web pages allowed the separation of these two mechanisms as such sites were formulated entirely by single individuals, and therefore contained only identity claim information. Vazire and Gosling (2004) reported high levels of consensus and accuracy when comparing judges’ ratings of personal web page owners’ personalities with the ratings of informants, and of the owners themselves. Impressions formed by judges were as accurate as impressions formed based on judgments of personal physical space, indicating that identity claims on personal websites could be inferred to accurately portray personality and are not merely tools for impression management (Schlenker, 1980).

Facebook and other SNSs differ from personal websites in that they also contain behavioral residue from which viewers can gather information. While much of what users upload themselves falls under the category of identity claims (e.g., personal information, ‘status updates’), much Facebook content also constitutes behavioral residue (others’ can upload photos of individuals and write on their walls, and to become friends both parties must agree). The information available on Facebook appears to more accurately reflect real-world physical space than personal websites, and should therefore provide sufficient cues not only for impressions of profile owners to be formed, but for judges to achieve high levels of accuracy.

Back et al. (2010) found that the personal information available on Facebook (images, personal thoughts, examples of social behavior) conveyed an accurate, valid impression of personality. They had participants in America and Europe rate targets on the Big Five personality factors and found a high correlation with the self-rating produced by the targets, and ratings of targets by their acquaintances. In another study Gosling, Augustine, Vazire, Holtzman, and Gaddis (2011) found relationships between different personality dimensions and self-reported behaviors on Facebook, as well as a link between the dimensions of extroversion and openness and observable information on Facebook profiles (extroversion: number of photos and friends, words in the ‘about me’ section, number of wall posts, groups, networks; openness: number of photos and groups), demonstrating that personality influences online activity and can be accurately interpreted by observers. Facebook users utilize the site not to idealize themselves in a virtual environment (the idealized virtual-identity hypothesis: Manago, Graham, Greenfield, & Salimkhan, 2008), but to extend the personality and social connections they
already possess offline (the extended real-life hypothesis: Ambady & Skowronski, 2008; Vazire & Gosling, 2004).

The focus of impression formation on SNSs to this point has centered on the impact of individual aspects of online profiles. When manipulated in isolation, these have been shown to have a significant impact on impressions formed of profile owners (e.g., Tong, Van Der Heide, Langwell, & Walther, 2008; Utz, 2010; Walther, Van Der Heide, Kim, Westerman, & Tong, 2008). The physical attractiveness of a profile owner, for example, has been found to be directly influenced by the beauty of their friends with high friend attractiveness leading to elevated ratings of target beauty (Walther et al., 2008). Additionally, content of Facebook wall posts influence perceptions of targets with references to positive sociable behavior on the part of the target increasing perceived social attractiveness, but references to targets’ negative social behavior dependent on target gender. When posts made reference to male targets engaging in negative social behavior (excessive drinking and philandering) their ratings of physical attractiveness increased. Similar posts on the walls of female targets resulted in them being rated as less attractive (Walther et al., 2008). Perceived online attractiveness is important as it influences behavior, e.g., individuals are more likely to make friends with members of the opposite sex if they consider them attractive (Wang, Moon, Kwon, Evans, & Stefanone, 2010).

**Popularity on Facebook**

One very salient feature of online personas, particularly on SNSs, is popularity, a potential indicator of attractiveness (e.g., Eagly et al., 1991; Tong et al., 2008). As people prefer to associate with those they consider attractive then, conversely, those who are seen to be popular should be considered beautiful (Tong et al., 2008). Several studies have attempted to discern which aspects of Facebook profiles convey target popularity but a consensus has yet to be reached. Although Zywica and Danowski (2008) reported previous findings showing number of friends and wall length to be important, they found that the main indicators of popularity are number of friends, number of posts others placed on the profile wall and number of photos tagged (all a combination of identity claims and behavioral residue). These factors are highly correlated on real Facebook profiles (see Pilot Study in the Methods section).

Number of friends seems to be a strong indicator of popularity. On Hyves, a Dutch SNS, targets were judged more popular when they had more friends (∼300 vs. <100) and when their friends seemed extraverted, and were rated higher on social attractiveness when they had more friends (Utz, 2010). But Tong et al. (2008) showed the friends-popularity relationship is not linear. They posted profiles with 102, 302, 502, 702, or 902 friends. While no significant results for physical attractiveness were shown, curvilinear effects of social attractiveness and extroversion were found with the apex being 302 friends for social attractiveness and 502 friends for extroversion. Similar research on Friendster (an early social networking and media sharing site predating Facebook and MySpace) reported that individuals who gratuitously aggregated superficial friends became known as ‘Friendster whores’ suggesting that, unlike in offline social networks, after a point less is more in terms of number of online friendships (Donath & Boyd, 2004).

Tong et al. (2008) based their experiment on the same rationale as the current study, i.e., that, given the popularity-attraction correlation, individuals who appear popular online should also be perceived as more attractive, as well as possessing other socially desirable personality characteristics. While the current study agrees with their premise, we suggest that their popularity manipulation (number of friends only) was too weak and therefore, while popular targets were judged more socially attractive, there was no effect of physical attractiveness. One individual feature of an SNS profile may not alone be a direct indicator of one single aspect of personality (Gosling et al., 2011), e.g. number of photos and groups were significantly correlated with both openness and extroversion, while extroversion was
associated with seven separate profile features. By implementing a stronger popularity manipulation it is predicted that significantly higher ratings of both social and physical attractiveness for popular compared to unpopular targets will be obtained.

The Current Study
The aim of the current study was to assess how popularity represented on Facebook profiles influenced impressions viewers formed of targets, including their social- and physical-attractiveness. Popularity of targets was manipulated via the three aspects of profiles found to indicate popularity by Zywica and Danowski (2008): number of friends, number of photos, and self- vs. others’ (i.e., friends’) wall activity. Number of photos and friends correlate with the personality dimension of extroversion (number of photos also correlated with openness; Gosling et al., 2011). The third factor of ‘posts by others’ was not linked to any personality measure in Gosling et al.’s study, but users commenting on others’ page – a prominent feature of unpopular targets in the current study – was linked to trait extroversion.

Popular targets had around 300 friends, unpopular targets just under 100. Tong et al. (2008) reported a curvilinear relationship between number of friends and popularity with 300 at the apex; we would thus expect profiles with either 100 or 500 friends to represent unpopular targets successfully. In our pilot study, number of friends, number of photos, and others’ wall activity were highly correlated. Unpopular targets were portrayed in the current study as being tagged in fewer photos, and having a greater proportion of self-authored content on their wall, than popular targets. Because no curvilinear effects have been demonstrated between popularity and either of these variables (as is the case with number of friends) it was decided that target profiles would appear more realistic, and the experiment more ecologically valid, if they had a smaller than optimum (∼100), not a higher than optimum (∼500), number of friends. Friends’ attractiveness remained constant. Previous research identified wall length as an indicator of popularity (Zywica & Danowski, 2008), but on Facebook wall activity is ordered chronologically and naturally curtailed after a certain length. All genuine Facebook pages are therefore of equal length when initially loaded, and so current stimuli were controlled for length.

We measured social- and physical-attractiveness, extroversion, approachability, and trustworthiness. It was predicted that, as in Tong et al. (2008), popular targets would be rated as more socially attractive and more extroverted than unpopular targets. Because of the stronger popularity manipulation employed in the current study we also predicted that popular targets would be rated as more physically attractive.

In offline impression formation, personality attributes associated with social competence and physical attractiveness are correlated (e.g., social attractiveness, popularity: Dion, 1981; Eagly et al., 1991). They also influence behavior, with attractive individuals more likely to be approached and engaged with (e.g., Prestia et al., 2002). If the mechanisms behind impression formation respond in a similar manner to online as offline cues, as has been suggested by models such as the hyperpersonal model (Walther, 1996; 1997), we would predict popular targets to be rated as more approachable than unpopular targets but, as trustworthiness falls under “integrity,” which is typically not associated with physical attractiveness or social competence (Eagly et al., 1991), popularity was not expected to influence ratings of trustworthiness. It was predicted, however, that female targets would be rated as more trustworthy than male targets as has previously been demonstrated offline (Buchan et al., 2008).

Methods
Pilot Study
In order to discern the degree to which the three manipulated factors were correlated, a survey was carried out on 600 profile pages. Targets were systematically selected as friends of friends of
the experimenters, but not individuals with whom the experimenter himself was friends (to avoid sampling bias and ensure all information gathered was freely available online). For each Facebook profile the targets’ gender and age were recorded, as were their number of friends, number of photos, and the proportion of their wall activity (from the most recently posted 7 items) which was self- vs. other-authored. Of those on which number of friends, number of photos tagged, and profile wall were all visible (N = 179, of which 112 were female, age: m = 26.66, SD = 2.72), Pearson’s correlations were carried out. Analysis revealed these three factors to all be highly correlated: friends & photos [r(178)=0.597, p<0.001]; friends and others’ wall activity [r(178)=0.493, p<0.001]; photos and others’ wall activity [r(178)=0.415, p<0.001], demonstrating that these indicators of popularity covary.

Participants
102 participants (41 males, 61 females) with a mean age of 20.6 years (SD: 3.9) took part in this experiment. Participants described their ethnicity as follows: 68% White British, 24% White European, 5% Asian (i.e., Indian or Pakistani), 2% Oriental (i.e., Chinese or Malaysian) and 1% Black. All were undergraduate students, described themselves as active Facebook users, and volunteered for the study in exchange for course credit.

Design
A 2 (Participant Gender: Male, Female) x 2 (Target Popularity: Popular, Unpopular) x 2 (Target Gender: Male, Female) mixed design was used with the between-participants variable being participant gender. Five dependent variables (Social Attractiveness, Physical Attractiveness, Approachability, Extroversion and Trustworthiness) were each rated on a 7-point semantic differential scale. As a manipulation check, targets were also rated on Perceived Popularity.

Stimuli
Participants saw four Facebook profiles resulting from the 2 (Popularity) × 2 (Target Gender) within-participants manipulations. Profile stimuli were manipulated using the software package Paint.net and presented via Internet Explorer on a Dell 18” monitor. Profiles consisted of three columns. Left: target’s profile picture, number of photos, number of friends, and a selection of nine friends’ names and profile picture thumbnails; Central: personal information (age, university, hometown), a selection of ‘tagged’ photos, and the Facebook wall; Right: four advertisements taken from Facebook.

Target Popularity was manipulated via number of friends and photos (left column) and number of own- vs. friend-authored wall posts (centre column). Popular targets had more friends than unpopular targets (330–340 vs.90-99) and were also tagged in more photos (200–250 vs. 60–80). Popular targets’ walls consisted of two self-authored posts and five friend-authored posts, unpopular targets’ walls of five self-authored posts and two friend-authored (plus one self-authored and one friend-authored comment on a wall post). Each wall also contained two ‘updates’ (comments on friend’s walls). All wall activity was shown to have occurred within seven days with the most recent post labeled as ‘today’.

Target profile pictures were controlled for attractiveness and counterbalanced within gender. Photographs used as profile pictures were taken from the set used in Welling et al. (2007). These were rated for physical attractiveness on a 5-point Likert scale by a sample of 658 participants who did not take part in the main study (503 females, mean age=24.59, SD=9.81). The four photographs selected were moderately attractive with the means (and standard deviations) as follows: male 1: 3.53(1.49), male 2: 3.68(1.15), female 1: 3.58(1.45), female 3: 3.64(1.12).

Friends’ profile picture and ‘tagged’ picture thumbnails never included close-up shots (thus eliminating the issue of friends’ attractiveness) and were counterbalanced across all conditions.
Targets were always either 20 or 21 years of age, attended the same University as participants, and originated from a town in the same country (specific details were counterbalanced). The content of posts were counterbalanced within Target Gender condition (they could not be fully counterbalanced as some posts were gender-specific, i.e., “Hey doll, haven’t seen you in ages!”). The content of posts were also counterbalanced so all posts appeared in popular and unpopular profiles, and as target- and friend-authored statements. The length and ‘positivity’ of wall posts were controlled across all conditions. Facebook advertisements (right column) were also fully counterbalanced and the order in which participants viewed the Facebook profiles was systematically varied.

After viewing each profile participants completed a questionnaire rating the profile owner (target) on the following 7-point semantic differentials (socially attractive–socially unattractive, physically attractive–physically unattractive, approachable–unapproachable, extroverted–introverted, trustworthy–untrustworthy, and popular–unpopular). Such bipolar single-item measures have been used in several recent studies (e.g., Bohnert & Ross, 2010; Campbell, Neuert, Friesen, & McKeen, 2010; Naumann, Vazire, Rentfrow, & Gosling, 2009; Paunonen, 2006; Smith et al., 2009) and have proved to be as reliable as many multi-item alternatives (e.g., Wood & Hampson, 2005). The order in which the items were presented to participants in the questionnaire was systematically varied.

Procedure
The study conformed to all ethical guidelines set out by the school’s ethics committee and informed consent was obtained. Participants were tested individually in a quiet room on campus. Upon arrival participants were told that they would be presented with the images of four Facebook profiles on screen and should study each profile for as long as they felt was necessary to form an impression. After studying each profile the window was closed and participants asked to fill out the questionnaire. The experiment lasted approximately 15 minutes, after which participants were thanked and fully debriefed.

Results
A 2 (Participant Gender: Male, Female) X 2 (Target Popularity: Popular, Unpopular) x 2 (Target Gender: Male, Female) mixed design analysis of variance (ANOVA) was performed using statistics package SPSS 18 on scores from each of the five semantic differentials: Social Attractiveness, Physical Attractiveness, Approachability, Extroversion, and Trustworthiness. To ensure the manipulation was successful an ANOVA was also carried out on Perceived Popularity. All main effects and interactions are reported in Table 1 and all group means and standard deviations are reported in Table 2. Main effects of popularity are displayed in Fig 1.

There was a main effect of Target Popularity with popular targets (M=6.002, SD=0.864) rated more popular than unpopular targets (M=3.880, SD=1.475). All other effects were not significant [all ps>0.15]. This demonstrates that the manipulation was successful.

There was a main effect of Target Popularity on both Social and Physical attractiveness with popular targets (Social: M=5.206, SD=1.341; Physical: M=5.031, SD=1.029) rated more attractive than unpopular targets (Social: M=4.020, SD=1.457; Physical: M=4.174, SD=1.364).

There was a main effect of Target Popularity on Approachability with popular targets (M=4.681, SD=1.567) rated more approachable than unpopular targets (M=4.315, SD=1.567). There was also a main effect of Target Gender with females (M=4.683, SD=1.681) rated more approachable than males (M=4.314, SD=1.453), and a marginal main effect of Participant Gender with male participants (M=4.665, SD=1.530) rating targets as marginally more approachable than female participants (M=4.332, SD=1.582).
Table 1  Analysis of Variance (ANOVA) on Target Measures

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<tbody>
<tr>
<td>Population</td>
<td>F 275.57***</td>
<td>49.83***</td>
<td>47.32***</td>
<td>5.52*</td>
<td>59.57***</td>
<td>2.05</td>
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<tr>
<td></td>
<td>p &lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.001</td>
<td>&lt;.05</td>
<td>&lt;.001</td>
<td>0.16</td>
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<tr>
<td></td>
<td>η² 0.73</td>
<td>0.33</td>
<td>0.32</td>
<td>0.05</td>
<td>0.37</td>
<td>0.02</td>
</tr>
<tr>
<td>Target Gender</td>
<td>F 0.22</td>
<td>0.48</td>
<td>1.20</td>
<td>7.46*</td>
<td>0.41</td>
<td>12.16***</td>
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<tr>
<td></td>
<td>p 0.64</td>
<td>0.49</td>
<td>0.28</td>
<td>&lt;.05</td>
<td>0.52</td>
<td>&lt;.001</td>
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<tr>
<td></td>
<td>η² 0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.07</td>
<td>0.00</td>
<td>0.11</td>
</tr>
<tr>
<td>Participant Gender</td>
<td>F 0.37</td>
<td>0.00</td>
<td>1.30</td>
<td>3.33</td>
<td>2.84</td>
<td>1.58</td>
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<tr>
<td></td>
<td>p 0.54</td>
<td>0.97</td>
<td>0.26</td>
<td>0.07</td>
<td>0.10</td>
<td>0.21</td>
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<tr>
<td></td>
<td>η² 0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.03</td>
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</table>

Interaction

| Population*Target Gender | F 1.57    | 2.28    | 0.08    | 0.14    | 2.11    | 0.86 |
|                         | p 0.21    | 0.13    | 0.79    | 0.71    | 0.15    | 0.36 |
|                         | η² 0.02   | 0.02    | 0.00    | 0.00    | 0.02    | 0.01 |

| Population*Participant Gender | F 0.25    | 0.10    | 0.03    | 0.74    | 0.02    | 0.47 |
|                             | p 0.62    | 0.76    | 0.87    | 0.39    | 0.90    | 0.49 |
|                             | η² 0.00   | 0.00    | 0.00    | 0.01    | 0.00    | 0.00 |

| Target Gender*Participant Gender | F 2.09    | 0.62    | 0.91    | 0.94    | 1.66    | 1.50 |
|                                 | p 0.15    | 0.43    | 0.34    | 0.33    | 0.20    | 0.22 |
|                                 | η² 0.02   | 0.01    | 0.01    | 0.01    | 0.02    | 0.02 |

Note: *= significant to p<0.05, **= significant to p<0.01, ***= significant to p<0.001. ‘Perceived Pop.’ = Perceived Popularity.

There was a main effect of Target Popularity on Extroversion with popular targets (M=5.141, SD=1.318) rated more extroverted than unpopular targets (M=3.750, SD=1.546). There was also a marginal main effect of Participant Gender with female participants (M=4.561, SD=1.344) rating targets as marginally more extroverted than males (M=4.329, SD=1.550).

There was a main effect of Target Gender on Trustworthiness with female targets (M=4.906, SD=1.197) rated more trustworthy than male targets (M=4.512, SD=1.221). There were no other significant effects or interactions on any of the measures.

Discussion

Facebook profile owners’ popularity was manipulated via number of friends, photos tagged, and proportion of self- vs. friend-authored wall posts. Popular targets were rated more socially- and physically- attractive, more approachable and more extroverted than unpopular targets. These results are in keeping with the hypotheses and expand upon Tong et al.’s (2008) findings that social- but not physical-attractiveness was influenced by altering only number of friends. Females targets were rated...
Table 2  Means (Standard Deviations) of Target Measures

<table>
<thead>
<tr>
<th>Dependent Measure</th>
<th>Participant Gender</th>
<th>Male Targets</th>
<th></th>
<th></th>
<th>Female Targets</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Popular</td>
<td>Unpopular</td>
<td>Popular</td>
<td>Unpopular</td>
<td>Popular</td>
<td>Unpopular</td>
</tr>
<tr>
<td>Popularity</td>
<td>Male</td>
<td>5.80 (1.03)</td>
<td>3.78 (1.53)</td>
<td>6.05 (1.05)</td>
<td>3.95 (1.49)</td>
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<tr>
<td></td>
<td>Female</td>
<td>6.03 (0.73)</td>
<td>4.05 (1.55)</td>
<td>6.13 (0.72)</td>
<td>3.74 (1.37)</td>
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<tr>
<td>Social Attract.</td>
<td>Male</td>
<td>5.17 (1.30)</td>
<td>4.07 (1.60)</td>
<td>5.20 (1.57)</td>
<td>4.02 (1.65)</td>
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<tr>
<td></td>
<td>Female</td>
<td>4.98 (1.41)</td>
<td>4.05 (1.36)</td>
<td>5.48 (1.12)</td>
<td>3.93 (1.33)</td>
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<tr>
<td>Physical Attract.</td>
<td>Male</td>
<td>4.90 (0.92)</td>
<td>3.90 (1.28)</td>
<td>5.02 (1.04)</td>
<td>4.27 (1.38)</td>
<td></td>
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<tr>
<td></td>
<td>Female</td>
<td>5.00 (1.21)</td>
<td>4.34 (1.56)</td>
<td>5.20 (0.91)</td>
<td>4.18 (1.19)</td>
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<tr>
<td>Approach</td>
<td>Male</td>
<td>4.61 (1.32)</td>
<td>4.22 (1.54)</td>
<td>4.95 (1.60)</td>
<td>4.88 (1.66)</td>
<td></td>
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<tr>
<td></td>
<td>Female</td>
<td>4.44 (1.47)</td>
<td>3.98 (1.48)</td>
<td>4.72 (1.82)</td>
<td>4.18 (1.57)</td>
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<tr>
<td>Extroversion</td>
<td>Male</td>
<td>4.83 (1.43)</td>
<td>3.56 (1.58)</td>
<td>5.24 (1.48)</td>
<td>3.68 (1.71)</td>
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<tr>
<td></td>
<td>Female</td>
<td>5.20 (1.25)</td>
<td>4.02 (1.59)</td>
<td>5.30 (1.19)</td>
<td>3.74 (1.35)</td>
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<tr>
<td>Trust</td>
<td>Male</td>
<td>4.54 (1.36)</td>
<td>4.80 (1.19)</td>
<td>4.80 (1.29)</td>
<td>5.05 (1.22)</td>
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</tr>
<tr>
<td></td>
<td>Female</td>
<td>4.21 (1.17)</td>
<td>4.49 (1.18)</td>
<td>4.93 (1.22)</td>
<td>4.84 (1.09)</td>
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</tbody>
</table>

Note: Mean (Standard Deviation) ratings on each dependent measure for popular and unpopular male and female targets.

Figure 1  Significant main effects of Popularity for perceived Social Attractiveness, Physical Attractiveness, Approachability, and Extroversion

as more approachable and trustworthy than males targets. While the difference in trustworthiness was predicted, that of approachability was unexpected and might relate to off-line stereotypes of males being dangerous and females communal (Becker, Kenrick, Neuberg, Blackwell, & Smith, 2007; Deaux & LaFrance, 1998).

Most interesting is the difference in ratings of physical attractiveness between popular and unpopular targets. By demonstrating that popularity can directly influence perceptions of not only social- but also physical-attractiveness online, this study adds to similar findings established offline (Babad, 2001;
Jones et al., 2007) and supports claims that attraction and social acceptance are innately linked (Eagly et al., 1991; Gross & Crofton, 1977). Perceived popularity, attractiveness, and extroversion (but not trustworthiness, which is indicative of integrity) appear to be integrated in the interpretation of SNS personas, and the fact that popularity influenced approachability demonstrates that this group of traits could directly influence online behavior. The results may also prove useful in determining how information is extracted from online profiles and impressions of targets constructed.

Tong et al. (2008) suggest that an anchoring effect (Tversky & Kahneman, 1974) could account for their pattern of results. They posit that participants initially notice the number of friends a profile owner has, use this information to construct a crude impression of their personality (including traits such as extroversion and attractiveness) and then adjust this based on other, subsequently viewed aspects of the profile. While this was plausible when only number of friends was manipulated, the fact that three popularity indicators can lead to changed perceptions of both social and physical attractiveness in the current experiment would suggest that a more complex strategy is employed which takes into account multiple features of online personas. That individuals look at number of friends – or any indicator of popularity – first when viewing profiles is speculation. Indeed, intuition would suggest that photographs (whether the profile picture of the page owner or a friend’s thumbnail) would be more likely than any text to draw viewers’ initial attention. It would be interesting to assess profile viewing strategies in order to evaluate the legitimacy of the anchoring theory, and to examine strategies of viewers differing in experience, age, and agenda.

It seems more plausible, given the current results, that observers rely on multiple cues to build up an impression of an individual from their Facebook profile, a suggestion supported by the fact that personality ratings are associated to many distinct aspects of Facebook profiles (Gosling et al., 2011). Relevant cues are necessarily different in distinct domains and, just as some types of information are more prevalent online others, such as physical attractiveness, are less obvious. Individuals rely on both facial and bodily cues when judging physical attractiveness (Johanson, Raulston, & Rotolo, 2012), not all of which might be available from a single profile picture and a few smaller thumbnail images, and nonverbal behavioral cues (also absent in SNS environments) influence impression formation after only a few seconds of exposure (Ambady & Rosenthal, 1993). SNSs provide a limited type and number of cues on which to base judgments of beauty compared with offline environments. The scarcity of cues directly indicative of physical attractiveness may necessitate more weight being placed on indicators of associated positive traits (i.e., social competence). The hyperpersonal (Walther, 1996; 1997) model proposes that online viewers use any information available to improve their accuracy of understanding. The fact that such judgments can be altered based on various aspects of wall content (Utz, 2010; Walther et al., 2009) suggests that viewers can quickly assimilate information from a variety of rather subtle sources to form quick, concise judgments, although with less cues available than in the real world an impression may be both slower to form and more exaggerated (Walther, 1996; 1997).

Other findings obtained in the current study also add to knowledge of online impression formation. As hypothesized, popularity did not influence target trustworthiness. Females, however, were rated more trustworthy than their male counterparts, a pattern similar to effects typically reported in the context of source reliability in persuasive messages (Miller & McReynolds, 1973; Pearson, 1982), or economic game theory (Wilson & Eckel, 2006). Such effects have previously been attributed to halo effects of attractiveness rather than gender, as women are typically viewed as more attractive than men (Wilson & Eckel, 2006). As there were no target gender differences in attraction here the results could simply be in keeping with the female stereotype of trustworthiness (Buchan, Croson, & Solnick, 2008).

Women have also been perceived as more approachable offline (Campbell et al., 2010; Miles, 2009), possibly because males are potentially more dangerous, being physically bigger and stronger (Becker et al., 2007), or that females are stereotypically perceived as more communal and affiliative (Deaux &
LaFrance, 1998). The latter explanation appears more relevant to the online environment as, unless the approaching party anticipates a real life meeting, the threat of physical harm is remote. Alternatively, it might be the case that learned behaviors from the real world are carried into the online domain.

Although these results replicate increased perceptions of social and physical attractiveness related to popularity in offline domains (e.g., Babad, 2001, Jones et al., 2007), it is unclear why previous manipulations of online popularity did not produce similar results. One possible explanation is that the manipulations used in such studies (e.g., Tong et al., 2008) were not strong enough, but another concerns the constantly changing face of the Facebook persona. Changes implemented recently, for example, removed photo album covers and ‘applications’ activity from profiles, and instead included personal information such as hometown, employer, a selection of photos in which the profile owner had been tagged, and a more extensive selection of friends’ thumbnail images. It is possible that such cues contain information more or less relevant to specific personality traits, and so with each metamorphosis viewers are able to glean more accurate insights into some facets of profile owners’ personalities, but for other are required to rely on more indirect indicators.

The major contribution of the current paper is to demonstrate the effect that popularity can have on observers’ impressions of Facebook profile owners. We show for the first time that online popularity can influence perceived physical attractiveness and approachability and build on previous research linking the profile features manipulated here to social attractiveness (Tong et al., 2008) and extroversion (Gosling et al., 2011), suggesting that the same mechanisms employed in offline impression formation are present when basing decisions on online cues. This was done using realistic stimuli where not only one aspect of profiles was manipulated, but several indicators of popularity covaried as they do in reality.

Unlike previous studies employing similar methodologies, the popularity manipulation comprises three separate cues rather than one single aspect of the Facebook profile. This is an important distinction as, increasingly, specific individual cues may not be visible on the profile page of every individual Facebook user. Nosko, Wood, and Molema (2010) reported that, on SNSs, users tend to only disclose around 25% of potential information. Our pilot correlation of Facebook users included only those on whose wall the three variables manipulated in this study were visible. This was less than 30% of pages sampled (179/600).

These findings are perhaps due to an increasing awareness of privacy issues surrounding SNSs which conflicts with the main purpose of the sites – to promote content-sharing and disclosure between users (Stutzman & Kramer-Duffield, 2010). Although many aspects of Facebook profiles being hidden from nonfriends, sensitive and personal information continues to be disclosed within the remaining aspects of the profile. According to the Hyperpersonal (Walther, 1996; 1997) model this could lead to an even further polarized view of the profile owner, as their persona is conveyed through a very small, overrelied upon number of cues.

Given the decreasing homogeny in Facebook pages and the consequent increase in the variation of cues available to observers, the current study represents an important step in determining what effect the dimension of online popularity, as defined by multiple cues rather than only a single cue, can exert. By determining what impact a particular personality dimension (e.g., popularity) has on impression formation, this knowledge can be applied to a variety of profiles which may contain many, but not all, cues which are known to comprise that factor (e.g., number of friends and number of photos, but not wall activity).

Despite the advances these findings contribute to the area, and their potential impact on future research, there are some experimental limitations which must be addressed. One is the fact that, because the manipulation varied three factors simultaneously, thus being high in ecological validity, it is impossible to determine the individual impact of each variable (although previous findings have shown number of friends to be central to perceptions of popularity: Tong et al., 2008; Utz, 2010; Zywica &
Danowski, 2008). Although popular targets were perceived more positively than unpopular targets on a number of measures, it is impossible to establish the individual impact of the additional manipulated cues. To determine the strength and relevance of each cue it will be necessary to manipulate them in isolation, or to have a large number of genuine profiles rated and use regression analysis to determine the cues most indicative of various personality factors. It must also be noted that both number of photos and wall activity may not have a straightforward linear correlation with popularity (e.g., number of friends shows a curvilinear relationship with popularity and extroversion, Tong et al., 2008) although determining this is beyond the scope of this paper.

Another possible limitation is the use of single-item measures to assess the dependent variables. While this is the norms for some of the traits measured in the current study (trustworthiness: e.g., Smith et al., 2009; approachability: e.g., Campbell et al., 2010), multi-item measures do exist for social- and physical attractiveness (e.g., McCroskey & McCain, 1974) and extroversion (e.g., Costa & McCrae, 1992) and could be employed in future studies.

Finally, the results of the current study cannot necessarily be generalized to all users of Facebook. The majority of participants in this study were young adults and all were active Facebook users. Older adults hold different attitudes towards SNSs than younger users (e.g., Nosko, Wood, & Molema, 2010), it could be the case that they also utilize different viewing strategies and rely on different cues to form impressions. Similarly, novice or occasional users of the site may employ different strategies to frequent users. This may be especially important for issues relating to employability, as employers, who may or may not be active users themselves, will be viewing profiles with the specific agenda of determining certain qualities about individual, e.g., the employability of prospective employees. In such cases alternative strategies may be employed than those used to form general impressions.

In conclusion, popularity can impact perceptions of not only social attractiveness, but also physical attractiveness, on SNSs. Popularity also influenced extroversion and approachability, demonstrating the relationships between attractiveness and social competency. This was based on a manipulation of number of friends, photos, and others’ wall activity on Facebook profiles, three variables which naturally correlate and indicate popularity (Zywica & Danowski, 2008). Findings also provided in insight into possible strategies adopted by viewers to extract information from Facebook profiles. This is important as, increasingly, individuals are becoming more selective in the information they include in their online personas, resulting in an increase in the variety of cues present on Facebook profiles.

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References


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