

# The Faces of Facebookers: Investigating Social Enhancement and Social Compensation Hypotheses; Predicting Facebook™ and Offline Popularity from Sociability and Self-Esteem, and Mapping the Meanings of Popularity with Semantic Networks

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*This research investigates two competing hypotheses from the literature: 1) the Social Enhancement (“Rich Get Richer”) hypothesis that those more popular offline augment their popularity by increasing it on Facebook™, and 2) the “Social Compensation” (“Poor Get Richer”) hypothesis that users attempt to increase their Facebook™ popularity to compensate for inadequate offline popularity. Participants (n= 614) at a large, urban university in the Midwestern United States completed an online survey. Results are that a subset of users, those more extroverted and with higher self-esteem, support the Social Enhancement hypothesis, being more popular both offline and on Facebook™. Another subset of users, those less popular offline, support the Social Compensation hypotheses because they are more introverted, have lower self-esteem and strive more to look popular on Facebook™. Semantic network analysis of open-ended responses reveals that these two user subsets also have different meanings for offline and online popularity. Furthermore, regression explains nearly twice the variance in offline popularity as in Facebook™ popularity, indicating the latter is not as socially grounded or defined as offline popularity.*

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## Introduction

The importance of online behaviors to individual users, and the implications at various levels of analysis through the societal, has drawn much attention from social researchers since the development of the Internet (Jones, 1994, 1997, 1998; Turkle, 1995, 2007). Recently, research on social networking sites (SNSs), such as Facebook™ and others (boyd & Ellison, 2007) is beginning to profile user behaviors

and characteristics (Ellison, Steinfield, & Lampe, 2007; Golder, Wilkinson, & Huberman, 2007; Lampe, Ellison, and Steinfield, 2007). Although student popularity in high school has been a topic of investigation for decades (Babad, 2001; Gordon, 1957), individuals' online popularity is a relatively new phenomenon. More study of popularity online is needed. Facebook™ popularity compared to offline popularity is the broad focus of this research.

### **Facebook™ Overview**

Ellison et al. (2007) provide an overview of Facebook™. Beginning in 2004 as a social network site only for Harvard students, it quickly encompassed users at over 2,000 other university and college campuses in the United States. Initially Facebook™ was designed for only college students, however in 2005 high schools were added to Facebook™ in order to reach a wider range of users. In the following year, almost 22,000 commercial organizations had a presence. Two-thirds of users log in at least daily and spend an average of 20 minutes on the site. It was the third most popular site on the web in August 2007 with over 22 million unique visitors and over 15 billion pages viewed (Freiert, 2007).

Facebook™ gives its users an opportunity to create personalized profiles that include general information like education background, work background, and favorite interests. It also has an option to add specific applications to further personalize one's profile (Rosmarin, 2007). Students can add links and song clips of their favorite bands, post messages on friends' pages, and post and tag pictures and videos, among other things. Through the site members connect with friends, colleagues, fellow students, and family members.

### **The Popularity Problem**

Popularity is a concept with multiple meanings and interpretations. While some interpret popularity to mean "widely liked," or accepted by one's peer group members (Bukowski, 1989), others see it as being "socially dominant" (Parkhurst & Hopmeyer, 1998, p. 138). Social network researchers often leave the definition to survey respondents and simply ask: "Who on this list is popular?" or they ask "Who on this list is a friend of yours?" and then define popularity, prestige, or influence after defining network properties, such as centrality (Valente, Gallaher, & Mouttapa, 2004). When popularity is defined in terms other than raw liking, such as network centrality, the approach is not on merely being liked by others, but by status attributes. In this study we define online popularity in two ways. One way is by the status indicators, such as number of friends and the length of the wall in Facebook™. The second way is by using virtual ethnography techniques (Hine, 2000) to ask open-ended questions about popularity on Facebook™. The meaning of popularity was defined through participant responses. One of the goals of this study is to identify the meanings of Facebook™ popularity for users with different levels of self-esteem and sociability. The relative emphasis on liking or status definitions of popularity will emerge from the open-ended responses.

SNSs are widely thought to have changed students' communication patterns and how they perceive themselves and their peers both online and offline. Because many college students' social lives have an online component (Lenhart, Madden, & Hitlin, 2005), it is valuable to understand users' self-presentation, how it affects online status, and how psychological traits such as sociability and self-esteem may be associated with online and offline popularity. This project explores these factors for college-aged Facebook™ users because this SNS is the most widely used.

### **Rival Hypotheses**

A key focus of this study is examining the evidence for two competing hypotheses seen in the literature. One proposition can be called the Social Enhancement ("Rich Get Richer") hypothesis, sometimes referred to as "The Matthew Effect," (Merton, 1968) that those with more developed offline social networks enhance them with more extensive online social networks (Valkenburg, Schouten, & Peter, 2005; See also Kraut, Kiesler, Boneva, Cummings, Helgeson, & Crawford, 2002; Walther, 1996). The other proposition is the Social Compensation ("Poor Get Richer") hypothesis that those who perceive their offline social networks to be inadequate compensate for them with more extensive online social networks (Valkenburg et al., 2005). This research also explores: What does it mean to be popular on Facebook™ and offline?

## **Literature Review**

### **Popularity Studies**

Many investigators assume that popularity becomes a central concern for students in early adolescence as their peer group displaces parents as the most important social influence. So, this period has seen much research (Babad, 2001; Boyatzis et al, 1998; Zakin, 1983; Gordon, 1957). Babad (2001) asked junior high students and their teachers from both Israel and the United States to name popular students and attractive students. Popularity positively correlated with higher attractiveness, leadership skills, humor, extroversion, academic achievement, and teachers' favor. Boyatzis, Baloff, and Durieux (1998) showed attractiveness and grades influenced an individual's popularity. For 9<sup>th</sup> graders, attractiveness was more important than grades in determining popularity (Boyatzis et al., 1998). Unattractive students, no matter how high their grades, were consistently perceived as unpopular.

If attractiveness also plays a role in online popularity, then the photograph and other information provided in a user's profile may be used to determine this aspect of social status. Because Facebook™ users can be connected by their school coattendance and can list the courses they take, users can also access overall academic interest and achievement. This could be used to create status differences online, just as it does offline.

There may also be an association among athletic ability, sociability, and friendship choices. In Zakin's (1983) study students chose the attractive children to be their

friend over athletic and sociable children. Some variation on friendship preferences exists based on age and gender. Third graders preferred athletic children over sociable children, but 8<sup>th</sup> graders showed no preference when choosing friends. Athletic ability played a larger role than sociability in determining friendship choices in young girls. Just as in school, it is possible to judge someone based on athleticism and sociability on Facebook™.

Gordon (1957) used ethnographic methods to understand high school popularity. Patterns of dress, dating, and moral behavior closely relate to social position. The “Queen Role” requires “beauty, approved dress, moral character, democratic personality, scholastic achievement, exercise of influence, and school service” (Gordon, 1957, p. 68). Since Gordon’s (1957) work other researchers have confirmed the importance of such attributes to popularity (Brown & Lohr, 1987; Merton, 1997). Users may develop impressions of some of these characteristics on Facebook™, from profile information, including number of friends and photos that are interpreted for attractiveness, dress, dating, and other behaviors. Achievement could be judged from work experience, courses taken, honors, extracurricular accomplishments, and awards.

### **Personality and Self-Esteem**

Personality characteristics and temperaments may have an impact on one’s popularity. The Five-Factor Model (Ewen, 1998) describes personality based on five main dimensions: extroversion, neuroticism, agreeableness, conscientiousness, and openness to experience. Temperament models (Buss & Plomin, 1984) and the Five-Factor Model may explain why certain individuals become popular and others do not based on attributes such as agreeableness, extroversion, and conscientiousness (Mervielde, 2000).

Dimensions of personality may also be related to self-esteem. People with higher self-esteem tend to be more extroverted, agreeable, conscientious, emotionally stable, and more open to experience (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001). “Individuals’ beliefs about themselves influence how they act in particular situations, the goals they pursue in life, how they feel about life events and relationship partners, and the ways in which they cope with and adapt to new environments” (Robins et al., 2001, p. 465). So, self-esteem may also associate with popularity in a new environment such as Facebook™.

The five dimensions of personality reviewed are not the only factors affecting self-esteem. Mruk (1999) posits that being accepted and treated well in various areas of life (e.g. online, work, school, romantic relationships, and family) may result in higher self-esteem. Someone who lacks virtuosity may have lower self-esteem due to high levels of guilt. Reaching personal goals, having control over one’s environment, and being able to shape events gives individuals a sense of influence, personal efficacy, and contributes to positive self-esteem. Individuals with high self-esteem have a more positive outlook and are more independent, self-directed, and autonomous than those with low self-esteem, who tend to be more negative, feel inferior, unworthy, lonely, insecure, anxious and depressed (Mruk, 1999; Brown & Marshall,

2001; Kernis, 2003; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Donnellan, Trzesniewski, Robins, Moffitt & Caspi, 2005).

Initially, it was believed that individuals with low self-esteem orient toward self-enhancement while those with high self-esteem try to protect themselves. Tice (1993) points out that because people with low self-esteem were assumed to have nothing to lose, to enhance their views of self they adopt risky, self-aggrandizing, get-rich-quick schemes. In contrast, people with high self-esteem were seen as comparable to wealthy individuals who have much to lose and little to gain and so should be cautious investors who seek to avoid loss.

This theory was not supported by empirical research, and led to revision. High self-esteem individuals want to enhance it, and low self-esteem individuals want to compensate for their self-esteem (Tice, 1993), trying to fix their deficiencies in order to be acceptable. People with high self-esteem think they are already acceptable and want to enhance an already higher status. This can explain why Facebook™ users with both high and low self-esteem may try to look popular on the SNS.

### Internet Use

Joinson (2003) claims self-enhancement, self-protection and self-esteem are all motivating factors for using the Internet. Unlike self-enhancement, self-protection involves minimizing ones weaknesses but not necessarily promoting one's good qualities. Being more cautious and self-protective is linked with low self-esteem (Joinson, 2003; See also Arkin, 1981; Baumeister, Tice, & Hutton, 1989).

The Social Compensation hypothesis is consistent with reasoning that introverts and socially anxious adolescents, having difficulty developing friendships, are more likely to use the Internet because they substitute online contacts for an undesirable offline social network (Valkenburg et al., 2005). On the other hand, the Social Enhancement hypothesis posits that extroverted and outgoing adolescents are motivated to add online contacts to their already large network of offline friends (Valkenburg et al., 2005; See also Kraut et al., 2002; Walther, 1996).

In studying social capital of Facebook™ users, Ellison et al. (2007) found that there was greater evidence for the Social Compensation pattern, that those with lower life satisfaction and lower self-esteem reported having developed more bridging social capital (instrumental links to diverse others) on Facebook™. Valkenburg and Peter (2007) pitted two other competing hypotheses against one another in their study of Dutch teenagers 10 to 17 years old. They tested a “displacement” hypothesis of Social Deprivation (“Rich Get Poorer”), that those who spend more time online reduce their well-being because they devote less time to “real” social interaction, against yet a fourth hypothesis, the Stimulation Effect (“Everyone gets Richer”) (Valkenburg & Peter, 2007). The Stimulation Effect expects increased well-being from more time spent online with existing friends that increases the quality of these relationships. They found support for the Stimulation hypothesis but not for the Social Deprivation hypothesis.

### Self-Presentation & the “real me”

Self-presentation refers to a person's effort to express a specific image and identity to others (Baumeister, Tice, & Hutton, 1989; Joinson, 2003). Schlenker, Weigold, and Hallam (1990) suggest that people with high self-esteem are more likely to use an acquisitive self-presentational style, which seeks social approval, while those with low self-esteem are more likely to be self-protective, trying to prevent or lessen any social disapproval (see also Arkin, 1981 and Wolfe, Lennox, & Cutler, 1986). In the study conducted by Schlenker et al. (1990) individuals with high self-esteem were more boastful as the social stakes increased, while individuals with low self-esteem were more timid. Although researchers generally accept this as true (Schlenker et al., 1990; Tice, 1993), the results may vary when people are socializing online versus offline.

Impression management has been defined as the manner in which individuals plan, adopt, and carry out the process of conveying to others an image of self in interaction with the communicative context (Arkin, 1981). Accordingly, Facebook™ users probably set up their profiles in order to suggest a certain image to viewers. One type of impression management is ingratiation, which manipulates appearance, personality, or behaviors to project greater attractiveness (Jones and Wortman, 1973; Schlenker, 1980). Facebook™ users may be considered ingratiators if they create their profile in a misleading or exaggerated way to gain friends or foster images others find attractive. Jones and Wortman (1973) point out ingratiating behavior is not always conscious or intended. Applying these notions, we may expect that some Facebook™ users be perceived as ingratiators simply out of modeling other users' behaviors even though they have no ingratiation intentions. Nevertheless, some users might want to impress others and look as attractive as possible.

Screen names, profiles, and messages are means through which Facebook™ users can foster others' impression formation about them. Impressions are based on the cues and conceptual categories found within a user's profile (Jacobson, 1999). Users may select what information they want to include in a profile to highlight their most positive qualities (Swinth, Farnham, & Davis, n.d.). Initial impressions made by individuals communicating online may be less complete and less detailed than those made in face-to-face situations (Hancock & Dunham, 2001). Impressions, however, are likely to be more extreme when making them online rather than face-to-face, because of the reduced feedback to dampen emotional expression (Joinson, 2003; See also Hancock & Dunham, 2001).

Studying three different SNSs, Marwick (2005) analyzes profile categories of text, pictures, and testimonials and identifies three types of presentations: Authentic, presenting true information about the self such as real name and location; Authentic Ironic, presenting true information but modifying it using sarcasm, irony, or satire; and Fakesters, whose profiles claim that they are celebrities, objects, places, activities, or obscure in-jokes. Skog (2005) reported that on LunarStorm™, profiles, sending messages, and indicators of authenticity such as using “real” photos, indicate one's status. Boyd and Ellison (2007) point out that friendship links, or “public displays of connection,” are another important aspect of self-presentation. One of the reasons

given by Friendster™ users for choosing particular friends is impression management (Donath & boyd, 2004).

Bargh, McKenna, and Fitzsimons (2002) cite Carl Rogers (1951) as suggesting that attributes a person demonstrates in social settings such as being witty, assertive, or decisive, are a limited array from their larger domain. Under various circumstances individuals may feel unable to present certain attributes they hold. This creates a difference between the communicated self and the “true self,” important aspects of an individual that are not easily expressed (McKenna et al., 2002). Based on experiments, Bargh et al. (2002) and McKenna et al. (2002) concluded that individuals were able to express their true selves more accurately over the Internet than in face-to-face. So, perhaps some Facebook™ users may not be trying to manage their image but rather are simply expressing more of their true selves.

McKenna et al. (2002) and Bargh et al. (2002) later refer to the true self online as the “real me.” After involvement in a chat session, introverts and neurotic individuals report finding their “real me” online, while extroverts find it in face-to-face interactions (Amichai-Hamburger, Wainapel, & Fox, 2002). This suggests introverts may use Facebook™ to find their true selves.

Joinson (2003) suggests that as users are accepted into a virtual community or make friends, they activate a hoped-for, “possible self” as a popular, socially skilled person. This may transfer to their interpretations of offline experiences. Facebook™ users who receive validation for their hoped-for possible self may seek to achieve the possible-self offline too, fostering higher self-esteem.

Younger Facebook™ users may care more about being popular online than older users. Valkenburg et al. (2005) had 900 participants, ages 9–18 complete a survey about online identity. Early adolescents experiment with online identities more often than older users. Motives for experimenting with identity online were: 1) self-exploration; 2) to see how others react; 3) social compensation, to overcome shyness; and, 4) social facilitation, to help form relationships.

Low self-esteem can encourage adolescents, particularly girls, to use the Internet more often in identity exploration (Valkenburg et al., 2005). This would explain why younger users may be more concerned with Facebook™ popularity. Younger college students are probably still experimenting with identity and may be dealing with new social issues more than older users, particularly those who move away from home for the first time.

Some Internet users may experience less inhibition online and be more outgoing, social, and involved than in face-to-face situations (Joinson, 2003). Because of this, some users are more able to express their true selves online. Accordingly, some users may participate in Facebook™ to achieve a desired social status, to expand their friendship circle, and to improve their self-esteem.

As noted at the outset, research on Facebook™ is starting to emerge, although a focus on the motives for using Facebook™ is not yet well documented. Nevertheless, relevant literature exists regarding uses and gratifications of various Internet

communication modalities. Findings from these studies suggest some possible uses and gratifications for Facebook™ users.

Before the emergence of Facebook™ Leung (2001) focused on ICQ (“I seek you,” an instant messaging program with many global users). Motives for using some SNS or instant messaging technology may be similar, although Hargittai (2007) cautions against generalizing across such media having found demographic differences among their users. Some ICQ motives include: relaxation, entertainment, fashion, affection, sociability, and escape (Leung, 2001). Heavy users are motivated by sociability and a desire for affection. In contrast, fashionableness, or trying to look cool and stylish among friends, tends to motivate infrequent users.

Joinson (2003) compiled a list of motives for using the Internet that may also apply to Facebook™. Many users turn to the Internet for self-enhancement, self-protection, and self-esteem purposes. Others get online to find meaning in their lives, to affiliate with other people, and to find a sense of self-control and self-efficacy. Affiliation can provide Internet users with pleasure from mental stimulation, heightened self-esteem from praise, an opportunity to compare one’s self to others to gain more self knowledge, and can also provide social support (Joinson, 2003; See also Hogg & Abrams, 1993). Another motive may be uncertainty reduction about the self (Joinson, 2003).

In their review of Facebook™ research, boyd and Ellison (2007) describe several relevant recent studies. They report that Golder et al. (2007) examined a large number of Facebook™ users’ messages for insight into friending and messaging activities. Lampe et al. (2007) reported that profile fields that reduce transaction costs and are harder to falsify and most likely linked with larger numbers of friends. Ellison et al. (2007) suggest that Facebook™ is mostly used to maintain or reinforce existing offline relationships, as opposed to establishing new ones online. There is usually some common offline activity among individuals who friend one another, such as a shared class or extracurricular activity. Earlier forms of public CMC such as news-groups did not typically connect to offline relationships, no matter how weak the ties. The only link between communicants was their online discussion list participation (Ellison et al., 2007).

In contrast, Lampe et al. (2006) found that Facebook™ users engage in searching for people with whom they have an offline connection more than they browse for complete strangers to meet. Reporting a similar observation, Lenhart & Madden (2007) found in a Pew study that 91% of U.S. teens use SNSs to connect with friends. Nevertheless, there are unique social activities on SNSs. boyd (2008) asserts that Myspace™ and Facebook™ enable U.S. youth to socialize with friends even when unable to do so in offline situations, arguing that SNSs support sociability, just as non-mediated public spaces do. Some research has begun to look at how faculty activity in Facebook™ affects student-professor relations (Mazer, Murphy, & Simonds, 2007).

On the whole, there are mixed results for two competing hypotheses regarding what motivates online communication relative to offline communication. The Social



Enhancement hypothesis is that those who perceive their offline social networks as well developed seek to enhance them by developing more extensive online social networks (Valkenburg et al., 2005; See also Ellison et al., 2007; Kraut et al., 2002; Walther, 1996). The Social Compensation hypothesis is that those who perceive their offline social networks to have undesirable characteristics seek to compensate by developing more extensive online social networks (Valkenburg et al., 2005; Valkenburg & Peters, 2007).

### **Popularity Indicators on Facebook™**

Several parts of a Facebook™ profile may contribute to a user's online popularity. The "wall" is a space within Facebook™ profiles where users leave messages for their friends and receive replies. Another section lists how many friends the user has and shows the user's connections to friends at other schools. Facebook™ users also have the option to join groups or clubs created by their peers. Users may also add specific applications to their profile that allow interaction between Facebook™ users, like posting drawings or dedicating songs to friends. Similar to other SNSs, users can post pictures, interests, contact information, and unique information about themselves.

Although, Copeland (2004) claims that a high friend count is as much evidence of a willingness to hustle contacts as of popularity, in-depth ethnographic interviews (White, 2005) observed frequent mention of two main sections of Facebook™ profiles users consider in judging others' popularity: 1) number of friends, and 2) the length of a user's wall. White's (2005) study led to the working assumption that users see it possible to be popular online, and that the characteristics that make someone popular in school may also be expressed online to gain social status there. This research combines previous literature on popularity theories, personality traits, and self-esteem to understand who becomes popular and who tries to be popular in cyberspace.

### **Empirical Goals**

This study examines evidence linking offline popularity to popularity on Facebook™ to see what support there may be in this particular SNS for the Social Compensation and Social Enhancement hypotheses. The research reported here also investigates the relationships between popularity on Facebook™ and offline with personality and social variables including sociability and self-esteem. How are these traits linked to the possible social compensation and enhancement evidence? Is age related to behaviors on Facebook™? Using semantic network analysis of open-ended survey responses the authors identify the meanings that users have for Facebook™ and offline popularity in relation to self-esteem and sociability.

### **Method**

In the spring of 2006 we emailed an online survey invitation to all students at a large, public, urban university in the Midwestern United States with a diverse

undergraduate student body. An incentive was that three participants who provided mailing addresses would be randomly selected to receive gift cards from a national bookstore chain. Although sampling from one university does not provide evidence for generalizability, sampling from a more diverse university may increase it, even though the extent of it is unknowable from a sampling theory perspective. The survey, which contained closed and open-ended questions, was open for 2 weeks.

Participants completing the entire survey ( $n=614$ ) ranged from college freshmen to college alumni with most respondents born between 1982 and 1988. Participants consisted of 71.8% females and 28.2% males. They came from a wide array of ethnicities: 56% white, 20.8% Asian, 8.6% Hispanic or Latino, 4.9% African American, and 9.6% other. Over 67% of all participants had been using Facebook™ for more than a year.

### Operational Definitions

Self-esteem (Rosenberg, 1989) was measured using the 10-question Rosenberg Self-Esteem Scale (2005). Sociability was indexed using nine items from Zarkin (1983). Individuals scoring low on this scale are introverted while those scoring high are extraverted. Six questions were created to measure online and offline self-reported popularity. The self-esteem, sociability, and popularity questions all used 4-point Likert-type response alternatives (See Appendix A).

To identify respondents' meaning for Facebook™ popularity the open-ended question was also asked in addition to the closed-ended questions: "What does it mean to you to be popular on Facebook™?"

Popularity, both offline and on Facebook™ were measured with a definition of popularity left to the respondents. Closed-ended Facebook™ popularity questions were: 1) "Compared to other Facebook™ users, are you more popular, less popular, or about the same?" 2) "How popular would you consider yourself on Facebook™?" 3) "How popular would other people consider you on Facebook™?"

Offline popularity was likewise assessed with the closed-ended questions in which the answer choices were: a) very popular, b) popular, c) neutral/neither, d) unpopular, e) very unpopular. The questions were: 1) How popular would you consider yourself offline? 2) How popular were you in high school? 3) How popular would other people consider you offline?

Although not part of the Facebook™ popularity scales, but useful for identifying the relative importance of two attributes to popularity were questions about to what extent the number of different friends and picture tagging by friends were associated with popularity in users' minds. "*Do you agree or disagree with the following statements?* 1) "Users with friends from more schools are more popular." 2) "Users who have more pictures tagged by friends are more popular."

Survey questions on self-esteem, sociability, and popularity were checked for reliability by computing Cronbach's alpha values. Reliability for self-esteem was .90 and for sociability it was .82. Overall popularity had a coefficient of .78, while offline popularity was at .80 and Facebook™ popularity at .78; number of friends

along with length of wall was reliable at .69. To enable comparison of aggregate semantic networks constructed from open-ended questions, participants were placed into one of four classifications based on median splits. By median splits we mean that those whose scores were above the median were placed into the “high” category, while those below the median were placed in the “low” category. The resulting groups were as follows: extroverts (high sociability) with high self-esteem (n=153), introverts (low sociability) with high self-esteem (n=114), extroverts with low self-esteem (n=76), and introverts with low self-esteem (n=147). Median splits were performed on overall popularity with additional splits for online and offline popularity.

To tap meanings and differences in open-ended responses, these were grouped and WordLink (Danowski, 1993, 2008) was then used to compute the directed cooccurrences (Danowski, 1982) of words appearing within three word positions on either side of each word. By preserving word pair order, syntax is preserved and recovered when directed word networks are constructed from overlapping word pairs. The aggregate network of words contains the syntactical relations among words because of the use of directed word pair parsing. As a result, WordLink provides a more valid and comprehensive kind of text network analysis than programs which only analyze noun phrases and throw away predicate phrases, such as Corman, Kuhn, McPhee, and Dooley’s (2002) Centered Resonance Analysis (Crawdad) or Haythornewait’s & Gruzd’s (2007) Internet Community Text Analyzer (ICTA).

A new version of WordLink (Danowski, 2008), which has the same interface, options, and outputs as the 1993 version but allows for analysis of unlimited text input file sizes (not relevant here because the text files were not large) was used to extract frequencies of words and word pairs within open-ended survey responses based on the groups created through median splits. A drop list of words including prepositions, pronouns, and verbs of being were removed from the analysis. Parameters within the software were set as follows:

- Drop words < frequent than: 3
- Drop pairs < frequent than: 3
- Preserve wordpair order: yes
- Include numbers as words: no
- Link until sentence end: no
- Link steps (word window size): 3
- Linkage Strength Method: 1 (unweighted)
- Porter Stemming: no

The various groups of respondents for the series of WordLink analyzes were the four groups constructed by median splits on sociability (introversion/extraversion)

and on self-esteem. Z-tests for proportions (relative frequencies) were run on words and word pairs to determine differences between the pairs of groups. Nodetrix (Danowski, 2003) was used to do node-centric network analyses around specified frequent words, such as “friends,” to show the network of words linked up to five steps away. Node-centric network analysis involves creating networks based around one center location, or in this case, around one specific word. The authors then graphed the word-centric semantic networks using NetDraw (Borgatti, 2002). NetDraw was used to create the visual graphs presented within the Results section. Quotes from participants were extracted with KWIC (2006) which further showed how words of particular interest were used in the original linguistic context. KWIC is a program that can be used to extract quotes with specific words from large volumes of text.

## Results

Text analysis showed that both popular and unpopular users most frequently mentioned “friends” when asked to describe what it means to be popular on Facebook™. So, “friends” was a word whose node-centric word networks were graphed in NetDraw (Borgatti, 2002). Figure 1 and Figure 2 show common word pairs and phrases surrounding the word “friend” for both popular and unpopular participants. Many participants also said that popularity on Facebook™ does not mean much to them.

Popular and unpopular participants had unique views on what types of people try to look popular on Facebook™. Popular participants more often used adjectives like “bored” ( $z = -2.13, p < .02$ ), “younger” ( $z = -2.33, p < .01$ ), and “lonely” ( $z = -2.52, p < .01$ ) to describe people who try to be popular on Facebook™. Unpopular users more often used the word “immature” ( $z = 2.10, p < .02$ ) and mentioned self-esteem as being something that affects who tries to be popular online (“low esteem”  $z = 2.59, p < .00$ ). Both groups frequently used the word “insecure.”

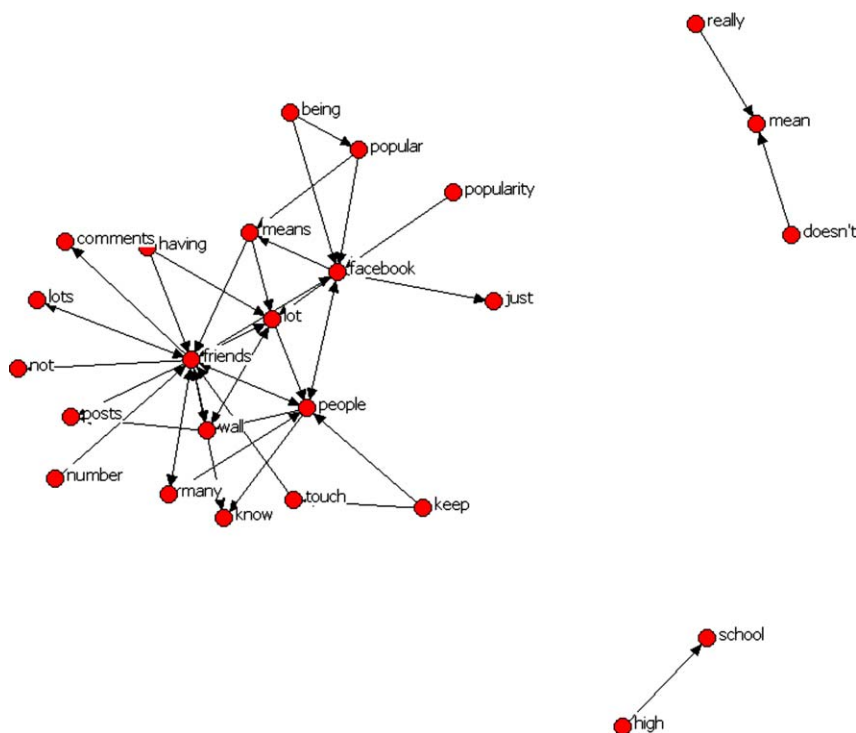
Very few of the unpopular users admitted to doing something to look cool or popular on Facebook™. Popular users frequently said they would “post up” information ( $z = -3.47, p < .00$ ) or put up “cool pictures” ( $z = -3.47, p < .00$ ). Some said they used “fake pictures,” “pictures with celebrities,” and a “nicer profile pic.” Other responses found by using KWIC (2006) included:

“I altered my pictures to look more attractive for my face.”

“I untagged some of the pictures I thought were not so good.”

“posted a funny picture”

Figures 3 and 4 show word networks based around the word “people,” because it was most commonly used to explain what types of people want to be popular on Facebook™. Figure 3 shows the responses from unpopular participants and Figure 4 shows the responses from popular participants.

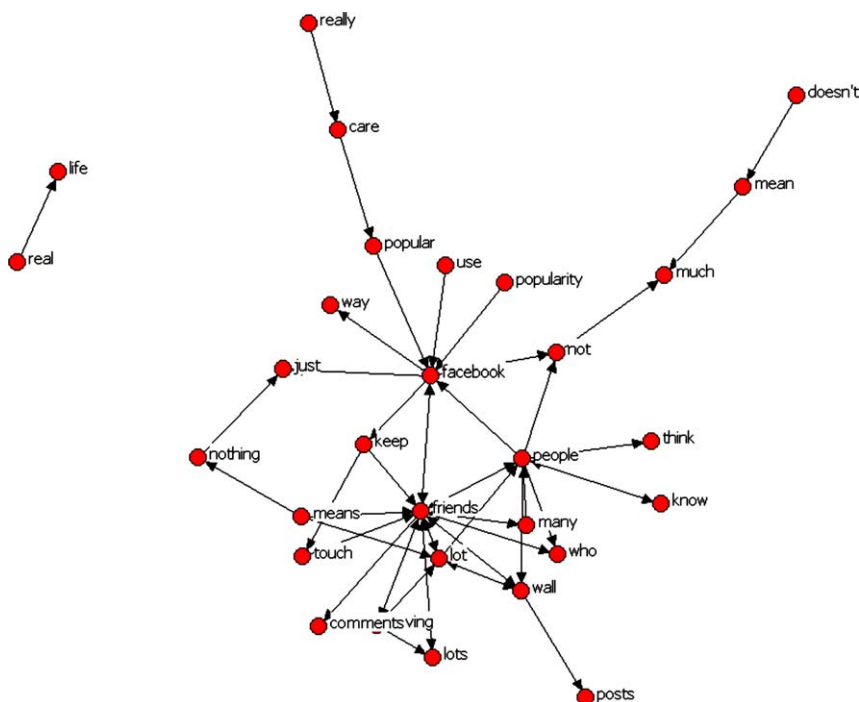


**Figure 1** What does it mean to you to be popular on Facebook™? Frequent word network among responses from unpopular participants.

Participants that personally knew someone that tries to be popular on Facebook™ were asked what these people were like. Both popular and unpopular participants used the word “add” to describe these people. Further analysis shows that they are referring to adding people to have a high friend list. They will “add anyone” and “as many people as possible.” Some examples of participant responses include:

- “they just add anyone that requests them to be their friend”
- “they add people whose names they barely know”
- “I think they go out of their way to add as many people as possible”
- “They Facebook (add to friends) everyone they meet”
- “Randomly adds friends, does not know half of their friends”

Using the uncategorized data, sociability was moderately correlated with how popular participants considered themselves online ( $r = .40, p < .00$ ). Self-esteem was weakly correlated with online popularity ( $r = .19, p < .00$ ). Sociability was also positively but weakly correlated with how important it was for users to look popular



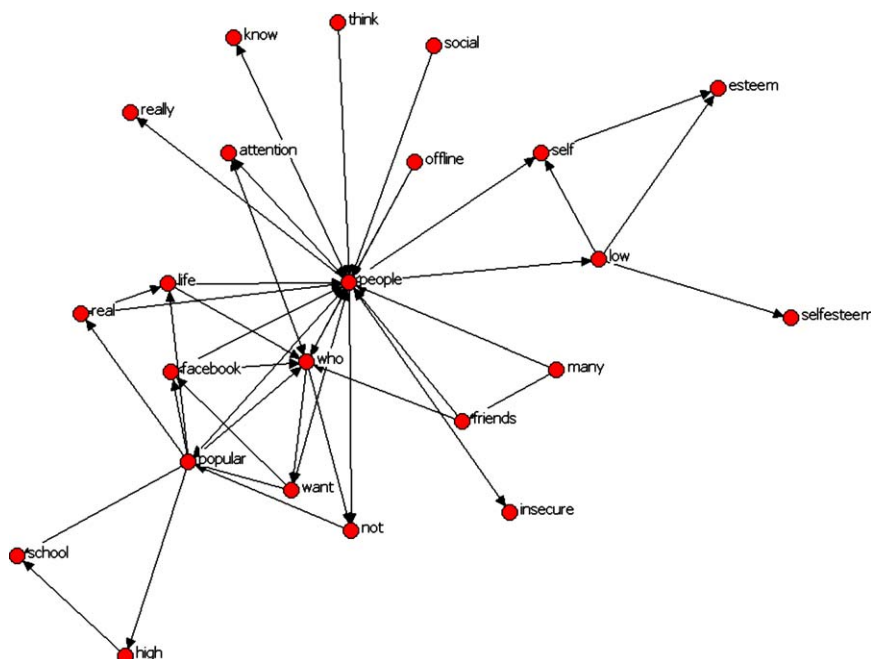
**Figure 2** What does it mean to you to be popular on Facebook™? Frequent word network among responses from popular participants.

on Facebook™ ( $r = .16$ ,  $p < .00$ ). Sociability was moderately correlated with how popular users thought they were offline ( $r = .52$ ,  $p < .00$ ), how popular other people considered them on Facebook™ ( $r = .35$ ,  $p < .00$ ), how popular others considered them offline ( $r = .57$ ,  $p < .00$ ), and how popular users were in high school ( $r = .39$ ,  $p < .00$ ).

Self-esteem had significant positive although somewhat weaker correlations with: how popular users thought they were offline ( $r = .32$ ,  $p < .00$ ), how popular other people considered them on Facebook™ ( $r = .16$ ,  $p < .00$ ), how popular others considered them offline ( $r = .29$ ,  $p < .00$ ), and how popular they were in high school ( $r = .25$ ,  $p < .00$ ).

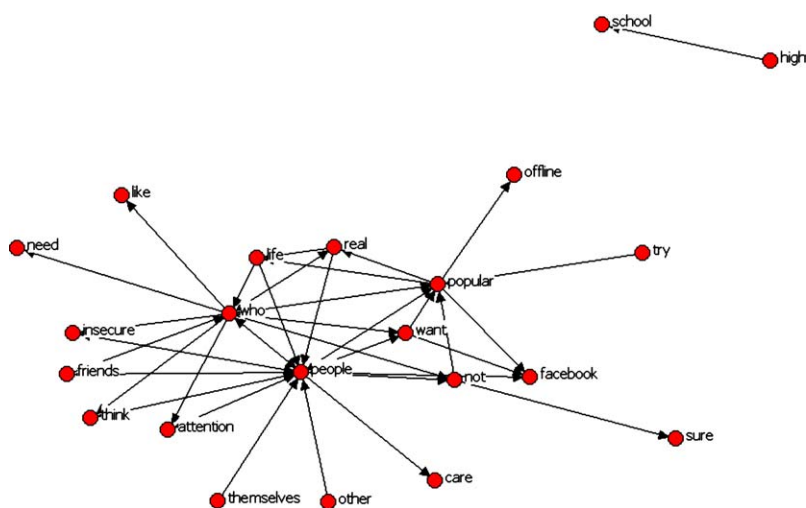
With a median of 2 (agree), half of all participants agreed or strongly agreed that users who have more pictures tagged by friends are more popular. With a median of 3 (neither agree nor disagree) for the statement that users with friends from more schools are more popular showed respondents who agreed or strongly agreed were balanced by those who disagreed or strongly disagreed. In the minds of participants number of friends from different schools and having more pictures tagged by friends were not strongly tied to perceived popularity.

Most of the participants said they do not reveal more about themselves to people they know from the Internet when compared to their non-net friends. Over 85% of



**Figure 3** What types of people want to be popular on Facebook™? Word network of responses from unpopular participants.

students said there are no things or very few things that their Internet friends know about them that they cannot share with their non-net friends. Most do not express more sides of their personality to friends online than they do to those in real life; and



**Figure 4** What types of people want to be popular on Facebook™? Word network of responses from popular participants.

most say their family would not be surprised if they read their Facebook™ profile. Some participants, however, said their families would be surprised by the content of their profile. Unpopular users frequently mentioned pictures (“some pictures”  $z = 3.67$ ,  $p < .00$ ; “maybe pictures”  $z = 3.67$ ,  $p < .00$ ) as being something that would surprise their friends or families, particularly pictures showing them “partying,” “drinking,” or doing “goofy things.” Popular users were more likely than unpopular users to say there was nothing (“nothing because”  $z = -2.61$ ,  $p < .00$ ; “online nothing”  $z = -2.30$ ,  $p < .01$ ) that would surprise their friends or family.

Approximately two-thirds of participants said they know someone that tries to be popular on Facebook™, but 67.4% said they have never done anything themselves to purposely try and look cool or popular on Facebook™ and 74.8% said they have never exaggerated or made up information and put it in their profile.

Facebook™ profiles were changed and updated since first created by 81.7% of participants. Both popular and unpopular users mentioned “boredom” as something that motivates them to change their profile. Both groups of users also mentioned life changes as something that would cause them to change their profile and they frequently used the word “new” to describe those changes. Some examples from popular users include:

“Better music/ new interests”

“I update it since I got a new job.”

“If I find a new movie I like, a new band, etc.”

“If I have a new movie, TV show, book, cute new picture, etc.”

“new events in my life.”

“Seeing new movies or hearing new quotes”

“The old information gets outdated.”

”I have a new idea of how to describe myself.”

Examples from unpopular users include:

“A new book that I’ve read or something new or exciting that has happened in my life.”

“A new favorite movie or TV show.”

“Change classes, accomplished goals, new books”

“feel like something new...new interests or pictures”

“I put up new photos sometimes”

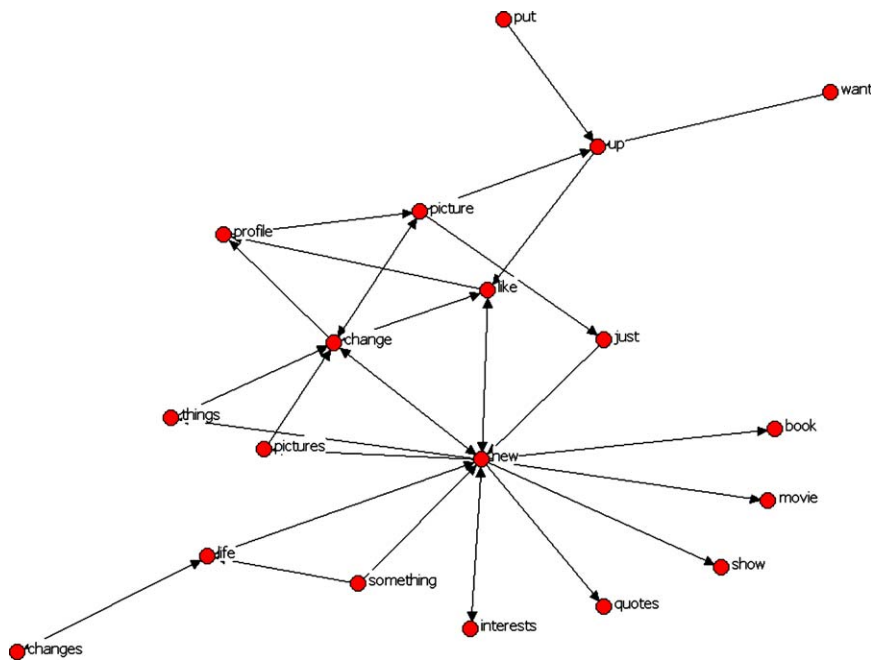
“new activities, new quotes. new things that come to my mind”



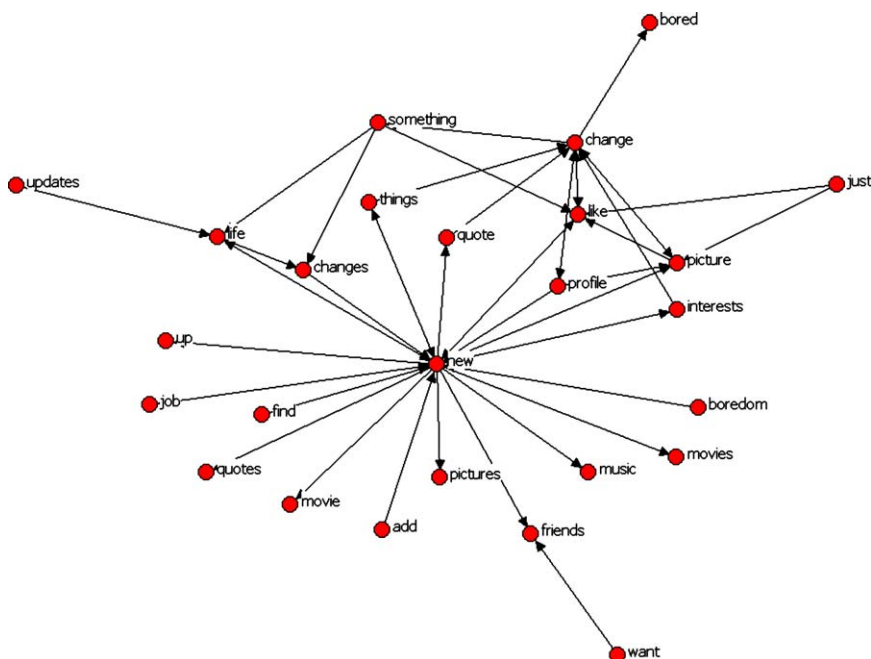
Younger users (born in 1986 or later) and older users (born before 1986) appear to differ in one way. About 9.6% of the younger users admitted to exaggerating or making up information in their profile at least sometimes, while only 4.5% of the older users do this ( $z = 2.1, p < .02$ ).

There is also a significant difference between extroverts and introverts, with 28.4% of extroverts reporting it was at least somewhat important to look popular on Facebook™, but only 17.2% of introverts reporting this ( $z = 2.2, p < .01$ ).

A higher percentage of low self-esteem users (27.9%) thought it was at least somewhat important to look popular on Facebook™ when compared to the high self-esteem users (20.2%) ( $z = 1.6, p < .05$ ). Nearly three times as many low self-esteem users revealed more about themselves to people they knew online rather than offline friends when compared to high self-esteem users (20.9% of low self-esteem users vs. 6.6% of high self-esteem users,  $z = 3.0, p < .001$ ). Of the low self-esteem users, 16.3% said there were things their Internet friends knew about them that they could not share with their real-life friends. Only 4.3% of high self-esteem users felt this way ( $z = 3.0, p < .001$ ). More low self-esteem users also said they expressed more facets of themselves online (10.1 % low; 3.2% high,  $z = 3.0, z = 2.5, p < .001$ ), admitted that friends and family would be surprised by their profile (12.4% low; 4.7% high,  $z = 2.3, p < .01$ ), exaggerated or made up information (10.4% low; 3.3%



**Figure 5** What motivates you to change your profile? Unpopular users frequently mentioned the word “new.”



**Figure 6** What motivates you to change your profile? Popular users also frequently used the word “new.”

high,  $z = 2.6$ ,  $p < .01$ ), and had purposely done something to look cool or popular on Facebook™ (10.9% low; 3.9% high,  $z = 2.5$ ,  $p < .01$ ).

Overall, the most common popular participants were high self-esteem extroverts. Of the high self-esteem extroverts, 73.9% were considered popular. The majority of low self-esteem extroverts (61.8%) were also classified as popular. The most common unpopular users were low self-esteem introverts, of which 72.1% were considered unpopular. High self-esteem introverts were split between being perceived as popular or unpopular, with 48.2% considered unpopular and 34.2% considered popular. A higher percentage of popular users had high self-esteem compared to unpopular users (53.1% compared to 31.5%, respectively,  $z = 3.0$ ,  $p < .001$ ).

High self-esteem extroverts and high self-esteem introverts differed both in popularity and how outgoing they considered themselves online and offline. Of the high self-esteem extroverts, 94.8% said they are outgoing offline and 60.2% are outgoing on Facebook™. Only 55.3% of high self-esteem introverts say they are outgoing offline and 29.8% are outgoing on Facebook™ ( $z = 3.0$ ,  $p < .001$  and  $z = 3.0$ ,  $p < .001$ ).

Low self-esteem extroverts and low self-esteem introverts also differed from each other and the other groups. The majority of low self-esteem extroverts said they were outgoing offline (94.7%) and on Facebook™ (67.1%). Fewer low self-esteem introverts said they were outgoing (44.9% offline and 31.3% on Facebook™, ( $z = 3.0$ ,

**Table 1** Comparisons of Self-Esteem/Extrovert-Introvert Groups on Popularity (expressed in percentages)

	High SE Extrovert	High SE Introvert	Low SE Extrovert	Low SE Introvert
Popular	73.9	34.2	61.8	17.7
Unpopular	14.4	48.2	23.7	72.1
Outgoing offline	94.8	55.3	94.7	44.9
Outgoing on Facebook™	60.2	29.8	67.1	31.3

$p < .001$  and  $z = 3.0$ ,  $p < .001$ ). By using the data comparison chart below it is easy to see the similarities and differences among the four different groups of participants: high self-esteem extroverts, high self-esteem introverts, low self-esteem extroverts and low self-esteem introverts.

By using regression analysis it was possible to compare variance explained among online popularity and offline popularity. Variances in offline popularity are explained more ( $R^2 = .25$ ,  $F = 97.81$ ,  $p < .001$ ) than variances in online popularity ( $R^2 = .12$ ,  $F = 81.11$ ,  $p < .001$ ). Self-esteem significantly contributed to offline popularity ( $\beta = .46$ ,  $p < .001$ ) but not online popularity. Sociability explained more of online popularity ( $\beta = .35$ ,  $p < .001$ ).

## Discussion

This study found support for both the Social Compensation and the Social Enhancement hypotheses. This is because different subtypes of users behave differently. Those more sociable (extroverted) and with higher self-esteem are more popular both offline and on Facebook™ supporting the Social Enhancement hypothesis. This finding on sociability agrees with previous research by Mervielde (2000). At the same time, another subset of users who are less sociable (introverted), have lower self-esteem, and are less popular offline, support the Social Compensation hypotheses because they are—and strive more to look—popular on Facebook™ and think that is important. A higher percentage of low self-esteem users, revealed more information about them online, said there were things their Internet friends knew about them that they could not share with their real-life friends, expressed more of their facets online, exaggerated information, and admitted to having done something to look popular on Facebook™. Rather than making strategic moves to enhance popularity, some low self-esteem users may just feel more comfortable expressing their true selves online rather than offline (Amichai-Hamburger et al., 2002; McKenna et al., 2002; Bargh et al., 2002).

Self-esteem may be a personality trait that explains the support for both Social Enhancement and Compensation hypotheses. Low self-esteem users may be trying to enhance their self-image, and high self-esteem users may be trying to protect their self-image or popularity. According to Tice (1993), it is not uncommon for people

with low-self esteem to “adopt risky, self-aggrandizing, get-rich schemes to enhance their views of themselves” (p. 39). According to the protection-enhancement hypothesis, high self-esteem users would use Facebook™ to achieve a higher social status and low self-esteem users would use it to fix deficiencies in order to be socially acceptable (Tice, 1993). This hypothesis supports the idea that both high self-esteem users and low self-esteem users try to look popular on Facebook™. The hypothesis states that high self-esteem users want to enhance their self-esteem, while low self-esteem individuals want to protect their self-esteem (Tice, 1993).

Semantic network analyses of open-ended responses show that popular users, more often than unpopular users, said they did not really care about popularity on Facebook™. This suggests that those that strive for popularity are those that do not have it. Those that did care said being popular means having lots of posts on your wall. Both groups agreed that popularity is indicated by the number of friends a person has.

Participants who were unpopular offline mentioned that self-esteem had something to do with whether a person tried to be popular on Facebook™ or not. They thought users with lower self-esteem were more likely to try to be popular online. In this situation the unpopular participants may have projected their own characteristics and behaviors when describing who tries to be popular on Facebook™. Most participants agreed that users who have more pictures tagged by friends are more popular, as are users with friends from more schools. Both popular and unpopular users say insecure individuals are likely to try to be popular online.

Popular users said they would most often change their profile picture. These ingratators use the attractive self-presentation style (Jones & Wortman, 1973; Schlenker, 1980) in order to appear popular on Facebook™. Both popular and unpopular users agreed that people who try to look cool or popular on Facebook™ do so by adding more friends. Very few of the participants, however, admitted to doing things to look popular themselves. Boredom and changes in their lives are two major factors determining why participants change their Facebook™ profiles. Popular and unpopular users mentioned changing their profiles for these similar types of life changes: new jobs, new interests, and new favorite books, movies, or quotes.

Variance in offline popularity can be explained nearly twice as much as the variance occurring in online popularity. This research suggests online popularity is not as grounded or defined as offline popularity. Another explanation for this variance may be that people do not care about online popularity or do not see it as something that is important in their lives.

## **Directions for Future Research**

We recommend continued research that asks Facebook™ users if they think popularity on Facebook™ is different from popularity offline. This would allow a better understanding of the notion of popularity and how its meaning may vary in different contexts with different types of individuals. We should also try to further understand

individuals that said popularity does not exist online or does not mean much to them. Everyone who creates a profile on Facebook™ has edited their profile to look a certain way. Users select only certain information about themselves to put into their profiles. Many users untag bad photos and edit who can see their updates and activity on the site. It would be revealing to find out why someone would say popularity does not exist on Facebook™, or that they do not care about it, while at the same time they have most likely done something to look more attractive or more positive on Facebook™. Perhaps they have different perceptions of the notion of popularity than those of other participants, or there may be social desirability influencing responses.

It would be interesting to see how high school students use Facebook™ and what differences in popularity, self-esteem, and sociability exist between high school students and college students using Facebook™. Perhaps differences due to age would be more prevalent. Popularity may be more important for high school users and these users are also more likely to experiment with their identity (Valkenburg et al., 2002). In order to better understand differences due to age, these younger Facebook™ users should be included in future research. When including high school students, those of younger ages may be expected to have a wider range of self-esteem and sociability, because they are probably at a more insecure point in their lives than are college students.

Another possibility for future research would be to examine if and how social networking sites change interactions among students at school. It appears that some Facebook™ users will add anyone to their friends list, whether they are friends in real life or not. How does this relate to social cliques in schools? Are social cliques as prominent as they were before websites made it possible to be connected with everyone in a school? It seems unlikely that nearly everyone in school is seen as a “friend” as they often appear to be online for many users. Social networking sites may also have an impact on how students interact across schools. For example, social networking sites make it easier for students to be friends with and communicate with students from other high schools, possibly even rival schools.

It would be beneficial to explore the consequences of trying to be popular and portray a certain image on social networking sites. Being more socially forward online and purposely doing things to look cool or popular may make users more attractive to their peers, but it may also attract undesirable attention from users they do not know. Some respondents in this research made it clear that it is obvious when someone is trying to look cool or popular on Facebook™. It would probably be fruitful to examine how these behaviors impact individuals’ self-image and social relationships, both online and offline.

Since the start of this project in 2005, the purpose of Facebook™ and other social networking sites has expanded beyond just a hangout for college students to make friends among campus peers. For example, after the April 2007 shooting at Virginia Tech University, students used Facebook™ as a means of coping and a way to communicate during a time of emergency (Pelofsky, 2007). We recommend further

research on the expanding purposes of social networking sites like Facebook™ more closely after this incident. At the start of the project we saw Facebook™ simply as a way for college students to be social, make friends, and express themselves. Facebook™ has developed into much more than this. We are curious about how Facebook™ and similar sites are used by college students who are struggling with emotional issues, problems, and daily stress.

Another related issue to research further is whether or not experiencing tragedy, like the Virginia Tech shooting, makes someone appear more popular online. Students who were involved in the incident, and even those that died, received large numbers of hits on their profile page and received more than a normal amount of comments on their walls (Vargas, 2007). Over 236 Facebook™ groups and discussion boards were created following the incident, and many Virginia Tech students were members and contributors (Pelofsky, 2007). Facebook™ brought together students dealing with this tragedy, but were the students involved perceived as popular because of the incident and the attention it received? They did accumulate more friends and had more wall posts. Does it matter why these popularity predictors, under normal circumstances, increase as to whether they contribute to popularity on Facebook™? It would be useful to understand if and how tragedy or other major life events can increase one's popularity online.

## Conclusion

Because these findings are useful for understanding what types of people feel more comfortable expressing themselves online and what types of people care about being popular online, mentors, teachers, psychologists, counselors, employers, parents, and other older significant persons could use this information to help reach a broader range of students and more deeply understand the college students in their lives. Those that care should be aware that low self-esteem and high sociability are characteristics that may be associated with youth using social networking sites to present themselves in a way that might be different from how they present themselves in real life. The results help one to understand that younger users and older users differ in their use of Facebook™. Younger users may be more likely to exaggerate or make up information on Facebook™. Differences between the two groups may become more prevalent when examining a wider range of ages.

It is also interesting to know that popularity is more than just something that exists in real life. It also exists on Facebook™ and perhaps on other SNSs. This adds a new level of complexity to the social lives of some youth. They may not only want to be popular in school, but also in virtual spaces, and some with less popularity offline appear to strive extra hard for it online.

Our results show that self-esteem is associated with offline popularity but not Facebook™ popularity, while sociability can explain Facebook™ popularity. Online popularity has more variance than offline popularity and has more disconnection from variables like sociability and self-esteem. Virtual popularity appears to be

substantially different from real life popularity and does not seem to be as grounded. Only certain people think of online popularity as an extension of offline or school popularity, and others do not even believe popularity exists online. Facebook™ and similar SNSs may be changing users' sense of self and redefining what it means to be popular.

Facebook™ was designed to be a basic campus communication tool, but it may serve at least one other purpose. Some people appear to use the site in an attempt to increase their self-image and to feel more popular. Nevertheless, communication skills are particularly important in this pursuit. Although the efficacy of popularity online versus offline may vary, SNSs do appear to enable more people to try to enhance their popularity. Many people notice others trying to be popular online, but do not necessarily believe they are popular. Users who have lots of wall comments and friends, are perceived to have more online popularity. Is there more to these variables than meets the eye? May it be the case that the Social Compensation users are engaging in behaviors of self-improvement that will bootstrap upward their self-esteem and sociability? Are there causal relations such that SNSs are important agents in raising the self-esteem and sociability of users? Answers to such questions await causal evidence for the linkages among associations we have found.

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## Appendix A

### Contents of Online Questionnaire

1. How long have you been using Facebook™?
  - a) less than 1 month b) less than 6 months c) less than a year d) more than a year e) I do not use Facebook™
2. How important is it for you to look popular on Facebook™?
  - a) very important b) important c) somewhat important d) neutral/neither e) not very important f) not important at all
3. Compared to other Facebook™ users, are you more popular, less popular, or about the same?
  - a. more popular
  - b. less popular
  - c. about the same
4. How popular would you consider yourself on Facebook™?
  - a) very popular b) popular c) somewhat popular d) neutral/neither e) somewhat unpopular f) unpopular g) very unpopular
5. How popular would you consider yourself offline?
  - a) very popular b) popular c) neutral/neither d) unpopular e) very unpopular

6. How popular were you in high school?  
a) very popular b) popular c) neutral/neither d) unpopular e) very unpopular
7. How popular would other people consider you on Facebook™?  
a) very popular b) popular c) neutral/neither d) unpopular e) very unpopular
8. How popular would other people consider you offline?  
a) very popular b) popular c) neutral/neither d) unpopular e) very unpopular
9. What does it mean to you to be popular on Facebook™?
10. Do you know someone who tries to be popular on Facebook™?  
a. yes  
b. no  
If yes, what are they like?
11. What types of people want to be popular on Facebook™?

**Do you agree or disagree with the following statements?**

12. Users with friends from more schools are more popular.  
a) strongly agree b) agree c) neither agree nor disagree d) disagree e) strongly disagree
13. Users who have more pictures tagged by friends are more popular.  
a) strongly agree b) agree c) neither agree nor disagree d) disagree e) strongly disagree
14. Age differences affect who tries to look popular online.  
a) strongly agree b) agree c) neither agree nor disagree d) disagree e) strongly disagree
15. How outgoing are you offline?  
a) Very outgoing b) Outgoing c) Neutral/Neither d) not outgoing e) not outgoing at all
16. How outgoing are you on Facebook™?  
a) Very outgoing b) Outgoing c) Somewhat outgoing d) Neutral/Neither e) not outgoing f) not outgoing at all
17. Do you think you reveal more about yourself to people you know from the Internet than to real-life (non-net) friends?  
a. A lot  
b. A little  
c. Not very much  
d. Not at all
18. Are there things your Internet friends know about you that you cannot share with real-life (non-Net) friends?  
a. A lot  
b. A little  
c. Not very much  
d. Not at all

19. Do you express more facets, or sides, of yourself and personality to friends online than you do with those in “real life”?  
Never 1.....2.....3.....4.....5.....6.....7 All the Time
20. Would your friends and family be surprised if they were to read your Facebook™ profile or Facebook™ postings?  
Not at all surprised 1.....2.....3.....4.....5.....6.....7 Extremely surprised  
What would surprise your friends and family?
21. Do you ever exaggerate or make up information and put it in your profile?
  - a. Often
  - b. Sometimes
  - c. Not very often
  - d. Never
22. Have you ever purposely done something to look cool or popular on Facebook™?
  - a. Often
  - b. Sometimes
  - c. Not very often
  - d. Never
 If yes, what have you done to look cool or popular?
23. Do you ever change your profile on Facebook™?
  - a. no
  - b. yes
 If yes, what motivates you to change your profile?
24. Why do you log onto Facebook™?

BELOW IS A LIST OF STATEMENTS DEALING WITH YOUR GENERAL FEELINGS ABOUT YOURSELF. IF YOU STRONGLY AGREE, CIRCLE SA. IF YOU AGREE WITH THE STATEMENT, CIRCLE A. IF YOU DISAGREE, CIRCLE D. IF YOU STRONGLY DISAGREE, CIRCLE SD.

		1. STRONGLY AGREE	2. AGREE	3. DISAGREE	4. STRONGLY DISAGREE
1.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
2.	I feel that I have a number of good qualities.	SA	A	D	SD
3.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I take a positive attitude toward myself.	SA	A	D	SD
7.	On the whole, I am satisfied with myself.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	I certainly feel useless at times.	SA	A	D	SD
10.	At times I think I am no good at all.	SA	A	D	SD

BELOW IS A LIST OF STATEMENTS DEALING WITH YOUR SOCIABILITY. IF YOU STRONGLY AGREE, CIRCLE SA. IF YOU AGREE WITH THE STATEMENT, CIRCLE A. IF YOU DISAGREE, CIRCLE D. IF YOU STRONGLY DISAGREE, CIRCLE SD.

	1. STRONGLY AGREE	2. AGREE	3. DISAGREE	4. STRONGLY DISAGREE
1. I prefer to do things alone.	SA	A	D	SD
2. I almost always prefer to work and study with others rather than alone.	SA	A	D	SD
3. I have more friends than most people.	SA	A	D	SD
4. I am very sociable.	SA	A	D	SD
5. I like to feel independent of people.	SA	A	D	SD
6. I tend to be a loner.	SA	A	D	SD
7. I prefer parties with lots of people.	SA	A	D	SD
8. I make friends very easily and quickly.	SA	A	D	SD
9. I tend to be shy.	SA	A	D	SD

To what extent are your friends on Facebook™ friends of one another?

- a. Nearly all are friends of one another
- b. Most are friends of one another
- c. Some are friends of one another
- d. A few are friends of one another
- a. none are friends of one another

Approximately what percentage of your friends on Facebook™ are friends of one another?

- 0–10%
- 11–20%
- 21–30%
- 31–40%
- 41–50%
- 51–60%
- 61–70%
- 71–80-%
- 81–90%
- 91–100%



**Demographic Information:**

What college or university do you attend?

What is your race/ethnicity?

- a. White
- b. Black or African American
- c. Mexican American
- d. Hispanic or Latino
- e. Asian American or Pacific Islander
- f. American Indian or Alaskan Native
- g. Other (please specify)\_\_\_\_\_

What is your gender?

- a. male
- b. female

How old are you?

What is your year in college?

- a) freshman b) sophomore c) junior d) senior e) alumni: graduation  
year\_\_\_\_\_

## THAT WAS 2007



**Les visages des usagers de Facebook<sup>MC</sup> : Un examen des hypothèses de l'amélioration sociale et de la compensation sociale, une prédiction de la popularité sur Facebook<sup>MC</sup> et hors ligne à partir de la sociabilité et de l'estime de soi et une cartographie des significations de la popularité grâce aux réseaux sémantiques**

Jolene Zywica

University of Illinois, Chicago

James Danowski

University of Illinois, Chicago

Cette recherche examine deux hypothèses rivales tirées de la littérature : 1) l'hypothèse de l'amélioration sociale (« les riches s'enrichissent »), selon laquelle les gens les plus populaires dans la vie hors ligne rehausseraient leur popularité en augmentant celle-ci sur Facebook<sup>MC</sup>, et 2) l'hypothèse de la « compensation sociale » (« les pauvres s'enrichissent »), selon laquelle les usagers tenteraient de rehausser leur popularité sur Facebook<sup>MC</sup> afin de compenser une popularité hors ligne inadéquate. Les participants ( $n = 614$ ) d'une grande université urbaine du Midwest américain ont complété un questionnaire en ligne. Les résultats suggèrent qu'un sous-ensemble d'utilisateurs, ceux qui sont les plus extravertis et qui ont une estime d'eux-mêmes plus grande, appuient l'hypothèse de l'amélioration sociale, car ils sont plus populaires tant hors ligne que sur Facebook<sup>MC</sup>. Un autre sous-ensemble d'utilisateurs, ceux qui sont moins populaires hors ligne, appuient l'hypothèse de la compensation sociale parce qu'ils sont plus introvertis, ont une estime d'eux-mêmes plus basse et s'efforcent plus de sembler populaire sur Facebook<sup>MC</sup>. Une analyse des réseaux sémantiques des réponses ouvertes révèle que ces deux sous-ensembles d'utilisateurs attribuent aussi différentes significations à la popularité hors ligne et en ligne. De plus, la régression explique près de deux fois plus la variance dans la popularité hors ligne que celle sur Facebook<sup>MC</sup>, une indication que cette popularité sur Facebook<sup>MC</sup> n'est pas aussi ancrée socialement ou aussi définie que ne l'est la popularité hors ligne.

**Die Gesichter der Facebook-Nutzer: Eine Untersuchung zu den Hypothesen der sozialen Verbesserung und sozialen Kompensation; Zur Vorhersage der Facebook<sup>TM</sup>- und Offline-Beliebtheit auf Basis von Geselligkeit und Selbstbewusstsein; Die Abbildung der Bedeutungen von Popularität in semantischen Netzwerken**

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Mit unserer Forschung untersuchen wir zwei konkurrierende Hypothesen aus der Literatur: 1) die These der sozialen Verbesserung („Die Reichen werden immer reicher“), nämlich dass diejenigen, die bereits offline beliebt sind, ihre Beliebtheit durch Facebook<sup>TM</sup> noch vergrößern und 2) These der sozialen Kompensation („Die Armen werden reicher“), nämlich dass Nutzer versuchen, ihre Facebook<sup>TM</sup>-Beliebtheit zu vergrößern, um ihre als inadäquat empfundene Offline-Beliebtheit zu kompensieren. 614 Teilnehmer einer großen städtischen Universität im mittleren Westen der USA nahmen an einer Onlinebefragung teil. Die Ergebnisse zeigten, dass die Gruppe der Nutzer, die extrovertierter sind und ein größeres Selbstbewusstsein haben, eher die These der sozialen Verbesserung stützen, da sie sowohl in Facebook<sup>TM</sup> als auch offline beliebter sind. Eine andere Nutzergruppe, die offline weniger beliebt sind, stützen die These der sozialen Kompensation, da sie introvertierter sind, ein geringeres Selbstbewusstsein haben und danach streben, in Facebook<sup>TM</sup> beliebter wahrgenommen zu werden. Die semantische Analyse der offenen Fragen verdeutlichte zudem, dass in diesen zwei Gruppen unterschiedliche Bedeutungsdefinitionen für Offline- und Online-Beliebtheit vorliegen. Eine Regression erklärt fast doppelt soviel Varianz für Offline-Beliebtheit verglichen mit der Facebook<sup>TM</sup>-Beliebtheit, was darauf hindeutet, dass letztere sozial nicht so verankert oder definiert ist wie Offline-Beliebtheit.

**Las Apariencias de los Usuarios de Facebook: Investigando las Hipótesis de Mejoramiento Social y de la Compensación Social; Prediciendo Facebook™ y la Popularidad Offline desde la Sociabilidad y la Estima Personal y Creando Mapas de Significado de la Popularidad con la Semántica de las Redes**

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**Resumen**

Esta investigación reporta dos hipótesis de la literatura que se hallan en competencia: 1) La hipótesis de “Mejoramiento Social” (“El rico se vuelve más rico”) que aquellos individuos más populares offline incrementan su popularidad mediante su acrecentamiento en Facebook™, y 2) la hipótesis de “Compensación Social” (“El pobre se vuelve más rico”) que los usuarios intentaron incrementar su popularidad en Facebook™ para compensar su inadecuada popularidad offline. Los participantes (n= 614) de una universidad grande en el centro de los Estados Unidos completaron una encuesta online. Los resultados demostraron que un subconjunto de los usuarios, aquellos más extrovertidos y con mayor estima personal, apoyaron la hipótesis de mejoramiento social, siendo más populares en ambos offline y en Facebook™. Otro grupo de usuarios, aquellos con menos popularidad offline, apoyaron las hipótesis de compensación social porque eran introvertidos, tenían menos estima personal y lucharon para verse más populares en Facebook™. Un análisis semántico de red de las respuestas abiertas revela que estos dos tipos de usuarios poseen también significados diferentes para la popularidad offline y online. Más aún, la regresión explica casi el doble de la varianza en la popularidad offline como en la popularidad en Facebook™, indicando que la última no es tan socialmente definida como la popularidad offline.

**Facebook 用户的脸面：探讨社会加强和社会补偿之假设；从社交及自尊角度预测 Facebook 上及网下受欢迎度；并从语义网络析辨“受欢迎度”的语意**

**摘要**

本研究探讨了源自文献的两个竞争性假设：1）社会加强假设（富者愈富），即网下受欢迎的那些人能在 Facebook 上提升他们的受欢迎程度；2）社会补偿性假设（穷者变得更富），即用户试图提升他们在网上的受欢迎程度，以弥补他们在网下社会中受欢迎程度的不足。614 位来自美国中西部一所大型的城市大学的参与者完成了一项网上调查。结果显示更加外向、自尊心更强的那类用户支持社会加强之假设，即在 Facebook 上和网下都受欢迎。而网下不太受欢迎的那类用户则支持社会补偿之假设，因为他们更加内向、自尊心较低、在 Facebook 上尽量显得很受欢迎。对开放式回答进行的语义网络分析揭示：这两类用户对网下受欢迎程度和网上受欢迎程度有不同的解释。此外，回归分析解释网下受欢迎程度的变量是 Facebook 受欢迎度之变量的两倍，这表明后者的界定缺乏**社会基础**，和对网下受欢迎度的界定是不一样的。

**(Faces of Facebookers). 페이스북커의 얼굴들: 사회적향상과 사회적보상  
가정들의 조사: 어의적 네트워크를 통한 대중성 의미 연구**

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요약

본 연구는 문헌으로부터의 두가지 경쟁적인 가정들에 대한 연구인바, 그들은 1) 사회적 향상 가정과 2) 사회적 보상 가정이다. 전자는 부자가 더욱 부자가 된다는 논리로, 대중적 오프라인들이 그들의 대중성을 페이스북을 통해 더욱 증가시킨다는 것이며, 후자는 가난한자가 부자가 된다는 논리로 사용자들이 부적당하다고 생각되는 오프라인 대중성을 보상하고자 페이스북에서의 대중성을 증진시키려고 시도한다는 가정이다. 614명의 참여자들은 대체로 미국 중서부의 도시에 소재하고 있는 대학에 소속되어 있으며, 온라인 서베이를 통하여 연구가 이루어졌다. 결과에 따르면 사용자들의 한 부류는—보다 적극적이고 자부심이 높은—사회적향상 가정을 지지하고 있는바, 이들은 오프라인과 페이스북 모두에서 더욱 대중적이고자 한다. 반면, 또 하나의 집단은 오프라인에서 덜 대중적인 그룹으로 그들은 보다 내향적이고 낮은 정도의 자부심을 지니고 있으며, 페이스북에서 보다 대중적으로 보이려고 노력하고 있기 때문에 사회적 보상가정을 지지하였다. 자유로이 대답할 수 있는 질문의 의미적 네트워크 분석은 이러한 두 사용자 부류는 오프라인과 온라인 대중성에 대하여 다른 의미를 가지고 있는 것을 보여주고 있다. 더우기 회귀분석은 오프라인 대중성이 페이스북 대중성에서보다 분산이 두배정도 높다는 것을 보여주고 있는바, 이는 후자가 사회적으로 기초를 두지 않거나 오프라인 대중성으로서 정의할 수 없다는 것을 증명하는 것이다.