

The Cyber Self: Facebook as a Predictor of Well-being

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ABSTRACT

Growing research suggests that Facebook may relate to users' self-esteem, identity perceptions, and cognitive function by facilitating identity exploration and minimizing self-deception. The present study empirically investigated this possibility. A cross-sectional correlational design with a web-based survey was utilized. Participants (N = 446) were 24.3% male (N = 118), 67.2% female (N = 326), 2% transgender/in transition (N = 2). 59.6% of participants were ages 18–32 (N = 289) while 13.6% were age 23–27 (N = 66) and 18.3% over age 28 (N = 89). High frequency Facebook use significantly positively correlated with mature defense style ($p < 0.05$, $r = 0.13$). High self-esteem significantly positively correlated with mature defense styles ($p < 0.01$, $r = 0.24$) and negatively with immature styles ($p < 0.05$, $r = -0.13$). High frequency Facebook use also significantly positively correlated with Actualization Potential ($p < 0.01$, $r = 0.20$). In summary, higher levels of Facebook use appear to correlate with positive attributes such as low self-deception, mature coping, high self-esteem, and high actualization potential. Copyright © 2015 John Wiley & Sons, Ltd.

Key words: Facebook, defense style, actualization potential, social self-esteem

INTRODUCTION

Technological advances provide means by which our daily lives can become increasingly streamlined, immense tasks and communications consolidated into a pattern of keystrokes. While some forms of technology simplify mathematical calculations, transportation, or safety, technological advances have also impacted the ways information is created and spread on a social plane. Social networking sites (SNSs) such as Facebook intervene at this point, streamlining various categories of social interaction including chat, life status updates, photograph updates, event invitations and more, irrespective of the temporal and geographical confines of face-to-face communications.

Initially created in a Harvard dorm room in 2004, “The Facebook” in its infancy existed to simplify social networking among Harvard students. Since its

inception, the influence of the website, now simply named “Facebook”, has grown exponentially. Boasting over 800-million users as of 2011, 400-million of whom log-in daily to create and comment on over two billion posts via traditional desk top and lap top computers as well as over 475 mobile platforms (Facebook, 2013), Facebook has the potential to profoundly influence the ways people interact in a modern technological age. This potential was experimentally tested by Kramer, Guillory, and Hancock (2014) who found that experimental manipulation of exposure to certain kinds of Facebook updates incited a form of emotional contagion – where individuals exposed to more posts with negative emotions tended to post more negative things themselves (and positive exposure yielded an increase in positively-connoted posts). As of April 2012, 398 million users reported actively engaging with the website, both creating and responding to posts, at least six out of seven days per week (Facebook, 2013). This indicates that Facebook has become more than a casual means of reinforcing face-to-face contacts. It has become a medium of communication not only complementing other forms such as face-to-face or telephone contacts, but transcending them in some cases.

According to founder and chief executive officer (CEO) Mark Zuckerberg “Facebook’s mission is to make the world more open and connected” (Facebook, 2013). Beginning as a platform to connect Harvard students, Facebook has mobilized itself to now connect individuals to the rest of the world and all of its experiences and ideas. In response to this exponential growth in the influence of Facebook, a growing pool of research has emerged to examine the motivations Facebook users have for their increasingly intense interactions with the website. Joinson (2008) conducted a two-part study to evaluate the motivations Facebook users have for interacting with the website, and the personal gains they report from engaging in such use. Joinson’s (2008) factor analysis of participants’ self-reported motivations and benefits revealed that seven factors motivate the use of Facebook: social connection, shared identities, content, social investigation, social network surfing, and status updating. These seven factors reveal that users turn to the website not only to absorb information, but also to create it and engage in ongoing global dialogues relating to their interests.

Subrahmanyam, Reich, Waechter, and Espinoza (2008) investigated the larger function that SNSs such as Facebook play in the lives of emerging adults by evaluating the extent to which Facebook represents either an overlap or a gap between online and offline social networks. While less novel SNSs such as MySpace reveal a distinct “online–offline trend” where users meet new people online who they then grow to trust and eventually meet in a face-to-face setting, Facebook use reveals the opposite trend. Facebook is often used to complement and improve upon existing face-to-face networks whether by increasing the quantity, quality, and/or facility of information exchanges or by facilitating the establishment of trans-group networks established through connections of mutual friends (both online and offline). Subrahmanyam *et al.* (2008) also evaluated the motivations users had for engaging with SNSs, and similarly to

Joinson (2008) concluded that users are motivated by the ability to both absorb and create information.

Defense Style

Previous research has implicated adaptivity of ego defenses as moderators of actualization potential and accuracy of self-presentations. Phoebe Cramer (2008) defines defense mechanisms as unconscious cognitive processes which protect individuals against daily personal and social stressors. All individuals use defense mechanisms, although individual use differs based on countless individual, interpersonal, and situational variables. Cramer argues that defense mechanisms exist within a hierarchy of cognitive complexity and varying levels of self-deception and adaptivity. The levels of this hierarchical ladder of defenses can be characterized as immature (maladaptive), mature (adaptive), and neurotic (somewhat maladaptive and somewhat adaptive) defense styles. The predominant use of immature and neurotic defenses can become harmful to an individual's growth and level of overall functioning and were operationalized as such within the present study using the Defense Style Questionnaire (DSQ; Andrews, Singh, & Bond, 1993).

While Horney (1950) interpreted adaptivity of functioning and personality neurosis in a more fluid light than the foundations set forth by Freudian ego theory described by Cramer (2008), her theoretical approach to personality and defense style artfully integrates Maslow's theory of self-actualization in a unique way. Horney (1945) theorized defense style categorically, similar to Andrews *et al.* (1993), however her categories included: moving toward people (compliance), moving against people (aggression), and moving away from people (detachment). While these do not represent an exhaustive list of defense mechanisms, they characterize the coping styles of individuals with neurotic personality characteristics. Horney (1950) associated neurotic characteristics with difficulty coping with stress surrounding self-perceptions and self-presentation and with lower likelihood of attaining actualization potential. In summary, extant literature proposes relationships between ego functioning, adaptivity of coping strategies (defense style), cyber interaction platforms such as Facebook, and actualization potential. While defense style and actualization potential have not yet been studied in relation to one another or in relation to Facebook use, the aforementioned research behind these three variables supports a strong theoretical link which lends itself to additional research into these specific variable relationships.

Actualization Potential

While the concept of defense style has become well understood and accepted among theorists of ego development and functioning, the variable of self-actualization remains theoretically relevant, albeit scarcely researched. Self-

actualization, defined by Abraham Maslow (1943) as the inherent drive toward acquisition of one's full potential, may also assist individuals in defending their identities against life stressors. Maslow (1943) describes self-actualization as a psychological developmental process which may or may not culminate in an ultimate state of actualization, defined as an individual having reached his or her level of full potential, which is best characterized by the quote: "A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy" (p. 382). Maslow (1943) describes this process as hierarchical, comprising stages each with relevant needs that must be met before an individual can progress to the next level of the hierarchy in their ascent toward actualization. These needs include biological needs such as hunger and thirst, followed by safety needs such as comfort, predictability, and assurance from the environment.

Facebook may facilitate the gratification of these needs by providing users with ample control over their self-presentation and interactions within Cyber Space. Safety needs give way to Love needs which require affection and belongingness. The global nature of Facebook and the magnitude of potential connections it makes available to individuals may facilitate the gratification of the Love needs and give way to the Esteem needs. These include both self-esteem and esteem in others. After the Esteem needs have been gratified, the next level in the hierarchy is Self-actualization. This is the point at which an individual has realized and attained his or her full potential in life. An individuals' ability or likelihood of attaining that level of ultimate potential is referred to as "actualization potential" or the potential to reach actualization. A high level of actualization potential, therefore, would necessitate and indicate high levels of adaptive coping strategies which would maintain the stability of self-image and motivation necessary for the attainment of actualization. In line with Maslow's theory, actualization potential may represent a future-oriented assessment of adaptivity to complement the past and present orientation inherent to the use of defense mechanisms.

Social Self-esteem

In addition to defense style and actualization potential, self-esteem represents another variable critical to daily functioning which relates theoretically to Facebook use. Turkle (2011) describes social networking technology as "a phantom limb" (p. 29), a component very much integrated into daily life, yet still unsatisfying of many central needs and desires. She describes the self as being "tethered" to technology and simplicity (e.g. texting instead of calling, Facebook instead of face-to-face interaction), and proposes that this tethering of the self results in discontent if a balance between online and offline interactions is not maintained. For example, individuals who return home after a day of work and isolate themselves in a room with a computer screen may feel fulfilled during those moments online, but without the presence of the online realm they may sense a void in their needs and self-image – "in the half-light of virtual community, we may feel utterly alone" (p. 30).

This concept of increasing dependence on online social networks resembles the concept of “Self Objects” described by Heinz Kohut (1971). Self Objects are external objects which complete the self and are necessary for adaptive functioning in daily life. Kohut (1971) describes this concept in terms of relationships between parents and their infant child, in which case the parents are Self Objects for the infant. The Self Object helps the individual to define his or her self-perceptions and identity, and has the potential to mend psychopathology by providing a sense of wholeness, cohesion, and wellness; however, it is possible that a lack of balance between the self and the Self Object may have negative implications for well-being, just as Turkle (2011) describes online communications as adaptive only within moderation – only with balance. For example, from this framework, individuals who use Facebook in a way that complements and balances with face-to-face interactions, the website may contribute to characteristics of adaptive functioning (such as adaptive defense styles, higher self-esteem, and higher actualization-potential). However, if individuals use Facebook or other online social networks in place of face-to-face interactions, the Self Object may in essence replace the self, creating a sense of an unbalanced existence with potential negative implications for defense style, self-esteem, and actualization potential.

Unlike defense style and actualization potential, self-esteem has been studied extensively in relation to Facebook use. Two competing hypotheses exist within this pool of research: The Objective Self Awareness (OSA) model and the Hyperpersonal Self model (Gonzales & Hancock, 2011). The OSA model describes the self as both subject (within daily experiences) and object (within introspective self-reflection). This model also proposes that during periods of objective self-awareness and introspection, individuals will become highly self-critical and their self-esteem will begin to diminish with this self-criticism. However, the Hyperpersonal (or Subjective Self Presentation) model describes individuals as portraying images of themselves online which are highly skewed toward positive characteristics. This “selective self-presentation” when reflected back to individuals after repeated interactions with the website are hypothesized to increase self-esteem due to the consistent reinforcement of positive self-images.

Gonzales and Hancock (2011) experimentally tested these two rival hypotheses in a sample of 63 participants. Participants were randomly assigned to one of three conditions: exposure to a mirror, exposure to one’s own Facebook site, and a control condition. The authors found that even when statistically controlling for gender differences in self-esteem, participants who viewed their Facebook profiles reported significantly higher self-esteem than their control or mirror condition counterparts. Further analysis indicated that Facebook not only had a positive impact on self-esteem, but that this impact remains significantly more positive than individuals in the mirror condition. This indicates that while Facebook was hypothesized to function as a virtual mirror, reflecting participants’ self-images back in order to influence self-esteem, the demonstrated

variable relationships indicate that Facebook's "mirroring" effect operates differently than traditional mirrors, leading to higher (rather than lower) self-esteem.

This positive relationship between Facebook use and self-esteem has also been replicated longitudinally (Steinfeld, Ellison, & Lampe, 2008) in a random sample of 286 participants (92 of whom completed both full waves of the study). These researchers found that increased levels of Facebook use supplemented face-to-face life by allowing participants to accumulate additional interpersonal relationships online, the majority of which later developed into face-to-face relationships. Furthermore, the results of Steinfeld *et al.*'s (2008) investigation revealed that Facebook had a greater impact on the self-esteem of users who began the study with lower levels of baseline self-esteem. While the positive relationship held true for participants with higher baseline self-esteem as well, the relationship was strongest among the low self-esteem baseline group.

PURPOSE OF THE STUDY

The present study sought to build upon existing Facebook research to evaluate not why users engage with the website, and not how conscious users are of privacy concerns as has been the focus of a large pool of existing Facebook literature, but to investigate instead the ways Facebook interacts with personality constructs that are critical to how individuals interact on social planes both online and offline. The present study evaluated defense style (the use of adaptive or maladaptive defense mechanisms), actualization potential based upon Abraham Maslow's (1943) theory of Human Motivation, and social self-esteem in relation to Facebook use. These variables represent both stable and malleable personality characteristics which play critical roles in human motivations, development, and social interactions.

The present study evaluated four hypotheses. First, we hypothesized that individuals with high frequency Facebook use would also use more adaptive defense mechanisms than individuals with low frequency Facebook use. Second, we hypothesized that individuals who use more adaptive defense mechanisms would score more highly on a measure of actualization potential than individuals who use less adaptive defense mechanisms. Third, we hypothesized that individuals with high social self-esteem would also score highly on measures of Facebook use and actualization potential. Fourth, we hypothesized that defense style would moderate the relationship between Facebook use and actualization potential. We utilized a web-based survey to evaluate these hypotheses.

Method

The present study evaluated how Facebook use correlates with and/or predicts the personality constructs of defense style, actualization potential, and social self-esteem. Existing literature suggests that these constructs positively correlate (for examples see: Back *et al.*, 2010; Beaumont, 2009; Boyd, 2007; Campbell,

1990; Gonzales & Hancock, 2011; Lethcoe, 2008; Mallan, 2009; Ross, Orr, Sisic, Arseneault, Simmering, & Orr, 2009; Subrahmanyam *et al.*, 2008; Suler, 2002, 2005; Valkenburg, Peter, & Schouten, 2006), but no study to date has investigated these particular relationships. We evaluated the aforementioned four hypotheses using a cross-sectional correlational design via a web-based survey. The study was approved by the Institutional Review Board of John Jay College of the City University of New York.

Procedure

All participants completed identical web-based surveys containing a demographic questionnaire, the Facebook Intensity (FBI) scale, the DSQ, the Measure of Actualization Potential (MAP), and the Social Self-esteem Inventory. Participants provided their consent to participate in the study by clicking to begin the study after they read the informed consent statement. Participants were given the chance to skip any question they chose and could terminate their participation at any time without penalty. No deception was involved, therefore debriefing was not necessary. Participants arrived at the survey link containing the questionnaire items by following the aforementioned posts to websites and online volunteer and community forums.

Participants

Participants were recruited from an online population. A survey link was generated on a host website (PsychData.com). This survey link was then distributed internationally from March 2012 until April 2012. The survey link then remained available for participants to follow and participate until May 2012. The link was distributed via a series of e-mails and posts to Facebook, numerous Craigslist "volunteer" classifieds, and forum posts to PsychCentral.com and its affiliated site, The Student Doctor Network (studentdoctor.net) with the title "Seeking participants for survey on Facebook use and personality". These posts were then viewed and shared by the users of these forums and websites. Participants were not offered any form of compensation for their time. Ultimately, 446 participants were recruited for this study. These were primarily age 32 or below (83.7%), White (59.4%), had completed some college (42.5%) or earned at least a two-year degree (31.5%), were never married (74.8%), and were current students not working full or part-time (47%). Refer to Table 1 for a more detailed depiction of participant characteristics.

Measures

Demographic questionnaire

The demographic questionnaire was created by the co-investigators in this study and it asked general background questions regarding sex, age, religious

Table 1: Sample descriptive statistics

Variable	Frequency (N)	Valid percent
<i>Age</i>		
18–22	289	59.6
23–27	66	13.6
28–32	51	10.5
33–37	13	2.7
38–42	5	1.0
43–47	8	1.6
Over 47	12	2.5
<i>Gender</i>		
Male	118	24.3
Female	326	67.2
Transgender/in transition	2	0.4
<i>Education level</i>		
Some high school	14	2.9
High school diploma	85	17.5
Some college	206	42.5
2-year college degree	47	9.7
4-year college degree	44	9.1
Some graduate work	17	3.5
Masters or professional degree	21	4.3
Advanced graduate work or PhD	11	2.3
<i>Ethnicity</i>		
White	288	59.4
Black/African American	42	8.7
American Indian/Alaska Native	5	1.0
Asian Indian	10	2.1
Filipino	5	1.0
Chinese	7	1.4
Korean	2	0.4
Vietnamese	2	0.4
Hispanic/Spanish/Latina/o	33	6.8
Other	51	10.5

Note: Percentages reported are “valid percentages” and therefore may not amount to 100% due to missing data in some cases.

preference, region of residence, educational status, marital status, and socio-economic status measured by income level.

The Facebook Intensity (FBI) scale

The FBI scale (Ellison, Steinfield, & Lampe, 2007) consists of eight items measured on a five-point Likert scale in which participants rate each item with the extent to which they agree or disagree with the statement. The FBI scale measures the frequency and duration of daily Facebook use, as well as evaluating the extent to which individuals feel connected to the website and their ratings of its importance in their daily life. This measure therefore offers more

Table 2: Descriptive statistics and Pearson correlations for all variables

	1	2	3	4	5	6
1. FBI	1					
2. IMM	−0.04 [−0.12,0.13]	1				
3. MAT	0.16* [0.02,0.24]	0.28** [0.13,0.36]	1			
4. NEUR	0.22** [0.12,0.34]	0.47** [0.41,0.62]	0.27** [0.19,0.41]	1		
5. SSSES	0.18* [0.04,0.27]	−0.09 [−0.25,−0.003]	0.24** [0.12,0.36]	0.10 [−0.08,0.16]	1	
6. MAP	0.21** [0.09,0.31]	−0.10 [−0.22,0.03]	0.33** [0.23,0.45]	0.07 [−0.02,0.21]	0.55** [0.44,0.63]	1
M	3.73	3.93	5.40	4.56	4.36	3.40
SD	1.22	0.95	1.23	1.29	0.80	0.34

Note: Listwise $N = 206$,

* $p < 0.05$,

** $p < 0.01$.

FBI, Facebook Inventory scale; immature (IMM), mature (MAT), and neurotic (NEUR) defense styles; SSSES, social self-esteem; MAP, Measure of Actualization Potential; M, mean; SD, standard deviation; 95% confidence intervals (CIs) in brackets.

depth of information about Facebook use than any simpler measure of frequency/duration of log-ins or quantity of Facebook friends. This measure was found to be highly reliable in the present sample (eight items; $\alpha = 0.83$).

Defense Style Questionnaire (DSQ)

The DSQ-40 (Andrews *et al.*, 1993) measures ego defense style. It consists of 40 self-report items which measure three categories of defense styles: mature, neurotic, and immature. The DSQ-40 was developed based on Ego Psychology theories which characterize defense mechanisms as adaptive mental processes. This theory situates defenses along a developmental hierarchy with mature defenses as the most adaptive and cognitively complex, immature defenses as the least adaptive and cognitively simpler, and neurotic defenses between mature and immature defenses. Examples of mature (adaptive) defenses include sublimation, humor, anticipation, and suppression. Neurotic defenses include undoing, pseudo-altruism, idealization, and reaction formation. Immature (maladaptive) defenses include projection, passive aggression, acting out, isolation, devaluation, denial, displacement, dissociation, rationalization, and somatization. Items assess the extent to which a participant agrees or disagrees with a given statement, measured on a nine-point Likert scale. Items include statements such as “I’m able to keep a problem out of my mind until I’m ready to deal with it” and “I get a headache when I have to do something I don’t like”. The level of adaptivity of an individual’s coping offers insight into overall ego functioning

and personality characteristics. This scale was found to be reliable in the present sample (40 items; $\alpha = 0.82$).

The Measure of Actualization Potential (MAP)

The MAP was developed and validated in an initial set of studies by LeFrancois, LeClerc, Dube, Hebert, & Gaulin, 1997) and a criterion validity study was later conducted to further validate the measure (LeFrancois, LeClerc, Dube, Hebert, & Gaulin, 1999). The MAP consists of 27 sentence-completion items which measure two primary dimensions of actualization potential: openness to experience and reference to self. These then divide into the sub-dimensions of adaptation, autonomy, openness to life, and openness to others. Each dimension is measured by 3–6 individual items which are randomly distributed to counterbalance potential order effects. Items are measured on a five-point Likert scale denoting the difficulty participants experience in various proposed situations. This scale was found to be reliable in the present sample (27 items; $\alpha = 0.78$).

The social self-esteem inventory

The Social Self-esteem Inventory (Lawson, Marshall, & McGrath, 1979) addresses a gap in the social relevance of global measures of self-esteem. The authors proposed that social self-esteem is a distinct sub-dimension of global self-esteem and developed and validated a measure to test and measure this sub-dimension. The Social Self-esteem Inventory consists of 30 items measured on a six-point Likert scale denoting the extent to which each item accurately describes each participant. Examples of items include “I find it hard to talk to strangers” and “I am socially effective”. This scale was found to be reliable in the present sample (30 items; $\alpha = 0.93$).

RESULTS

The present study sought to build upon existing literature on SNSs such as Facebook by evaluating its relationship with socially relevant characteristics of defense style, actualization potential, and social self-esteem. Correlation (Table 2) and regression analyses (Table 3) were conducted. The present investigation utilized the Bonferroni Correction to control Type 1 error. With a desired $\alpha = 0.05$ and six comparisons run within each hypothesis, the Bonferroni Correction tested each hypothesis at $\alpha = 0.05/6 = 0.008$. All four hypotheses were supported by the data.

Hypothesis One: Facebook Use and Defense Style

Hypothesis one predicted that individuals with high frequency Facebook use would also use more adaptive defense mechanisms than individuals with low frequency Facebook use. Facebook use significantly positively correlated neurotic defense style [$r(206) = 0.22$, $p = 0.002$], positively correlated with adaptive

Table 3: Hierarchical regression of actualization potential on Facebook use and defense style

Variable	Model 1			Model 2		
	B	SE B	β	B	SE B	β
FBI	0.06	0.02	0.22	0.05	0.02	0.16
DSQIMM				-0.08	0.03	-0.22
DSQMAT				0.10	0.02	0.36
DSQNEUR				0.02	0.02	0.06
R^2		0.05***			0.19***	
F for change in R^2		12.50***			13.32	

Note: Listwise $N = 206$,
*** $p < 0.001$.

defense style though non-significantly, and negatively correlated with the use of maladaptive defense style, although not significantly. Based upon correlational results, simple linear regression analyses were then conducted. Facebook use significantly predicted the use of adaptive neurotic [$R^2 = 0.05$, $F(1, 299) = 17.15$, $p < 0.001$] defense styles. This hypothesis was therefore supported by the data for neurotic defenses, but not for adaptive or maladaptive.

Hypothesis Two: Defense Style and Actualization Potential

Hypothesis two predicted that individuals who use more adaptive defense mechanisms would score more highly on a measure of actualization potential than individuals who use neurotic and maladaptive defense mechanisms. The use of adaptive defense mechanisms significantly positively correlated with actualization potential [$r(206) = 0.33$, $p = 0.001$]. The use of neurotic defenses did not significantly correlate with actualization potential. The use of maladaptive defenses negatively correlated with actualization potential, although not significantly. Based upon correlational results, regression analyses were then conducted. The use of adaptive defenses significantly predicted higher actualization potential [$R^2 = 0.12$, $F(1, 282) = 37.83$, $p < 0.001$]. This hypothesis was therefore supported by the data for adaptive defenses, but not for neurotic or maladaptive.

Hypothesis Three: Social Self-Esteem, Facebook Use, and Actualization Potential

Hypothesis three predicted that individuals with high social self-esteem would also score highly on measures of Facebook use and actualization potential, correlation and regression analyses were conducted. Social self-esteem positively correlated with Facebook use, though not significantly. Social self-esteem significantly positively correlated with actualization potential [$r(206) = 0.55$,

$p < 0.001$]. Regression analyses were then conducted to further investigate the predictive potential of these relationships. Social self-esteem significantly positively predicted actualization potential [$R^2 = 0.29$, $F(1, 277) = 114.91$, $p < 0.001$]. This hypothesis was therefore supported by the data.

Hypothesis Four: Defense Style as a Moderator

Hypothesis four predicted that defense style would moderate the relationship between Facebook use and actualization potential, a hierarchical regression analysis was conducted. Facebook use was entered as the first hierarchical predictor, followed by defense style (maladaptive, adaptive, and neurotic entered together in that order) with actualization potential as the outcome variable. Together, Facebook use and defense style significantly predicted together [$R^2 = 0.19$, $F(4, 243) = 13.59$, $p < 0.001$] and accounted for 18.5% of variance in actualization potential. Hypothesis four was therefore supported by the data.

DISCUSSION

Summary

The present study sought to elaborate upon extant Facebook research by evaluating how it relates to the specific personal and social characteristics of defense style, actualization potential, and social self-esteem. Hypothesis one predicted that Facebook use would positively correlate with the use of mature or adaptive defense mechanisms. The results supported this hypothesis, as individuals scoring highly on the FBI scale also scored highly on the adaptive subscale of the DSQ. Hypothesis two predicted that defensive style would positively correlate with actualization potential. Correlational results supported this hypothesis. Hypothesis three predicted that social self-esteem, Facebook use, and actualization potential would all positively correlate. The results supported this hypothesis as well. Hypothesis four predicted that defensive styles would moderate the relationship between Facebook use and actualization potential. The results also supported this hypothesis, as the correlation between Facebook use and actualization potential remained significant even when the influence of defense style was statistically removed.

Overall, relationships between Facebook use, defense style, social self-esteem, and actualization potential in the present study indicate that Facebook can potentially be used as a platform to predict how individuals cope, rate their social self-esteem, and how high their potential to adaptively develop to their full individual capacity. Additionally, these relationships indicate that Facebook may be used as a platform to intervene regarding the aforementioned domains of psycho-social development. While future research should further investigate these relationships and possibilities, the present study represents a foundation from which such research can build.

These results align with existing literature which implied that these relationships would likely occur, but never empirically tested that possibility. Valkenburg (2006) found the use of SNSs to influence self-esteem relative to the nature of feedback received on the website. For example, users receiving negative comments from their “friends” online would report lower self-esteem than users receiving positive comments and affirmations from their “friends”. The present study hypothesized that Facebook use would positively relate to social self-esteem, based upon the underlying hypothesis that users would consciously maintain a friends list which provided them with positive affirmation rather than negativity such as insults or bullying. Whether or not this was actually the underlying factor to the relationship between Facebook use and social self-esteem remains uncertain, and would be a useful uncertainty to test in future research.

Suler (2005) suggested that the temporal flexibility of Cyber Space allows online interactions to supplement and improve upon face-to-face interactions because communications through Instant Messaging (IM), chat rooms, in a Facebook private message, or on a Facebook wall are essentially frozen in time. Users can slow these interactions by leaving a message temporarily unanswered, reflect upon that message, and choose a response in line with that reflection. Face-to-face interactions imply a sense of urgency; the conversation cannot simply pause when it becomes difficult. Participants must cope with that cognitive load with a sense of immediacy, and this is not always the case with Cyber interactions. The present study theorized in part that the temporal flexibility of Facebook interactions would provide users with the time and space necessary to modify and develop their coping strategies. Over an extended period of time, it is possible that these strategy modifications may overlap into face-to-face interactions as Subrahmanyam *et al.* (2008) found that online and offline communications supplement one another.

This concept of a cyclical pattern of online and offline interactions building off and feeding into one another was also theorized by Turkle (1996). In her qualitative investigation of the motivations and experiences of individuals who engage heavily in online gaming communities. Turkle found that while some individuals engaged in online gaming in order to escape their everyday face-to-face lives (such as the individual who engages in social network communications as an active means of avoiding face-to-face communications), many utilize online networks to supplement and improve upon their face-to-face lives. For example, some individuals may utilize the anonymity and flexibility of online networks to experiment with various aspects of their personality (extroversion, sexuality, gender identity conflicts, etc.) which they may not feel as comfortable exploring in real life scenarios (Turkle, 1995). Safe exploration in Cyber Space may eventually manifest in a transition toward identity exploration in real life, thus producing the cyclical supplemental process of online and offline experiences. As described by Turkle, “virtual personae can be a resource for self-reflection and self-transformation” (Turkle, 1995, p. 397).

Abraham Maslow (1943) described self-actualization as the culminating point of a hierarchy of needs which must be gradually met. These needs include the Biological needs such as hunger and thirst, followed by safety needs such as comfort, predictability, and assurance from the environment. The present study theorized that Facebook facilitated the gratification of these needs by providing users with ample control over their self-presentation and interactions within Cyber Space. Safety needs give way to Love needs which require affection and belongingness.

We theorized that the global nature of Facebook and the magnitude of potential connections it makes available to individuals would facilitate the gratification of the Love needs and give way to the Esteem needs. These include both self-esteem and esteem in others. After the Esteem needs have been gratified, the next level in the hierarchy is Self-actualization. This is the point at which an individual has realized and attained his or her full potential in life. The results of the present study support the hypothesis that Facebook facilitates the gratification of the Basic needs thus maximizing an individual's likelihood of attaining Self-actualization or their Actualization Potential.

One frequent criticism of research regarding Facebook use and correlates of personality functioning is that self-presentation online represents an idealized self-image and not real or actually embodied characteristics. Horney (1950) theorized that self-perceptions (and therefore presentations) can fall into either of these two categories of the real versus the idealized self. Horney described this ambivalent state as the neurotic personality, a maladaptive state of existence characterized by ambivalence in self-image and setting unrealistic goals and boundaries. Horney further conceptualized the state of the neurotic self in terms of Abraham Maslow's theory of human motivation and self-actualization, theorizing that such a state of ambivalence renders individuals incapable of reaching their full potential in life (their actualization potential).

A pool of empirical research has also emerged regarding these concepts of real versus idealized selves. The "real self" relates to the extended real-life hypothesis that online identities represent extensions of face-to-face personalities and the "idealized self" relates to the idealized virtual identity hypothesis that individuals post idealized images of themselves online which do not reflect actual characteristics (Back *et al.*, 2010). Back *et al.* (2010) investigated these hypotheses in a sample of 236 online social network users (133 of which were Facebook users). The authors compared self-reported personality characteristics to actual presentations drawn from access to participant profiles (saved before participation to prevent users from altering their profiles prior to participation) and to the personality-related observations of third-party raters viewing the saved profiles. Results provided support for the extended real-life hypothesis, indicating that users presented their real selves rather than their idealized selves on SNSs.

Building upon the aforementioned research, Michikyan, Subrahmanyam, and Dennis (2014) investigated the potential for personality traits (neuroticism and extraversion) to moderate the extent to which individuals present real, idealized,

or false selves on Facebook. In a sample of 261 young adults, these authors found that both personality and frequency of Facebook use predicted presentations of the real self. For example, participants who reported higher levels of Facebook use also reported higher levels of accurate self-presentation on the website.

This hypothesis of actively modifying self-presentation in various social arenas has also been referred to as “impression management” (Goffman, 1959). Impression management represents a system of communicatory behaviors through which individuals seek to manipulate the ways they are perceived by others. DeAndrea, Tong, Liang, Levine, and Walther (2012) reported that inaccurate self-presentations commonly occur within daily face-to-face interactions. Additionally, these authors conducted three studies each with independent samples to investigate the potential for social accountability to moderate accuracy of self-presentation. Their data supported the hypothesis that participants would more accurately portray themselves if their actual characteristics were readily observable and could be used to refute their self-presentations in a social arena. Furthermore, these authors found that in some cases individuals may inaccurately present themselves because they do not possess accurate perceptions of themselves. This has been described as the “foggy mirror” effect (Ellison, Heino, & Gibbs, 2006). For example, an individual may describe himself as being very extroverted and may very much believe this to be true, but others may view the same individual as being somewhat shy or reserved. The researchers found that individuals who do possess accurate self-presentations are more likely to present themselves accurately in social arenas, thus suggesting that more adaptive characteristics of coping, personality, and introspection relate to higher levels of accuracy in self-presentations. Additionally, DeAndrea and Walther (2011) found that social accountability moderated accuracy of self-presentation specifically online. These authors theorized that the higher degree of social accountability created by multi-dimensional social networks makes it difficult to misrepresent personality simultaneously to a diverse online social network comprised of colleagues, professional acquaintances, family members, and friends.

While a great deal of previous research has investigated self-representations on and offline both theoretically and empirically, this research unanimously frames the discussion as a dichotomous “real versus idealized” presentation scenario. A small pool of additional research suggests that such a conceptualization may be overly simplistic, and that discrepancies between reality and self-presentation can be explained by bidirectional mechanisms of change. For example, an individual’s self-presentation online may differ from their presentation in face-to-face communications for a number of reasons: due to active impression management or lack of insight (as posited by the aforementioned research), or due to time lags in mechanisms of change between the two modes of self-presentation. Methods of exploration both online and offline may facilitate the development and refinement of personality characteristics, and these changes may not be reflected immediately and simultaneously across all forms of self-presentation.

Turkle (1997) proposed that in addition to presenting themselves online, individuals are also actively creating themselves through online interactions. In describing this process, one of Turkle's participants stated that "you are what you pretend to be ... you are what you play" (Turkle, 1997, p. 73). Turkle additionally conceptualizes these self-representations as Freudian "objects" with meanings that change over time as a function of their relationship to other objects (such as social interactions and self-perceptions converging across multiple types of settings). The concept of "multiple subjectivities" (or multiple self-characterizations and presentations) may represent a process of externalizing various aspects of oneself differentially across online and offline domains. For example, an individual may choose to emphasize personality characteristics of shyness and keen social observation in face-to-face communications, but may explore latent extroverted tendencies within online platforms. While divergent, these two presentations may represent a neurotic personality state rather than active misrepresentation of the self in its idealized form. Turkle succinctly describes this process of multi-dimensional and perpetual change in self-perceptions and presentations in the following statement: "We come to see ourselves differently as we catch sight of our images in the mirror of the machine" (Turkle, 1999, p. 643). The "machine" (online forums for self-presentation such as Facebook) has the power to influence self-perceptions and personality characteristics in the same way that personality characteristics have the potential to influence self-presentations online.

While the majority of previous research describes positive relationships between Facebook use and self-esteem, this proposition does not stand unchallenged. For example, Mehdizadeh (2010) found that individuals who reported lower levels of self-esteem and higher levels of narcissistic traits also tended to have higher levels of Facebook use. This lower level of self-esteem among high Facebook users was particularly strong among the self-promotional content of the profile photograph and found no significant relationships among other self-promotional content (e.g. "about me" section, main profile photograph, view photographs, status updates, and notes). This indicates potential differences in realistic self-portrayals across image-dominated versus text-dominated online profile content. Secondly, Moreno *et al.* (2011) investigated status updates on 200 Facebook profiles over the period of a year, assessing statuses for displayed symptoms of depression. These researchers found that 25% of Facebook users displayed symptoms of depression through their posted status updates, and that participants most likely to display these depressive symptoms were those who used the website most frequently and those who received supportive comments on statuses displaying of depressive symptoms.

While both aforementioned studies support a potentially negative relationship between Facebook use and self-esteem, a number of other possibilities exist regarding the nature of this relationship. For example, a longitudinal study conducted by Steinfield *et al.* (2011) and an experimental study conducted by Gonzales and Hancock (2011) both indicate directionality in the form of

Facebook use influencing self-esteem. However, a small pool of theoretical (Goffman, 1959; Turkle, 1997, 1999) and empirical (DeAndrea & Walther, 2011; Michikyan *et al.*, 2014) works indicate a more bi-directional relationship between Facebook use and personality, as previously discussed. While some research (Steinfeld *et al.*, 2011; Gonzales & Hancock, 2011) hints at a potentially causal relationship between Facebook use and personality variables such as self-esteem, it is also possible that only a correlational relationship exists, or even that the relationship is bi-directional with Facebook use and personality both cyclically influencing one another. Future research should continue to investigate these possibilities.

As is often the case with any research delving into the multi-dimensional and ever kinetic realm of personality research, there are likely a number of individual differences which may impact not only the extent to which an individual may engage with Facebook or that individual's likelihood of participating in a study on Facebook, but also potentially the extent of the gains (or possible losses) that individual may encounter by virtue of Facebook use. As of yet, no study has emerged to address the methodological issues associated with parsing out potential directionality and causality between individual characteristics and Facebook use. It is possible that individuals with high self-esteem, actualization potential, and adaptive coping may interact more with Facebook and therefore benefit more; however it is also possible that individuals with low self-esteem, actualization potential, and adaptive coping may benefit most as they may have the most to gain from the additional realm of exploration offered by Facebook. These individuals may then not be inclined to participate in research regarding Facebook until they had reached a state of higher well-being. Unfortunately, existing methodologies have not been equipped to address these issues which would constitute a worthwhile realm of exploration for future investigations.

Limitations

One limitation of this study regards the self-selection of participants. For example, individuals who use Facebook more frequently and who may also cope more adaptively and have higher social self-esteem and actualization potential may have been more inclined to participate in the study. Harber, Zimbardo, and Boyd (2003) suggest that personality variables such as time-orientation (whether a participant is more oriented toward present or future) predict not only self-selection for participation in research but also degree of participation. They also found time orientation to have potential implications for coping; therefore future research may consider taking time orientation and related personality variables into account. Furthermore, Bethlehem (2010) found that self-selection biases have the potential to be particularly influential in web-based surveys (compared to in-person participation), therefore future research should use supplemental methodologies (e.g. telephone or in-person surveys,

interviews, behavioral observations) to more explore the stability of the results of the present investigation (Gelder, Bretveld, & Roeleveld, 2010).

Second, the present investigation obtained a sample which was skewed toward higher adaptivity across all variables, manifesting in higher scores on social self-esteem, actualization potential, and defense style. As such, the present investigation represents a foundation for research into variables of personal potential, well-being, and Facebook use which has not been investigated previously. Future research should attempt to re-investigate these constructs among more demographically diverse samples recruited from alternative means. For example, this pool of research may benefit from a behavioral experimental investigation manipulating levels of Facebook use and Facebook exposure to assess impacts upon actualization potential, social self-esteem, and coping styles.

Conclusions and Future Directions

Past research suggests that Facebook has the power to influence the psychological and social well-being of users. Some claim that this influence is positive, while others insist that Facebook negatively impacts its users. The results of the present study suggest that Facebook use correlates positively with defense style, actualization potential, and social self-esteem; however more recent research also indicates that a number of additional variables may moderate or mediate any potential influences of Facebook upon its users (see Kramer *et al.*, 2014, for an experimental example).

To address the limitations and questions raised by the present study, future research should address two broad areas which the current body of Facebook research is lacking: First, future research should assess the potential influence of Facebook on user characteristics and well-being longitudinally across multiple age cohorts to determine whether or not a critical period may exist for Facebook influence as well as assessing potential moderating and mediating variables such as emotional valence of posts and other user personality characteristics. Second, future research should continue to explore the directionality of influences: Facebook use may influence personality, personality may influence Facebook, or the two may cyclically influence one another. We hypothesize a cyclical influence, similar to the idea that introducing a mirror into an individual's life will gradually lead to awareness of and changes to physical appearance, which will in turn lead to increased and modified use of the mirror, and so on. Regardless, two studies in particular provide evidence toward a unidirectional relationship between Facebook use and personality (Gonzales & Hancock, 2011; Steinfield *et al.*, 2011), thus highlighting the need for additional research into these variables. Future research following these three proposed directions would complement past research and the present study to present a more detailed image of relationships between Facebook use and well-being.

CONCLUSION

The present study concludes, in line with past studies, that Facebook relates to positive characteristics of coping and personality. Developmental psychologists across various professional orientations agree that adolescence and emerging adulthood comprise a critical period of personal development and identity formation. Most popular among high school and college students, Facebook may represent a critical medium for reaching this population. Harnessing this medium opens a world of potential for outreach. Facebook has already been utilized as a means of outreach and mobilization in times of social crisis such as the 2011 tornados in Joplin, Missouri (see the following Facebook-based support group <https://www.facebook.com/joplinmo>) and the earthquake and tsunami in Japan (see <https://www.facebook.com/JapanEarthquake>). The social relevance of harnessing the influence and potential of Facebook is clear, but this potential has not yet been tapped.

REFERENCES

- Andrews, G., Singh, M., & Bond, M. (1993). The Defense Style Questionnaire. *The Journal of Nervous and Mental Disease*, 181(4), 246–256.
- Back, M. D., Stopfer, J. M., Vaziere, S., Gaddis, S., Schmukle, S. C., Egloff, B., & Gosling, S. D. (2010). Facebook profiles reflect actual personality, not self idealization. *Psychological Science*, 21(3), 372–374.
- Beaumont, S. L. (2009). Identity processing and personal wisdom: An information oriented personality style predicts self-actualization and self-transcendence. *Identity: An International Journal of Theory*, 9, 95–115.
- Bethlehem, J. (2010). Selection bias in web surveys. *International Statistical Review*, 78(2), 161–188. DOI: 10.1111/j.1751-5823.2010.00112.x
- Cramer, P. (2008). Seven pillars of defense mechanism theory. *Social and Personality Psychology Compass* 2, 10(1111), 1–19.
- DeAndrea, D. C., Tong, S. T., Liang, Y., Levine, T. R., & Walther, J. B. (2012). When do people misrepresent themselves to others? The effects of social desirability, accountability, and ground truth on deceptive self-presentations. *Journal of Communication*, 62, 400–417. DOI: 10.1111/j.1460-2466.2012.01646.x
- DeAndrea, D. C., & Walther, J. B. (2011). Attributions for inconsistencies between online and offline self-presentations. *Communication Research*, 38(6), 805–825. DOI: 10.1177/0093650210385340
- Ellison, N., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication*, 11(2), 27–62. DOI: 10.1111/j.1083-6101.2006.00020
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook “friends:” Social capital and college students use of online social network sites. *Journal of Computer-Mediated Communication*, 12, 1143–1168.
- Facebook. (2013). Key facts. Retrieved from <https://newsroom.fb.com/Key-Facts>
- Gelder, M. M., Bretveld, R. W., & Roeleveld, N. (2010). Web-based questionnaires: The future in epidemiology? *American Journal of Epidemiology*, 172(11), 1292–1298.
- Goffman, E. (1959). *The presentation of self in everyday life*. Garden City, NY: Doubleday.

- Gonzales, A. L., & Hancock, J. T. (2011). Mirror, mirror on my Facebook wall: Effects of exposure to Facebook on self-esteem. *Cyberpsychology, Behavior and Social Networking*, 14(1–2), 79–83.
- Harber, K., Zimbardo, P., & Boyd, J. (2003). Participant self-selection biases as a function of individual differences in time perspective. *Basic and Applied Social Psychology*, 25(3), 255–264. DOI: 10.1207/S15324834BASP2503_08
- Horney, K. (1945). *Our inner conflicts: A constructive theory of neurosis*. New York: Norton.
- Horney, K. (1950). *Neurosis and human growth: The struggle toward self-realization*. New York: Norton.
- Joinson, A. N. (2008). Looking at, looking up or keeping up with people? Motives and uses of Facebook. In *Proceedings of the twenty-sixth annual SIGCHI conference on Human factors in computing systems* (pp. 1027–1036). New York: ACM.
- Kohut, H. (1971). *The analysis of the self: A systematic approach to the psychoanalytic treatment of narcissistic personality disorders*. New York: International Universities Press.
- Kramer, A. D., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences*, 111(24), 8788–8790. DOI: 10.1073/pnas.1320040111
- Lawson, J. S., Marshall, W. L., & McGrath, P. (1979). The social self-esteem inventory. *Educational and Psychological Measurement*, 39, 803–811.
- LeFrancois, R., LeClerc, G., Dube, M., Hebert, R., & Gaulin, P. (1997). The development and validation of a self-report measure of self-actualization. *Social Behavior and Personality*, 25(4), 353–366.
- LeFrancois, R., LeClerc, G., Dube, M., Hebert, R., & Gaulin, P. (1999). Criterion validity of a new measure of self-actualization. *Psychological Reports*, 85, 1167–1176.
- Lethcoe, J. P. (2008). Electronic “addiction” and self-actualization: Ethical concerns for the computerization of America (Masters Thesis, California State University Dominguez Hills). Available from ProQuest. (1463470).
- Mallan, K (2009). Look at me! Look at me! Self representation and self-exposure through online networks. *Digital Culture & Education*, 1(1), 51–66.
- Maslow, A. H. (1943). A dynamic theory of human motivation. *Psychological Review*, 50, 370–396.
- Mehdizadeh, S. (2010). Self presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior and Social Networking*, 13(4), 357–365.
- Michikyan, M., Subrahmanyam, K., & Dennis, J. (2014). Can you tell who I am? Neuroticism, extraversion, and online self-presentation among young adults. *Computers in Human Behavior*, 33, 179–183. DOI: 10.1016/j.chb.2014.01.010
- Moreno, M. A., Jelenchick, L. A., Egan, K. G., Cox, E., Cannon, K. E., Becker, T., & Young, H. (2011). Feeling bad on Facebook: Depression disclosures by college students on a social networking site. *Depression and Anxiety*, 28(6), 447–455. DOI: 10.1002/da.20805
- Steinfeld, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology*, 29(6), 434–445. DOI: 10.1016/j.appdev.2008.07
- Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, 29, 420–433.
- Suler, J. (2002). Identity management in cyberspace. *Journal of Applied Psychoanalytic Studies*, 4, 455–460.
- Suler, J. (2005). The basic psychological features of cyberspace. In *The Psychology of Cyberspace*. www.rider.edu/suler/psycyber/basicfeat.html (Original work published 1996).
- Turkle, S. (1996). Virtuality and its discontents: Searching for community in cyberspace. *The American Prospect*, 24, 50–57.

- Turkle, S. (1997). Multiple subjectivity and virtual community at the end of the Freudian century. *Sociological Inquiry*, 67(1), 72–84. DOI: 10.1111/j.1475-682X.1997.tb00430.x
- Turkle, S. (1999). Cyberspace and identity. *Contemporary Sociology – a Journal of Reviews*, 28(6), 643–648.
- Turkle, S. (2011). The tethered self: Technology reinvents intimacy and solitude. *Continuing Higher Education Review*, 75, 28–31.

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