Do People Report the Same Big Five Personality in

Social Media and Online Contexts as Offline?

by

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ABSTRACT

Previous research used the context-free Big Five model of personality traits to predict social media behaviors. The perspective implicit in this research assumes that expression of the Big Five is free of situational context. This thesis challenges this assumption to address whether people express the same Big Five on social media as offline. In two studies, this thesis addressed three issues: (1) whether there are self-reported differences in the Big Five between social media/online and offline contexts, (2) whether a five-factor structure replicates in the offline and social media context reports, and (3) whether the predictive validity of the Big Five is the same between offline and social media contexts. College students (total N = 2102) reported their offline and social media Big Five. Main findings reveal that, first, all of the Big Five have lower expressions in social media/online than offline, except for those in the lowest quartile of offline trait expressions; possible explanations include regression towards the mean or the environmental impact of social media. Second, a similar factor structure appeared with openness, extraversion, and neuroticism items being the most robust between offline and social media contexts. However, some conscientiousness and agreeableness items did not apply across offline and social media contexts. Third, the Big Five had different predictive patterns of social media behaviors depending on the context. These findings inform that future research may better serve to specify the context of Big Five expression to understand social media behavior.

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CHAPTER 1

DO PEOPLE REPORT THE SAME BIG FIVE PERSONALITY IN SOCIAL MEDIA

AND ONLINE CONTEXTS AS OFFLINE?

Emerging research in the last decade used context-free personality traits known as the "Big Five" (see John, Naumann, & Soto, 2008) to understand behaviors in social media, a situational context with 3.48 billion active users (Chaffey, 2019). In total, 284 peer-reviewed articles are published on this topic in the last decade, as revealed in a PsycInfo search using the keywords "Big Five" and "social media." Given the context-free assessment of the Big Five in these studies, there is an implicit assumption that personality trait expression is the same across situational contexts. This assumption is understandable given the evidence for cross-contextual consistency, temporal stability, and cultural universality of the context-free Big Five (see Benet-Martínez, & Oishi, 2008; Fraley & Robert, 2005; McCrae & Costa, 1997). However, researchers from a situational or interactionalist perspective (e.g., Mischel, 1968; Mischel & Shoda, 1995) argue that personality traits may vary across different contexts. This thesis incorporates this theoretical perspective to address whether the Big Five is the same in social media as offline contexts.

In this thesis, I begin with background literature on the Big Five model of personality traits and cross-contextual consistency. I then review preliminary research on the Big Five across offline and online contexts. Although two previous works have uncovered mean-level differences in the Big Five between these contexts, I argue that there are other issues to address to determine whether differences are present. The present thesis contains two studies that collectively address whether the Big Five are the same

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between offline and in social media contexts in two additional ways beyond mean levels: structural similarity and predictive validity.

The Big Five Personality Traits and Cross-Contextual Consistency

The Big Five theoretical model includes widely encompassing dimensions of personality traits used to predict behavior in a variety of contexts (John, Naumann, & Soto, 2008; McCrae & Costa, 2008). Its origins began in the first half of the twentieth century when personality psychologists (e.g., Allport & Odbert 1936) looked to natural language to devise a scientific taxonomy of personality traits. Allport (1937) posited the lexical hypothesis: natural language embeds the most meaningful social information regarding personality traits. With this hypothesis, the first researchers (i.e., Allport & Odbert 1936; Cattell, 1943) generated large lists of trait descriptors from dictionaries. Since this time, dimension analyses have consistently reduced these descriptors to five meaningful dimensions of personality trait variation—hence the "Big Five" (Goldberg, 1981; John & Srivastava, 1999). Although Big Five researchers have used different labels for each of the dimensions (e.g., "open-mindedness" instead of "openness to experience," and "negative emotionality" instead of "neuroticism"; see Soto & John, 2017), for consistency of presentation, I will refer to them as openness, conscientiousness, extraversion, agreeableness, and neuroticism. These five dimensions are easily remembered by the acronym, "OCEAN" (John & Srivastava, 1999).

Despite the popularity of Big Five research, personality theorists in the twentieth century debated whether traits such as the Big Five actually represent how people behave across varying contexts—a debate known as the "person-situation debate" (Kendrick & Funder, 1988). This concern began with Mischel's (1968) critique of the cross-contextual

consistency of personality traits, where he, and other researchers (e.g., McAdams, 1992; Pervin, 1994; Veroff, 1983) since, suggested that personality psychologists at the time hadn't acknowledged the effect of the context on personality traits. In empirical work, for example, Mischel and Peake (1983) found that students who were conscientious in some contexts were often not in others. Sheldon, Ryan, Rawsthorne, and Ilardi (1997) demonstrated that people report their Big Five differently when considering different social roles—the friend role is more extraverted, the student role more neurotic, and the employee role more conscientious. In the past two decades, personality researchers have even modeled state levels of the Big Five, representing differences across contexts (Fleeson, 2007; 2017). And recent projects now target some of the Big Five that predict important life outcomes for intervention (e.g., conscientiousness interventions; Magidson, Roberts, Collado-Rodriguez, & Lejuez, 2014).

In addition to these mean-level differences in the Big Five across contexts, researchers also examined whether assessments of the Big Five reveal the same structure across societies. Although most cross-cultural studies using Anglo-based Big Five measures reveal a structure resembling the Big Five dimensions (see Benet-Martínez & Oishi, 2008; McCrae, 2004; McCrae, Terraciano, & 79 Members of the Personality Profiles of Culture Project, 2005), some studies found alternative structures. Ashton and Lee (2007) suggested honesty/humility as an addition to the Big Five as a result of an additional factor appearing in analyses of Croatian, Turkish, Italian, and English personality lexicon in archival data (Ashton, Lee, & Goldberg, 2004). Another group of researchers (i.e., Smaldino, Lukaszewski, von Rueden, & Gurven, 2019) advanced the *niche diversity hypothesis*: personality trait covariance will be lower in environments that

are more socially and ecologically complex. Two studies provide support for the hypothesis: only two dimensions emerged in a Big Five assessment for Tsimané, a group of horticulturalists in Bolivia (Gurven, von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013), and a personality survey of 55 nations and over 17,000 people revealed higher Big Five intercorrelations in less complex societies (Lukaszewski, Gurven, von Rueden, & Schmitt, 2017). These findings suggest that emergence of the Big Five dimensions depends on the context provided by the cultural environment, adding an additional layer besides mean-level differences for possible ways the Big Five may differ across contexts.

I take perspective from this research to consider whether the Big Five is the same across offline and social media contexts both at mean and structural levels, as well as to consider implications for prior research on the context-free Big Five and social media behaviors. If the Big Five is not the same between social media and offline contexts, then previous research using the Big Five as a context-free indicator of personality traits may not capture the entire value of this framework for understanding social media behavior. Since entire metanalyses examined the relationship between the context-free Big Five and social media behaviors (e.g., Liu & Campbell, 2017; Tskhay & Rule, 2014), a critical implication is whether the predictive validity of the Big Five in this particular context has been adequately addressed. Therefore, in addition to addressing whether Big Five is the same in social media as offline contexts, this thesis addresses whether there are resulting differences in predictive validity of the Big Five between offline and social media contexts.

Big Five and Social Media

Of present concern is whether any research addressed whether the Big Five are the same in social media as offline contexts. I first examined articles in meta-reviews of Big Five and social media research. Liu and Campbell (2017) used combinations of the keywords *personality, Big Five, agreeableness, conscientiousness, extraversion, openness to experience, neuroticism, Facebook, social network sites, and social media* in a variety of search engines including PsycInfo and Google Scholar to identify 136 articles examining how the context-free Big Five predict social media use. This search is comparable to the 56 articles identified by Tskhay and Rule (2014) using the keywords "*personality, Big Five* [including each trait], *Five-Factor Model, writing, blog, computer mediated communication, online social network* [including different types; e.g., *Facebook*]*, consensus, and accuracy"* (p. 26) to find articles examining how social media behavior predicts the context-free Big Five. However, no article in these reviews considered that the Big Five may not be the same between offline and social media contexts.

I thus conducted my own literature review to assess whether any articles explicitly mentioned Big Five differences between social and offline contexts. My literature review contained three extensions from the metareviews: I (1) included specific keywords to determine whether these context differences were explicitly mentioned, (2) included keywords to assess whether these context differences were mentioned in the broader but relevant comparison of *online* and offline contexts, and (3) included articles up to November, 2019. My specific procedure involved using Google Scholar and PsycInfo with two sets of keywords combinations: (set 1) *social media, social networking sites,*

Big Five, Five-Factor model, online personality, offline personality, social media personality, personality differences with (set 2) *situational consistency, cross-situational, situational difference, context consistency, cross-context, and context difference*. These yielded results from 2 (using *personality, online,* and *situational consistency* in PsychInfo) to 236 articles (using *Big Five, social media,* and *cross-situational* in Google Scholar). After examining the articles titles and abstracts, I identified only two articles that addressed whether the Big Five are the same between offline and online/social media contexts: Blumer and Döring (2012) and Taber and Whittaker (2018).

Blumer and Döring's (2012) study was first to ask whether the Big Five are the same between offline and online contexts, and to provide evidence of differences. Their assessment of the Big Five in offline contexts was a context-unspecified version of a Big Five measure: the German NEO Five-Factor Inventory (see Borkenau & Ostendorf, 1993; Costa & McCrae, 1992). Items intended to indicate offline contexts were not modified (e.g. "I really enjoy talking to other people"). Their assessment of the offline Big Five was therefore an assessment of the context-free Big Five, given that the measure did not explicitly specify offline contexts. Four to six weeks later, they assessed the Big Five in online contexts of the same participants by modifying the measure to add "On the internet or the computer" to each item (e.g., "On the computer or Internet, I really enjoy talking to other people"). They examined mean differences between the context-free Big Five and the online Big Five with modified items, and found that participants indicated less extraversion, openness, conscientiousness, agreeableness, and neuroticism in online contexts. They further found that when splitting participants into quartiles based on their

context-free Big Five scores, differences occurred for individuals who were in the top quartiles, but not for those in the lowest quartile.

Taber and Whittaker's (2018) conference paper is the only work to date that provided evidence that the Big Five is different between social media and offline contexts. In two studies, participants completed assessments of the Big Five similar to those in Blumer and Döring (2012). Taber and Whittaker's (2018) assessment of the Big Five in offline contexts was the context-free Big Five Inventory (see John, Donahue, & Kentle, 1991). Thus, their measure intended to indicate the Big Five offline, like Blumer and Döring (2012), was a context-free assessment. Participants did take modified versions of the Big Five Inventory assessing the Big Five in Facebook and Snapchat contexts (e.g., "*On Facebook* [*On Snapchat*], I am someone . . .”). In the first study, they found that openness, agreeableness and neuroticism were lower in Facebook context compared to context-free reports; no differences in extraversion and conscientiousness appeared. In the second study they found that neuroticism was higher in context-free reports than Facebook and Snapchat contexts; no neuroticism differences appeared between the social media contexts. Context-free reports and Snapchat context did not differ in openness, but both were higher than Facebook context reports of openness. Extraversion differences appeared whereby Snapchat context reports were higher than context-free reports, and context-free reports were higher than Facebook context reports. No significant differences occurred for agreeableness and conscientiousness between any context.

Both these works provide preliminary evidence that the Big Five is not the same between offline and social media/online contexts. However, four limitations of these

preliminary works leave this issue not fully addressed: (1) contextual specification, (2) measurement modification, (3) structural similarity, and (4) predictive validity. I describe each of these limitations and how this thesis will address them.

Unique Contribution

(1) **Context specification.** Both Blumer and Döring (2012) and Taber and Whittaker (2018) have context limitations. First, online technology has changed since Blumer and Döring (2012) collected data in 2010/2011. The context of online environments in 2010/2011 may accordingly reflect a different context than online environments today, almost a decade later. Reports by the Pew Research Center (Smith & Anderson, 2018) indicated that over two-thirds of American adults use Facebook compared to around half in 2012, and adults increased their usage for more popular social media among the nation's youth, such as Instagram, from less than 10% in 2012 to 35% in 2018. At a global level, approximately 3.48 billion out of the 4 billion internet users are active on social media (Chaffey, 2019). Thus, what many internet users consider online context today likely indicates a social media context. The present thesis will consequently address whether the findings in Blumer and Döring (2012) replicate in when determining whether the Big Five in offline and social media contexts is expressed the same.

Second, while Taber and Whittaker's (2018) assessment of the Big Five in contexts indicating individual platforms of social media (i.e., Facebook and Snapchat) to compare to offline context has merits, such assessment has limitations. Given that offline context may be divided into different contexts (e.g., workplace, recreational, educational, etc.), so should the relevant comparison target, namely the overall context of social

media. Rather than focusing on the context of individual social media platforms, the thesis considers the context commonalities that all social media platforms share in contrast to those shared by all offline contexts.

Third, Taber and Whittaker (2018) did not report whether participants indicated they used the social media platforms, Facebook and Snapchat. Useful differences in the Big Five between offline and social media contexts require participants to consider the social media platforms they primarily use and actually behave in. Considering these issues, this thesis asks participants to self-report their Big Five in social media contexts considering the platforms they primarily use.

(2) Measurement modification. Both Blumer and Döring (2012) and Taber and Whittaker (2018) did not explicitly modify the context-free Big Five personality measure to indicate offline personality (e.g., "I really enjoy talking to other people *offline*"). Thus, their offline assessment actually assessed the context-free Big Five; it is unclear whether the measure assessed the Big Five only in offline contexts. This theses explicitly specifies both contexts to address whether the Big Five is the same in offline and social media contexts, as the relevant comparison is not between the context-free Big Five and their social media subsets—the relevant comparison is between two assessments of the Big Five separated by context, not a comparison of the Big Five within one context compared to the Big Five across all.

Furthermore, the separate measures method used by Blumer and Döring (2012) and Taber and Whittaker (2018) to test whether the Big Five is the same in online/social media as in offline contexts may limit participants' ability to discern between contexts. Participants reported their Big Five in separate measures for each context; thus, they

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considered these contexts in isolation rather than in explicit comparison. Further, time is a confound in Blumer and Döring's (2012) assessment of the Big Five differences between online and context-free contexts, as the online measurement occurred four to six weeks later; whether the reported differences arose due to temporal effects or the context is unknown. Thus, the thesis will contrast the method of separate Likert measure ratings for each context measured simultaneously with an additional comparative method with explicit labels to afford participants more discernment between contexts: the response scale will provide a direct visual comparison to aid in discerning Big Five differences by including a midpoint indicating reports in the two contexts are the same and endpoints indicating a higher report in either offline or online/social media contexts.

(3) **Structural similarity.** Both articles did not report differences in correlations and structural similarity of the Big Five between offline and online/social media contexts. To fully address whether the Big Five is the same in social media as offline, whether a five-factor structure replicates in offline and social media contexts is a necessary investigation: mean level comparisons are dependent on whether the dimensions can even be compared—e.g., if conscientiousness items do not appear to represent the same dimension in offline and social media contexts, aggregate scores in each of these contexts are not appropriately comparable. The present thesis thus compares correlations between the Big Five in social media and offline and uses dimension analysis to determine the nature and number of components/factors that appear in reports of the Big Five explicitly designated to indicate offline and social media contexts.

(4) **Predictive validity.** Neither Blumer and Döring (2012) nor Taber and Whittaker (2018) included outcome measures to assess predictive validity differences

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between the Big Five across contexts. The thesis includes both motivations and behavioral outcomes in the context of social media. Previous research demonstrated links between the context-free Big Five and widely studied behaviors such as social media daily use (Correa, Hinsley, & de Zúñiga, 2010; Liu & Campbell, 2017), addiction to social media (Kayiş et al., 2016; Kircaburun, & Griffiths, 2018; Kircaburun, Alhabash, Tosuntaş, & Griffiths, 2018; Tang et. al., 2016), and social interaction and information-seeking social media motivations (e.g., Lin Lee, Jin, & Gilbreath, 2017). Further, some evidence suggests no relation between the context-free Big Five and self-disclosure in social media (see Hollenbaugh, & Ferris, 2014; Seidman, 2013). Thus, this thesis addresses whether these relations may differ based on context, and includes self-disclosure in social media as one outcome where it's possible that the Big Five in offline and social media contexts may be predictors when the context-free Big Five is not.

In summary, the thesis assesses whether Big Five differences between offline and online contexts are equivalent to those between offline and social media, has participants consider the social media platforms they use most when reporting their Big Five in social media context, uses explicit labels and simultaneously measures the Big Five in both contexts, employs a comparative measure in addition to separate measures for comparing the Big Five in offline and social media contexts, assesses the structural similarity and predictive validity differences between the Big Five in offline and social media contexts.

Overview of the Current Research

The thesis contains two studies to address three research questions. The first research question consists of three parts: (a) *Do people report the same the Big Five in social media, and online in general, as offline?* (b) *Do the differences between the offline*

and social media or online Big Five reports vary between people with different offline

reports? (c) *Are the differences between offline and social media Big Five reports*

equivalent to those between offline and online reports? I hypothesized that Blumer and

Doring's (2012) findings will replicate for both explicit offline versus online and offline

versus social media comparisons: online and social media reports of all the Big Five will

be lower than offline reports. The thesis addressed research question 1 with a preliminary

study using brief, context-specified measures of the Big Five, and further using longer,

context-specified measures of the Big Five in the main study.

The second research question is: *Does the same structure of the context-free Big*

Five emerge in Big Five reports for social media and offline contexts? The thesis

explored whether a five-factor structure appeared in Big Five reports explicitly indicating

offline and social media contexts in the main study.

The third research question is: *Is the predictive strength of Big Five the same for*

social media and offline contexts? The thesis explored whether the offline and social

media Big Five reports have different predictive strengths and patterns of social media

behaviors and motivations to use social media in the main study.

CHAPTER 2

PRELIMINARY STUDY

Method

Participants. At a large southwestern university, 1073 college students participated in the study (543 Women, 50.6%; M_{age} = 19.26; SD = 2.94). Participants identified with one or more ethnicities. The ethnic breakdown was: 63.9% White, 20.1% Latino, 17.2% Asian/Asian American, 7% Black/African American, 3.4% Middle Eastern, 1.7% American Indian, and 1.4% specified "other." Participants were recruited via a large prescreening battery assignment for an introductory psychology class. They received course credit for participation.

Design. In a non-full factorial design, I randomly placed participants in 1 of 4 conditions depending on context comparison and scale response format. Participants reported their Big Five in one of two context comparison groups: *online* vs. offline or *social media* vs. offline. They completed the Big Five measure using one of two scale formats: in the Likert format, each Big Five item asked with two individual items, one for each context (separate); in the comparative format, each Big Five item was a single comparative item where participants consider both contexts at once (explicit comparison).

Materials. I measured the Big Five Personality traits with a modification of the Ten Item-Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003). Example items of each trait include (*Likert* modifications in italics; items not modified in comparative conditions)**:** openness: "conventional, uncreative *offline/online/on social media"*; conscientiousness: "disorganized, careless *offline/online/on social media"*;

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extraversion: "reserved, quiet *offline/online/on social media"*; agreeableness: "sympathetic, warm *offline/online/on social media"*; and neuroticism[1]: "calm, emotionally stable *offline/online/on social media."*

I modified instructions for different scale response conditions. Likert instructions were: "Please choose the option that best describes your social media/online/offline self." Comparative instructions were: "Please choose the option that best describes who you are offline (in the physical world) compared to your social media/online self." I did not change the response scales for the Likert conditions (i.e., 1 = *strongly disagree* to 7 = *strongly agree*), but the comparative scale response format was modified (i.e., 1 = *a lot more offline*; 4 = *the same offline as on social media*; 7 *a lot more online/on social media*).

I calculated reliability of each dimension in the TIPI with Cronbach's alpha for the 2 items (after reverse coding) representing each Big Five trait. Table 1 lists the Cronbach's alpha by each condition, hierarchically ordered by scale format (Likert or comparative), then the context within the Likert format, or the context comparison within the comparative format. Alphas from the TIPI validation (Gosling, Rentfrow, & Swann, 2003) are in the far right. Similarity appeared between the Likert and original alphas, indicating acceptable reliability. However, alphas suggest that openness (.03) and agreeableness (-.24) are not reliable for comparative measure, particularity for offline vs. social media comparison. This thesis thus notes limitations of reliability for the comparative results.

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[1] The Ten Item Personality Inventory uses the label "emotional stability" instead of "neuroticism." As stated, for consistency of presentation, I will use the "neuroticism" to refer to this dimension, which reflects the negative end of the pole rather than the positive end described by "emotional stability."

Table 1
Big Five Cronbach's alphas by condition (preliminary study)

	Likert (N=529)				Comparative (N=531)			Original TIPI
	Off N=529	SM N=265	On N=264	Overall N =529	Off v. SM N=265	Off v. On N=266	Overall N=531	General N=1,799
O	.37	.33	.28	.37	.03	.22	.14	.45
C	.52	.25	.38	.51	.18	.34	.27	.50
E	.64	.64	.67	.68	.50	.50	.50	.68
A	.32	.20	.19	.30	-.24	.06	.03	.40
N	.61	.51	.50	.61	.36	.33	.34	.73

Note. Total sample size = 1060. Sample sizes by condition are reported in columns. Original TIPI refers to the original reporting in the validation of the Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Off = offline context; SM = social media context; On = online context; Off v. SM = offline versus social media comparison; Off v. On = offline versus online comparison. General = context-free.

Procedure. The study was part of a large prescreening battery and occurred online via Qualtrics survey software.

Results and Discussion

To fully address research question 1, I examined whether differences in the Big Five appeared between offline and social media [online] contexts in each of the four conditions, whether differences occurred depending on the offline Big Five reports as a baseline in the Likert scale response format conditions, and potential evidence suggesting that online and social media contexts are similar when comparing the Big Five to offline context. Results are ordered by Likert before comparative scale response format findings. Within each scale response format, offline versus online results precede offline versus social media results.

Offline and online Likert measures. Paired sample t-tests yielded significant differences between offline and social media contexts for three out of the five traits (See *Figure 1*). Participants reported higher offline openness (*M* = 5.23; *SD* = 1.14) than

online openness ($M = 4.98$; $SD = 1.13$; $t(264) = 3.94$, $p < .001$). No difference appeared between offline conscientiousness ($M = 5.43$; $SD = 1.14$) and online conscientiousness ($M = 5.33$; $SD = 1.08$; $t(264) = 1.49$, $p = .14$). Participants reported higher offline agreeableness ($M = 5.05$; $SD = 1.19$) than online agreeableness ($M = 4.90$; $SD = 1.18$; $t(264) = 2.18$, $p < .05$). Participants reported higher offline neuroticism ($M = 5.33$; $SD = 1.21$) than online neuroticism ($M = 5.00$; $SD = 1.27$; $t(264) = 4.29$, $p < .001$). No difference appeared between offline extraversion ($M = 4.29$; $SD = 1.44$) and online extraversion ($M = 4.42$ $SD = 1.47$; $t(264) = -1.49$, $p < .14$).
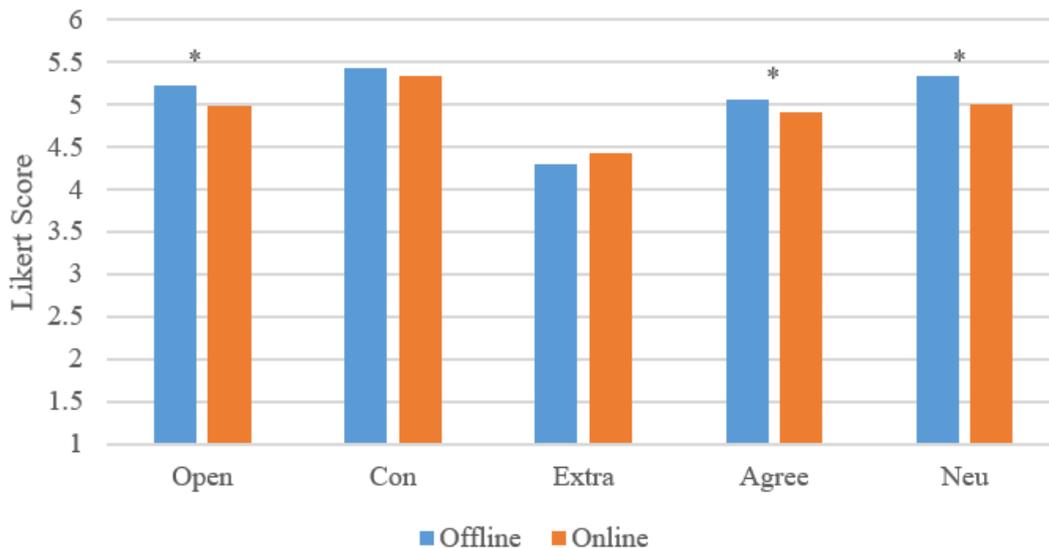
Figure 1. Offline and online Big Five Likert differences (preliminary study).

Consistent with Blumer and Döring (2012), openness, agreeableness and neuroticism were lower online than offline. However, contrary to Blumer and Döring (2012), no significant differences appeared in conscientiousness and extraversion. This may suggest that what is considered "online" is different than 2010/2011 when they collected their data. It's possible that recent fears about security and privacy content may lead people to be more conscientious online, removing the difference. Or, it could that

technological literacy may lead people to become better at online organizing, thereby improving conscientiousness online. Increased internet use from 2010/2011 and more advanced socializing features may reinforce more extraversion online and less offline, removing the previously observed difference in these findings.

Another possibility is the difference in samples. The German students in Blumer and Döring's (2012) study may be different than the American students in the current study. Some studies indicate that Americans express higher mean levels of conscientiousness and extraversion than Germans (see Lynn & Martin, 1995; Schmitt, Allik, McCrae, & Benet-Martínez, 2007). It may be that Americans in this preliminary study had higher levels of offline conscientiousness and extraversion, eliminating this difference in comparison to Blumer and Döring's (2012) study.

Offline and social media Likert measures. Paired sample t-tests yielded significant differences in the Big Five between offline and social media contexts (See *Figure* 2). In line with expectations, significant differences appeared such that offline openness (M = 5.30; SD = 1.14) was higher than social media openness (M = 4.64; SD = 1.21; $t(264)$ = 8.81, p < .001); offline conscientiousness (M = 5.38; SD = 1.21) was higher than social media conscientiousness (M = 5.24; SD = 1.12; $t(264)$ = 2.10, p < .05); offline agreeableness (M = 5.18; SD = 1.19) was higher than social media agreeableness (M = 4.98; SD = 1.18; $t(264)$ = 3.00, p < .01); offline neuroticism was higher that (M = 5.38; SD = 1.26) than social media neuroticism (M = 5.00; SD = 1.36; $t(264)$ = 4.65, p < .001); and offline extraversion (M = 4.36; SD = 1.43) was significantly higher than social media extraversion (M = 3.99; SD = 1.54; $t(264)$ = 3.48, p < .01).

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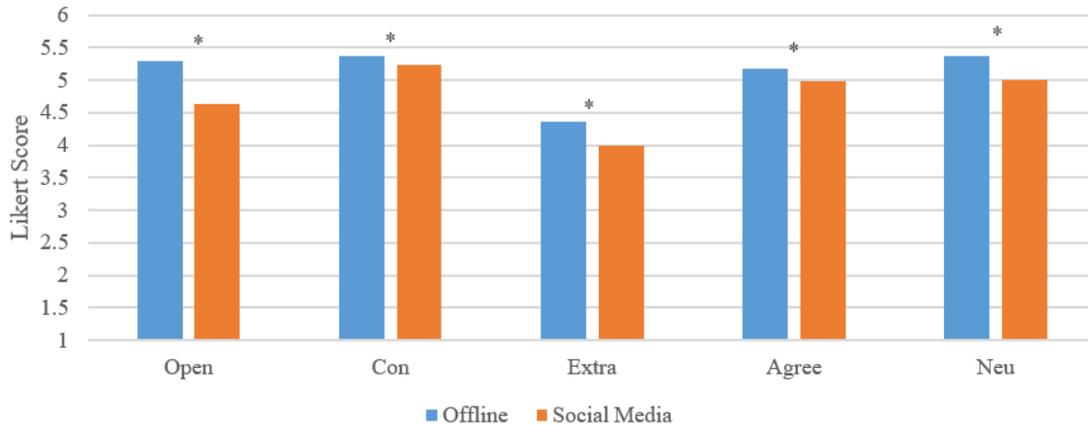
Figure 2. Offline and social media Big Five Likert differences (preliminary study).

Unlike the offline vs. online differences, conscientiousness and extraversion were lower in social media compared to offline. All five differences replicated Blumer and Döring's (2012) findings. This may suggest some differences between online and social media contexts. Social media has larger, more relationally distant audiences than other online platforms (McFarland & Ployhart, 2015), thus people may feel less comfortable to socialize freely on social media. Further, social media may not require as high conscientiousness than online sources as the former consists of peer/friend/family/stranger networks compared to workplace colleagues on online sources like email.

Differences between offline and social media and online Big Five by offline base groups. I further examined whether the Big Five between offline and social media contexts varied among those with different baseline offline Big Five Likert reports. The rationale for this was twofold. First, I wanted to fully replicate the analyses in Blumer and Döring (2012). In addition to overall Likert comparisons, Blumer and Döring (2012) conducted comparisons by dividing participants into quartiles based on their score on the context-free measures for each of the Big Five. I thus ran the same analyses with both the

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offline versus online and offline versus social media Likert comparisons to see if their findings would hold up for a comparison explicitly labeled for offline and social media contexts. Second, this analysis provides an assessment of whether Big Five differences between contexts depend on offline Big Five Likert reports—addressing research question 1b. As Blumer and Döring (2012) noted, although mean-level differences in the Big Five may appear, they may not hold for all people equally. For example, people with low offline Big Five may indicate a "poorer-get-richer" effect where higher online Big Five occur, or those with high offline Big Five indicate a "richer-get-richer" effect where even higher online Big Five occur. It's also a possibility that Likert differences may appear for some people on the distribution of offline reports but not others.

Following Blumer and Döring (2012), I split participants into quartiles—four roughly equal groups based on where they were on the distribution for each of the offline Big Five Likert scores. I conducted this using the "NTILES" command in SPSS version 25 that achieves these roughly equal splits by placing participants in a group representing below 25th percentile (quartile 1), between 25th and 50th percentile (quartile 2), between 50th and 75th percentile (quartile 3), or above 75th percentile (quartile 4). Number of participants in each offline group are reported in Table 2. I ran a 2 (within-subjects context factor: offline vs. social media/online) x 4 (between-subjects offline quartile factor: quartile 1, quartile 2, quartile 3, quartile 4) mixed ANOVA for each Big Five trait to determine whether offline and social media/online self- differences occurred in the different groups. Mean differences and significances for each group by trait are reported in Table 2.

Table 2
Likert differences by offline quartile (preliminary study)

	Univariate F(3, 260) =	Quartile 1	Quartile 2	Quartile 3	Quartile 4
	Offline vs. Online				
O	22.73	**MD = -.49**	MD = .08	**MD = .55**	**MD = .82**
	p < .001	**p < .001**	p = .483	**p < .001**	**p < .001**
		N = 57	N = 72	**N = 82**	**N = 53**
C	30.01	**MD = -.73**	MD = .24	MD = .23	**MD = .74**
	p < .001	**p < .001**	p = .040	p = .098	**p < .001**
		N = 75	N = 68	N = 47	**N = 74**
E	24.95	**MD = -1.19**	MD = -.27	MD = .18	**MD = .74**
	p < .001	**p <.001**	p =.077	p = .334	**p < .001**
		N = 65	N = 75	N = 54	**N = 70**
A	20.33	**MD = -.53**	MD = .11	**MD = .51**	**MD = .73**
	p < .001	**p < .001**	p = .370	**p < .001**	**p < .001**
		N = 75	N = 70	**N = 71**	**N = 48**
N	27.11	**MD = -.41**	MD = -.18	**MD = .53**	**MD = 1.05**
	p < .001	**p = .006**	p = .167	**p <.001**	**p < .001**
		N = 52	N = 71	**N = 55**	**N = 86**
	Offline vs. Social Media				
O	21.86	MD = -.29	**MD = .46**	**MD = .98**	**MD = 1.23**
	p < .001	p = .057	**p = .001**	**p < .001**	**p < .001**
		N = 52	**N = 68**	**N = 83**	**N = 62**
C	25.89	**MD = -.62**	MD = .22	**MD = .45**	**MD = .66**
	p < .001	**p < .001**	p = .046	**p = .002**	**p < .001**
		N = 77	N = 72	**N = 41**	**N = 75**
E	27.05	**MD = -.59**	MD = -.22	**MD = .58**	**MD = 1.48**
	p < .001	**p = .003**	p = .207	**p = .007**	**p < .001**
		N = 59	N = 76	**N = 49**	**N = 81**
A	18.52	**MD = -.43**	MD = .12	**MD = .39**	**MD = .78**
	p < .001	**p < .001**	p = .306	**p = .001**	**p < .001**
		N = 70	N = 67	**N = 70**	**N = 58**
N	28.18	**MD = -.55**	MD = .04	**MD = .51**	**MD = 1.17**
	p < .001	**p < .001**	p = .783	**p = .001**	**p < .001**
		N = 60	N = 61	**N = 56**	**N = 88**

Note. Total sample size = 529. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Bonferroni correction was used to test whether a significant difference of context occurred for each quartile group (α was divided by the number of tests conducted: .05/20 = .0025). *MD* = mean difference (offline – social media). Bolded cells are significant (p < .0025).

Findings reveal three major points. First, participants with higher [lower] offline

Big Five reports tended to report lower [higher] Big Five online/on social media. The

lower Big Five reports in online/social media for those reporting higher Big Five offline is consistent with Blumer and Döring's (2012) findings; however, contrary to their findings, I found that those in the first quartile of the offline Big Five reported higher online/social media Big Five. Second, those in the third quartile of offline extraversion and conscientiousness reported lower extraversion and conscientiousness for social media but not online contexts. This is consistent with the overall Likert findings. However, one unique difference appeared such that those in the second quartile of offline openness reported even lower openness in social media but not online contexts, and there was no significant difference in openness for the first quartile between social media and offline contexts.

One possibility is that these results are due to regression towards the mean— people with higher and lower offline Big Five reports may regress towards average reports for social media context. This possibility applies to all the Big Five except openness in the offline vs. social media condition. Beyond this possible methodological artifact, the findings may suggest that social media environments reinforce moderate or constrain extreme Big Five.

Offline and online comparative measure. I then ran five one-sample t-tests to compare the mean of participants' reported Big Five in the comparative measures for offline versus social media and offline versus online conditions (See *Figure* 3). I compared means against the test value of 4 (i.e., the mid-point of a 7-point scale) indicating no difference between offline and social media contexts. No significant difference appeared for extraversion ($M = 4.07$; $SD = 1.22$; $t(264) = .88$, p = .38), but agreeableness ($M = 3.73$; $SD = .96$; $t(264) = -4.50$, p $<.001$), conscientiousness ($M =$

3.85; $SD = 1.09$; $t(264) = -2.21$, p $<.05$), openness ($M = 3.81$; $SD = 1.02$; $t(264) = -3.03$, p $<.001$), and neuroticism ($M = 3.80$; $SD = 1.06$; $t(264) = -3.12$, p $<.01$) were all significantly lower than 4.
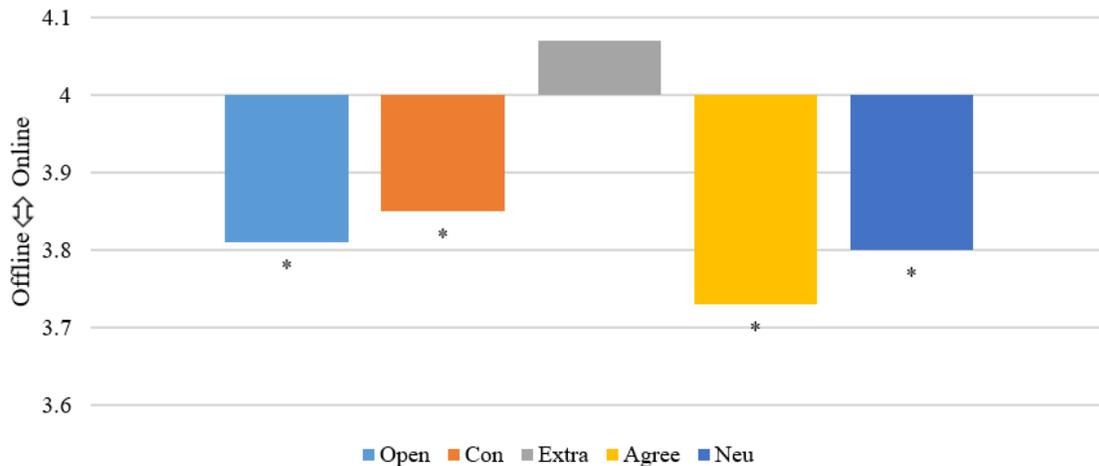
Figure 3. Offline and online Big Five comparative differences (preliminary study).

This is consistent with the Likert condition, except for the significant difference in conscientiousness that appeared. This result thus more closely resembles the patterns found in Blumer and Doring (2012) and may suggest that participants are able to distinguish a subtle difference between offline and online conscientiousness. But it further suggests that extraversion does not actually differ between offline and online contexts, contrary to expectations.

Offline and social media comparative measure. Identical results occurred for the comparative measure of the offline and online contexts (See *Figure* 4). All one-sample t-tests supported the hypotheses. No significant difference appeared for extraversion ($M = 4.11$; $SD = 1.22$; $t(264) = 1.50$, p $= .13$), but agreeableness ($M = 3.78$; $SD = 0.83$; $t(264) = -4.21$, p $<.001$), conscientiousness ($M = 3.79$; $SD = 0.94$; $t(264) = -3.56$, p $<.001$), openness ($M = 3.72$; $SD = 0.93$; $t(264) = -4.93$, p $<.001$), and neuroticism ($M = 3.74$; $SD = 1.02$; $t(264) = -4.15$, p $<.001$) were all significantly lower than 4.
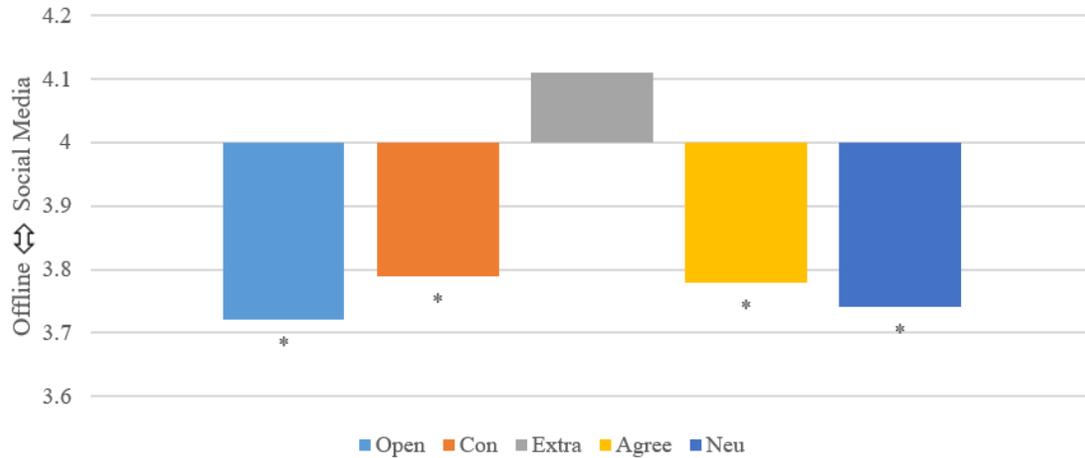
Figure 4. Offline and social media Big Five comparative differences (preliminary study).

Four traits out of the Big Five replicate Blumer and Doring's (2012) findings under explicit comparison in the comparative condition for both context comparisons. Explicit comparison may allow more subtle distinctions between offline and online/social media contexts that are not possible when considering the Big Five separately in the Likert conditions. Specifically, these results lend credence to the explanation that online contexts have changed since 2010/2011; social media use has increased and may now resemble most online contexts, possibly leading to more advanced socialization features eliminating the previously found difference in offline and online extraversion.

Correlational analyses. As additional evidence of whether differences between the offline and online Big Five is equivalent to the differences between the offline and social media Big Five, I examined whether the correlations between the offline and online Big Five (Table 3) were equivalent to those between offline and social media (Table 4). I ran Fischer's Z tests to calculate whether the correlations between the traits on the main diagonal were equivalent. None of the correlations were significantly different (openness: $z_{observed} = 1.77$, $p = .08$; conscientiousness: $z_{observed}$ -1.29, $p = .20$;

extraversion: $z_{observed}$ = 1.78, p = .08; agreeableness: $z_{observed}$ =-.70, p =.48; neuroticism:

$z_{observed}$ =.46, p = .65). This provides further evidence that online contexts are equivalent

to social media contexts when comparing them to offline contexts.

Table 3
Big Five correlations between offline and online (preliminary study)

Measure	O_{on}	C_{on}	E_{on}	A_{on}	N_{on}
O_{off}	.59**	.27**	.27**	.25**	-.31**
C_{off}	.12	.50**	.09	.24**	-.28**
E_{off}	.25**	.13*	.47**	.12	-.25**
A_{off}	.19**	.24**	.15*	.57**	-.16**
N_{off}	-.14*	-.26**	-.03	.03	.52**

Note. Sample size = 264. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. off = offline context; on = online context. * = $p < .05$; ** = $p < .01$.

Table 4
Big Five correlations between offline and social media (preliminary study)

Measure	O_{SM}	C_{SM}	E_{SM}	A_{SM}	N_{SM}
O_{off}	.48**	.32**	.31**	.21**	-.27**
C_{off}	.16**	.58**	-.01	.26**	-.39**
E_{off}	.25**	.23**	.34**	.17**	-.21**
A_{off}	.16**	.26**	.11	.61**	-.27**
N_{off}	-.14*	-.27**	.05	-.15*	.49**

Note. Sample size = 265. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. off = offline context; SM = social media context. * = $p < .05$; ** = $p < .01$.

In summary, across context comparisons and scale formats, the results suggest that the Big Five are lower for online/social media contexts. Further, those with in the highest quartiles of the Big Five offline reported lower social media/online Big Five, but those in the lowest quartile of the offline Big Five reported higher Big Five in social media (except openness). These results closely resemble the findings from Blumer and Doring (2012), with the exception of extraversion—comparative formatting eliminated differences in extraversion between offline and online/social media—and the exception of higher reports of the Big Five in social media/online for those in the lowest quartile of the Big Five offline. The findings in this preliminary study could result from regression towards the mean or environmental constrain of extreme Big Five or facilitation towards more moderate Big Five.

There are limitations of the preliminary study. I first note reliability issues in the comparative condition, specifically for openness and agreeableness items. One explanation for low reliability for these items is how participants interpreted the meaning of the trait adjectives in each item on social media/online in comparison to offline contexts. For example, when forced to consider what is "creative" in social media compared to offline, people may wonder what counts as the creativity in social media content in comparison to offline creativity; some people may think that highly curated Instagram photos makes them more creative on social media, whereas others who also invest highly in novel social media content may think that their content is incomparable to highly skilled activities such as sculpting, painting, or dancing available only in the physical world.

Other explanations are that explicit offline and social media openness and agreeableness comparison in the comparative condition uncovers objective differences between the constructs offline and in social media or differences in response style. Participant responses may indicate that facets are not as closely linked in social media versus offline when they consider their Big Five offline versus social media in explicit comparison. For example, some participants may consider themselves as less critical and less sympathetic (i.e., both more agreeable and less agreeable) in social media compared to offline contexts because the environment encourages those expressions. Further, social desirability responding may affect participants in the comparative condition for some trait descriptions belonging to the Big Five dimensions but no other trait descriptions within the same dimension. For example, people may want to be seen as "complex" (openness) or "sympathetic" (agreeableness) offline compared to their social media self, but not care

as much for this distinction for the ascriptions of "creativity" (openness) or how "critical" (agreeableness) they are.

A further limitation is the lack of comparison between the Big Five online and social media. The preliminary study thus cannot conclude that online and social media contexts are identical with certainty. However, social media/online vs. offline differences have the same pattern when explicitly comparing (comparative design) and correlations between the Big Five in each Likert group were not significantly different, suggesting online and social media equivalence. The main study therefore does not include the social media versus online comparison.

Furthermore, the small measure of the Big Five (only 10 items) limits the preliminary findings. A longer measure is needed to capture the hierarchical structure of facets within each Big Five dimension, and whether the context-free Big Five structure replicates in offline and social media reports of the Big Five cannot be addressed. With a longer measure, reliability would improve, and a test of predictive validity differences between the offline and social media Big Five would be more feasible. I thus used a longer measure of the Big Five to address the limitations of the preliminary study and to address research questions 2 (concerning predictive validity) and 3 (concerning structural similarity).

CHAPTER 3

MAIN STUDY

Method

Participants. Participants were 518 College Students (60.0% Women), $M_{age} =$ 19.13; $SD = 2.23$). The breakdown of ethnicity was: 54.6% White, 19.1% Latino, 12.2% Asian/Asian American, 3.5% Black/African America, 3.3% Middle Eastern, 2.1% Indian/South Asian, 1.5% American Indian, and 3.5% specified other. Participants completed the study for course credit.

Design. I randomly placed participants in one of two conditions determining the presentation order of the offline and social media contexts for the Big Five measure. In the offline first condition, participants completed the offline version before the social media version. In the offline last condition, participants completed the social media version before the offline version.

Materials.

The Big Five Personality Traits. The Big Five were measured with the Big Five Inventory-2 (Soto & John, 2017), containing 60 items, 12 for each trait.[2] Participants selected agreement with items on a five-point response scale. Item and instruction modifications were similar to the preliminary study. Example items (modifications in italics) were "Is curious about many different things *offline/on social media"* (openness); "Can be somewhat careless *offline/on social media"* (conscientiousness); "Is outgoing,

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[2] I note that the Big Five Inventory-2 (Soto & John, 2017) uses the label "open-mindedness" and "negative emotionality" instead of "openness" and "neuroticism" to indicate these two personality trait dimensions. As stated, for consistency of presentation I retain the labels "openness" and "neuroticism." These labels still denote the same construct.

sociable *offline/on social media"* (extraversion); "Is compassionate, has a soft heart *offline/on social media"* (agreeableness); and "Is relaxed, handles stress well *offline/on social media"* (neuroticism). Instructions were:

> Here are a number of characteristics that may or may not apply to you **OFFLINE** (i.e., who you are in the physical world)/**SOCIAL MEDIA** (examples of social media include Facebook, Instagram, Snapchat, and Twitter). For example, do you agree that you are someone who likes to spend time with others **OFFLINE/ON SOCIAL MEDIA**? Please choose the number next to each statement that indicates the extent to which you agree or disagree with that statement. I am someone who . . .

The Big Five-Inventory-2 (Soto & John, 2017) also captures *facet*-level dimensions of each Big Five overall dimension. Each overall dimension has 3 facet dimensions each assessed with four out of the twelve overall dimension-level items: *openness* is characterized by intellectual curiosity, aesthetic sensitivity, and creative imagination; *conscientiousness* by organization, productiveness, and responsibility; *extraversion* by sociability, assertiveness, and energy level; *agreeableness* by compassion, respectfulness, and trust; and *neuroticism* by anxiety, depression, and emotional volatility.

I calculated reliability with the Cronbach's alpha of the 12 items representing each Big Five trait in the Big Five Inventory-2 (Soto & John, 2017). Alphas are displayed in Table 5 and arranged by presentation order above context. Alphas from the validation of the BFI-2 are in the far-right column. All alphas were above .75 and thus acceptable. Correlations are reported in Table 6.

Table 5
Big Five Cronbach's alphas by condition (*main study*)

	Likert (N=518)							Original BFI-2
	Off First (N=256)		SM First (N=262)		Overall (N=518)			
								General (N=1,000)
	Off	SM	Off	SM	Off	SM	Overall	
O	.81	.80	.77	.76	.81	.77	.83	.84
C	.85	.86	.78	.72	.86	.75	.85	.88
E	.87	.86	.88	.86	.87	.87	.88	.88
A	.75	.79	.79	.78	.77	.78	.82	.83
N	.89	.88	.83	.87	.89	.86	.91	.90

Note. Total sample size = 518. Sample sizes by condition are reported in columns. Original BFI-2 refers to the original reporting in the validation of the Big Five Inventory-2 (Soto & John, 2017). O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Off = offline context; SM = social media context; General = context-free.

Table 6
Big Five correlations between offline and social media (main study)

Measure	O_{SM}	C_{SM}	E_{SM}	A_{SM}	N_{SM}
O_{off}	$.62^{***}$	$.11^{*}$	$.11^{*}$	$.11^{*}$	$-.11^{*}$
C_{off}	.06	$.45^{***}$	.01	$.35^{***}$	$-.29^{***}$
E_{off}	.08	$.19^{***}$	$.33^{***}$	$.13^{**}$	$-.29^{***}$
A_{off}	$.12^{**}$	$.32^{***}$	.01	$.62^{***}$	$-.30^{***}$
N_{off}	-.09	$-.22^{***}$	.02	$-.21^{***}$	$.61^{***}$

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. off = offline context; SM = social media context. * = $p <$ .05; ** = $p <$ .01; *** = $p <$ .001.

Behavioral measures.

Social media use. I assessed social media daily use with an adapted item from

Ellison, Steinfield, and Lampe (2007): Participants were asked how much time per day

they spent on average during the past week on a 6-point scale (1 = Less than 10 minutes; 6 = More than 5 hours).

Social media addiction. I assessed social media addition by modifying the Internet Addiction Test (Pawlikowskia, Altstötter-Gleich, & Brand, 2013). The Internet Addiction Test contains 12 items (α = .87) where participants respond to loss of control/time management (e,g,, "How often do you find that you stay on *social media* longer than you intended?") and craving/social problems (e.g., "How often do you choose to spend more time on *social media* over going out with others?") on a 5-point scale (1 = rarely to 5 = always).

Social media self-disclosure. I assessed self-disclosure in social media with 13-items (α = .87) from a measure of Facebook self-disclosure (Hollenbaugh, & Ferris, 2014) by changing "Facebook" to "social media" for all included items. An example item is: "I often talk about myself on social media." Participants responded on a 7-point Likert scale.

Motivations. I assessed social interaction and information-seeking motivations to use social media with the scale developed by Alhabash and Ma (2017)(3 items each, both α = .78). Example items include "I use social media to share information" (information-seeking) and "I use social media to meet new people." (social interaction). Participants responded on a 7-point Likert scale.

Results and Discussion

Analytic plan and rationale. The main study addressed whether a five-factor structure appeared in offline and social media reports of the Big Five (RQ2) before mean (RQ1) and predictive validity (RQ3) comparisons, given their dependency on similarity

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of Big Five structure across offline and social media contexts. To assess RQ2, I conducted all the main validation analyses used by Soto and John (2017) to demonstrate the context-free structure of responses to the Big Five Inventory-2. Considering that the Big Five Inventory-2 assesses context-free personality traits, the main study concerned whether the five-factor structure validated in the Big Five Inventory-2 would replicate in Big Five reports explicitly labeled to designate offline and social media contexts.

Research question 2: Does the same structure of the context-free Big Five emerge in Big Five reports for social media and offline contexts?

Principal components analyses. I first ran principal components analyses (PCAs) on the raw items and the items after within-person centering, for both offline and social media context reports. I conducted within-person centering by taking the mean response across all Big Five items for every individual and subtracting it from every item. The purpose behind this is to control for acquiescence or "yea-saying/nay-saying bias" and favoring ends of the scale (Soto, John, Gosling, & Potter, 2008).

I conducted the PCAs with varimax rotation (i.e., components are assumed to be orthogonal). To determine the number of components, I looked at the number of components that appeared above the "elbow" in the scree plots (*Figure* 5), for both offline and social media contexts reports of the Big Five items. I observed that six factors appear to account for the variance, for both offline and social media context reports for the raw items and five factors for the centered items. Eigenvalues and variance accounted for by the first seven components are reported in Table 7 (raw items), and first six components in Table 8 (centered items) as Soto and John (2017) reported these values for the number of components above the "elbow" plus an additional component.

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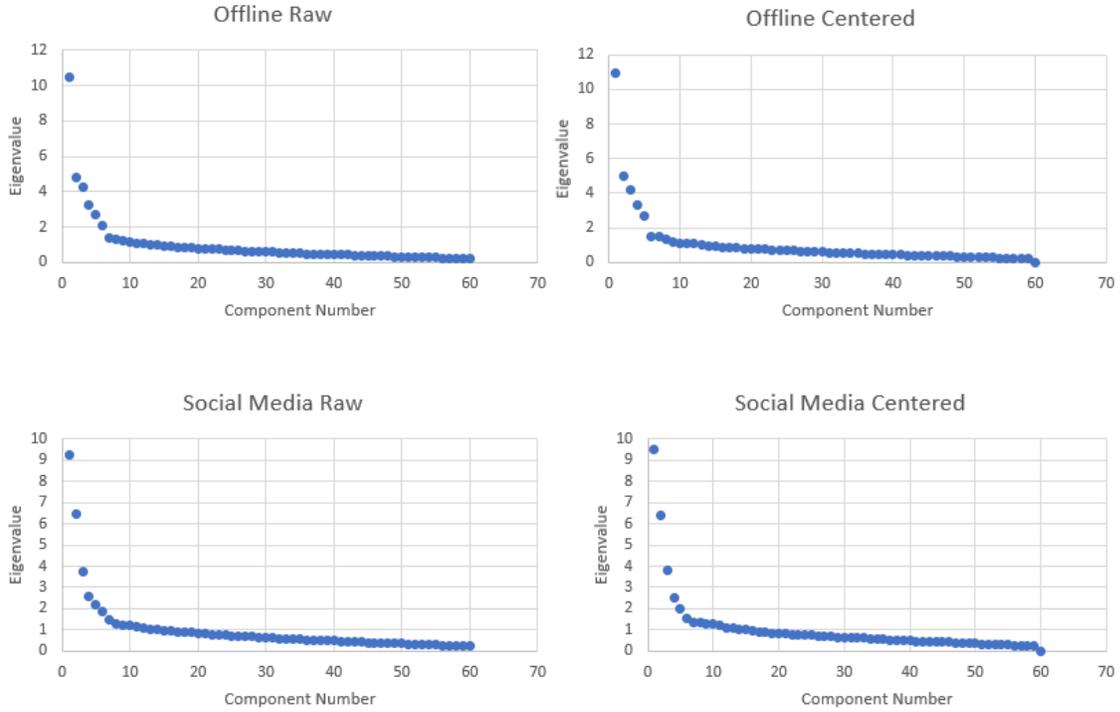
Figure 5. Scree plots of offline and social media raw and centered items in PCAs

Table 7
Eigenvalues and variance accounted for seven components in raw PCAs

	Offline Eigenvalues		Social Media Eigenvalues	
Component	Total	% of Variance	Total	% of Variance
1	10.46	17.43	9.25	15.41
2	4.83	8.05	6.44	1.73
3	4.28	7.14	3.75	6.25
4	3.22	5.37	2.57	4.28
5	2.73	4.54	2.18	3.64
6	2.08	3.47	1.83	3.04
7	1.42	2.36	1.44	2.40

Table 8

Eigenvalues and variance account for six components in centered PCAs

Component	Offline Eigenvalues		Social Media Eigenvalues	
	Total	% of Variance	Total	% of Variance
1	10.97	18.29	9.50	15.83
2	5.02	8.36	6.42	1.69
3	4.23	7.05	3.82	6.36
4	3.31	5.52	2.54	4.23
5	2.72	4.53	1.97	3.29
6	1.48	2.47	1.51	2.52

Note. Sample size = 518.

Next, I extracted and examined five components for offline and social media context reports of the centered items and six factors for the raw items, considering both the loadings on the a priori expected factor (primary loadings) and other factors (secondary loadings). Factor loadings are available in Appendix A (raw items) and B (centered items). The average primary loading was .59 and the average secondary loadings was .12 for the offline centered item reports. The average primary loading was .53 and the average secondary loading was .13 for the social media centered items reports. The average primary loadings was .57, and the average secondary loading was .12 for the offline raw items, and the average primary loadings were .48, and secondary loadings were .14 for the social media raw items. This suggests that loadings met a priori expectations based on the item assignments for the BFI-2. I thus further looked for large cross loadings or non-loadings of the items in each context report for the centered items, as Soto and John (2017) considered that centered item principal components analysis as the validation of the context-free Big Five structure.

Only one item in the offline reports had a larger secondary cross-loading than primary: "Is suspicious of other's intentions offline" (-.19 on agreeableness; .39 on

neuroticism).[3] However, multiple items in the social media reports had larger secondary loadings or no large loadings at all. Several items expected to load with conscientiousness items indicated issues: "Leaves a mess, doesn't clean up on social media" (-.33 on conscientiousness; -.42 on agreeableness); "Tends to be lazy on social media" (-.44 on conscientiousness; -.48 on extraversion); "Has difficulty getting started on tasks on social media" (no loading above .30); "Can be somewhat careless on social media" (-.27 on conscientiousness; -.41 on agreeableness); and "Sometimes behaves irresponsibility on social media" (-.27 on conscientiousness; -.46 on agreeableness). And two items expected to load with agreeableness items had issues as well: "Tends to find fault with others on social media" (no loading above .30) and "Is suspicious of other's intentions on social media" (-.02 on agreeableness; .34 on neuroticism).

These cross loadings suggest that offline and social media reports show a five-factor structure representing the context-free Big Five dimensions; however, some differentiation in social media loadings may suggest two possibilities, particularly for conscientiousness. One, these cross-loading items may fail to do because of interpretation. For example, "leaving a mess" in social media may be interpreted as stirring up drama without resolving it (thus explaining the higher loading on agreeableness). Two, there may be some construct differences in the Big Five dimensions in social media compared to offline contexts. Individual differences in aspects of social media conscientiousness may result from an intertwining social component, indicating an actual overlap between conscientiousness and other Big Five dimensions. In another

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[3] First loading notes a loading onto the a priori expected component; the second notes a significant cross loading on an unexpected component.

example, social media context does not resemble an offline workplace where "difficulty getting started on tasks" or "behaving irresponsibly" are concerns of conscientiousness nature, indicating a possible explanation for the cross loadings. Negatively worded items may also be more prone to emerging as a distinct dimension in social media. For example, "leaving a mess" versus "systematic, likes to keep things in order" may represent opposite poles of the conscientiousness dimensions in the offline world, but item interpretation or objective differences in underlying constructs may affect these loadings in social media context.

  Congruences. I then performed congruence analyses to compare the similarity of components between offline and social media reports, emulating those performed in Soto and John (2017) to compare component similarity across samples. I used Tucker's congruence coefficient as an index of similarity (Lorenzo-Seva & Ten Berge, 2006). A coefficient less than .85 means that components/factors are not similar, between .85 and .94 means components/factors are similar, and above .95 means components/factors are equal. Components of openness and neuroticism items were equal across offline and social media reports, having coefficients of .96. Components of extraversion, agreeableness, and conscientiousness items were similar across offline and social media contexts, respectively with coefficients of .92, .92, and .90. This suggests structural similarity across offline and social media context reports.

  Confirmatory factor analyses. Finally, I conducted bifactor confirmatory factor analysis models of each Big Five overall dimension and a factor thought to be acquiescence responding by Soto and John (2017) for both offline and social media context reports. I ran 10 confirmatory factor analysis models, five for each Big Five

overall dimension for offline context and five for each Big Five trait for social media

context. The conceptual model for each confirmatory factor analysis is depicted in the

Figure 6 from Soto and John (2017). Each model contains the 12 raw items expected to

represent one Big Five dimension, and it contains three facet latent factors representing

the each of the facet-level dimensions. All items were allowed to load onto only one facet

factor. All items loaded onto the factor thought to represent acquiescence; these loadings

were constrained to equal 1 in order to force positively and negatively keyed items in the

same direction. The facet factors were allowed to intercorrelate with each other but not

with the factor thought to represent acquiescence.
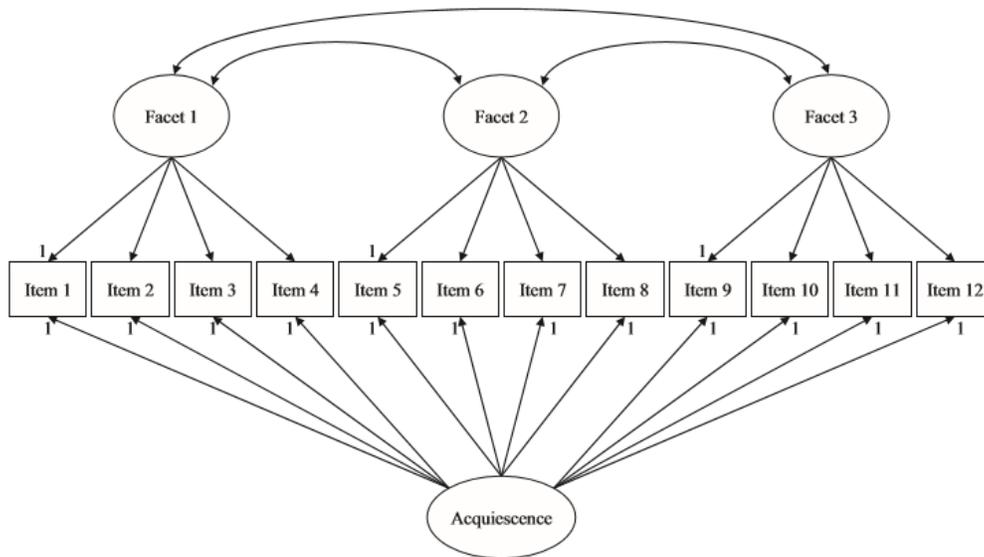
Figure 6. Confirmatory factor analysis model in Soto and John (2017).

Model fit indices are reported in Table 9. I used comparative fit indix values

above .90 and root mean square error of approximations below .08 as indicators of

reasonable model fit (see Browne & Cudeck, 1993; Hu & Bentler, 1999). All models

were a good fit except for conscientiousness in social media context. This may suggest

that the social media context reports for conscientiousness items may not contain the

same facet level structure, interpretation, or may be different on social media than offline

contexts.

Table 9
Facet CFA model fits for offline and social media

Model	X^2	p	df	BIC	CFI	TLI	RMSEA
Offline							
Openness	107.814	<.001	50	1773.121	**.958**	**.945**	**.047**
Conscientiousness	167.334	<.001	50	16794.190	**.942**	**.924**	**.067**
Extraversion	114.278	<.001	50	17869.158	**.973**	**.965**	**.050**
Agreeableness	164.152	<.001	50	16656.387	**.913**	**.885**	**.066**
Neuroticism	114.278	<.001	50	17869.158	**.973**	**.965**	**.050**
Social Media							
Openness	157.522	<.001	50	18502.798	**.912**	**.883**	**.064**
Conscientiousness	278.239	<.001	50	18095.111	.817	.759	.094
Extraversion	162.451	<.001	50	18212.281	**.950**	**.934**	**.066**
Agreeableness	198.857	<.001	50	17175.603	**.903**	**.872**	**.076**
Neuroticism	137.129	<.001	50	17976.260	**.953**	**.938**	**.058**

Note. Total sample size = 518. BIC = Bayesian information criterion; CFI = Comparative
fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of
approximation. CFI and TLI values above .900, and RMSEA values below .080, are
bolded.

In summary, both offline and social media context reports appeared to replicate

the context-free Big Five structure reported in John and Soto (2017). However, some

differences emerged, particularly for social media conscientiousness items. Items

expected to represent conscientiousness may be difficult to interpret for social media

context, or some aspects of conscientiousness emerge as individual differences in a

different trait, possibly as agreeableness in social media. Nevertheless, as similarity of

structure appeared, I carried out the mean level and predictive validity comparisons of the

Big Five between social media and offline contexts.

Research question 1: Do people report the same the Big Five in social media,

and online in general, as offline? I ran a two-way MANOVA to test the effect of

context (offline vs. social media) and order (offline first vs. social media first) on each

Big Five report. A two-way interaction appeared between context and order (Wilks' λ = .957, F (5,512) = 4.65, $p < .001$). Both main effects were consistent with our hypotheses: a main effect of context appeared (Wilks' λ = .445, F (5,512) = 127.60, $p < .001$), but no main effect of order appeared (Wilks' λ = .986, F (5,512) = .1.50, $p = .19$).

Univariate interaction effects appeared for openness ($F(1,516)=19.59$, $p < .001$) and conscientiousness ($F(1,516) = 4.17$, $p < .05$). In both order conditions, openness and conscientiousness were lower in social media compared to offline contexts, but this effect was stronger when social media context came first[4]: offline first condition (O_{off} = 3.76, SD = .63, O_{sm} = 2.50, SD = .61, $p < .001$; C_{off} = 3.66; SD = .66; C_{sm} = 3.47, SD = .61, $p < .001$); social media first condition (O_{off} = 3.79, SD = .64, O_{sm} = 3.31, SD = .62; $p < .05$, C_{off} = 3.73, SD = .70, C_{sm} = 3.43, SD = .55, $p < .001$).

I then examined the main effects of context on reports of the Big Five (*Figure* 7). Five out of five hypotheses were supported: significant differences appeared such that offline openness (M = 3.78, SD = .64) was higher than social media openness (M = 3.41; SD = .62; $F(1,516)$ = 238.69, $p < .001$); offline agreeableness (M = 3.90, SD = .56) was higher than social media agreeableness (M = 3.68, SD = .59; $F(1,516)$ = 98.82, $p < .001$); and offline neuroticism (M = 2.67, SD = .81) was higher than social media neuroticism (M = 2.37, SD = .72; $F(1,516)$ =104.64, $p < .001$); offline extraversion (M = 3.44, SD = .76) was higher than social media extraversion (M = 2.89, SD = .78; $F(1,516)$ = 192.15, p

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[4] *Note.* O = openness mean; C = conscientiousness mean; E = extraversion mean; A = agreeableness mean; N = neuroticism mean. off = offline context; SM = social media context.

< .001) and offline conscientiousness (M = 3.70, SD = .68) was higher than social media conscientiousness (M = 3.45, SD = .58; F(1,516) = 71.11, p < .001).
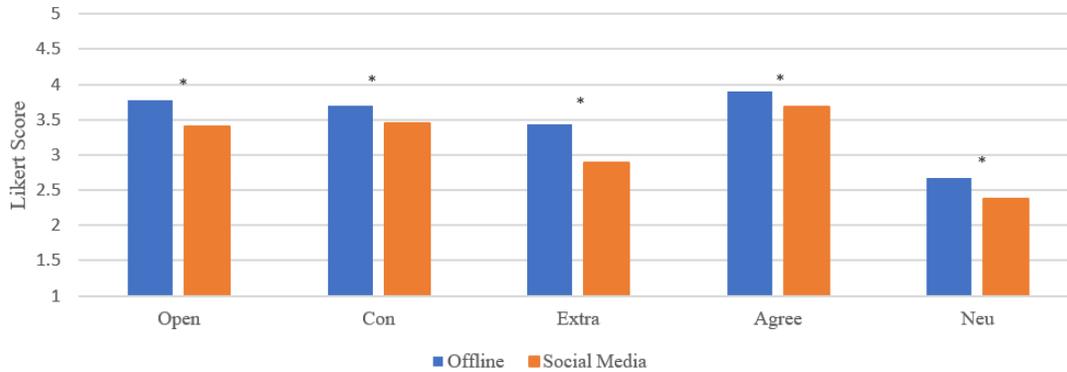
Figure 7. Offline and social media Big Five Likert differences (main study).

These results further suggest that the Big Five are lower in social media than offline contexts. The extraversion difference that occurred here further suggests that the shorter, 10-item measure of the Big Five used in the preliminary study failed to adequately assess the differences in extraversion between offline and social media contexts. The results further suggest a reference group effect appeared, given the order differences for openness and conscientiousness—this may be a due to the high and low levels of structural similarity observed for these dimensions between offline and social media contexts.

Like the preliminary study, I observed whether the overall Likert results held equally across persons with different offline Big Five reports. Again, participants were split using the "NTILES" command in SPSS version 25 that places participants in groups representing below 25th percentile (quartile 1), between 25th and 50th percentile (quartile 2), between 50th and 75th percentile (quartile 3), or above 75th percentile (quartile 4). I then ran a 2 (within-subjects context factor: offline vs. social media) x 4 (between-

subjects offline quartile factor: quartile 1, quartile 2, quartile 3, quartile 4) mixed

ANOVA for each of the Big Five to determine whether offline and social media

differences occurred in these different quartiles. A significant interaction of offline

quartile and context factors on Big Five reports appeared for each trait (see Table 10). For

all five traits, social media reports were significantly lower than offline reports for

quartiles 2-4. However, mixed results appeared for the first quartile. Specifically,

openness and agreeableness did not significantly differ after Bonferroni correction for

these participants. But social media conscientiousness, extraversion, and agreeableness

were all significantly higher than offline reports even after Bonferroni correction for the

first quartile.

Table 10
Likert differences by offline quartile (main study)

	Univariate Effect $F(3, 514) =$	Quartile 1	Quartile 2	Quartile 3	Quartile 4
O	48.61, $p < .001$	*MD = -.03* *p = .573* N = 119	*MD = .27* *p < .001* **N = 140**	*MD = .58* *p < .001* **N = 119**	*MD = .63* *p < .001* **N = 140**
C	99.93, $p < .001$	*MD = -.36* *p < .001* **N = 121**	*MD = .13* *p < .001* **N = 136**	*MD = .43* *p < .001* **N = 132**	*MD = .76* *p < .001* **N = 129**
E	264.18, $p < .001$	*MD = -.17* *p = .016* **N = 116**	*MD = .33* *p < .001* **N = 146**	*MD = .82* *p < .001* **N = 131**	*MD = 1.17* *p < .001* **N = 125**
A	29.41, $p < .001$	*MD = -.09* *p = .031* N = 130	*MD = .21* *p < .001* **N = 130**	*MD = .35* *p < .001* **N = 118**	*MD = .41* *p < .001* **N = 140**
N	65.39, $p < .001$	*MD = -.21* *p < .001* **N = 123**	*MD = .24* *p < .001* **N = 133**	*MD = .37* *p < .001* **N = 131**	*MD = .80* *p < .001* **N = 131**

Note. Total sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Bonferroni correction was used to test whether a significant difference of context occurred for each quartile group (α was divided by the number of tests conducted: .05/20 = .0025). *MD* = mean difference (offline – social media).

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Like the preliminary study, those with higher offline Big Five reports tended to report lower Big Five on social media, and those in the first quartile of offline conscientiousness, extraversion, and neuroticism had higher reports social media. But contrary to the preliminary study, those in the second quartile reported even lower Big Five in social media reports. Furthermore, those in the first quartile of agreeableness did not report higher social media agreeableness. These results suggest that regression towards the mean is an unlikely explanation, as the second quartile participants reported even lower social media Big Five[5], and since first quartile participants had higher social media reports for only three of the Big Five. The environment may be a more likely explanation, again, by reinforcing moderate or constraining extreme Big Five.

Research question 3: Is the predictive strength of Big Five the same for social media and offline contexts? I explored whether the predictive strength of the Big Five between offline and social media reports was the same for motivation and behavioral outcomes studied in research on the context-free Big Five and social media context. I first ran Fischer's Z tests to see if the correlations between these motives and offline and social media reports of the Big Five were the same (see Table 11). Like previous research (e.g., Lin Lee, Jin, & Gilbreath, 2017), openness and extraversion in both contexts predicted both motives; social media openness and extraversion, however, were stronger predictors. Neuroticism results were similar to previous studies: neither context reports appeared to predict these motives. Relationships between context-free conscientiousness and agreeableness and motivations appeared for social media, but not offline, contexts.

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[5] All second quartile means of social media reports were lower than the overall means of social media reports (i.e., second quartile participants were becoming even farther from the mean in social media contexts rather than regressing towards it).

These findings suggest that the social media Big Five are stronger predictors of social

media motivations than the offline Big Five.

Table 11

Correlations between Big Five reports and social media motivations

	Info-seeking	Socialization
O	$r_{off} = .15**$	$r_{off} = .09*$
	$r_{SM} = .38***$	$r_{SM} = .36***$
	$Z = -3.95***$	$Z = -4.65***$
C	$r_{off} = .03$	$r_{off} = .03$
	$r_{SM} = .27***$	$r_{SM} = .31***$
	$Z = -4.04***$	$Z = -4.58***$
E	$r_{off} = .15***$	$r_{off} = .14**$
	$r_{SM} = .47***$	$r_{SM} = .49***$
	$Z = -5.71***$	$Z = -6.3***$
A	$r_{off} = .07$	$r_{off} = .08$
	$r_{SM} = .18***$	$r_{SM} = -21***$
	$Z = -1.8$	$Z = -2.2*$
N	$r_{off} = -.01$	$r_{off} = .03$
	$r_{SM} = -.05$	$r_{SM} = -.06$
	$Z = .61$	$Z = 1.41$

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A =
agreeableness; N = neuroticism. off = offline context; SM = social media context. * = $p <$
.05; ** = $p < .01$; *** = $p < .001$. Z = Fisher's Z observed score.

I compared correlations between social media behavior and the context-specified

openness and extraversion, as context-free openness and extraversion are robust

predictors of social media use and behavior (see Liu & Campbell, 2017). Fischer's Z tests

are in Table 12. Extraversion and openness appeared to have different predictive patterns

of social media outcomes depending on context. In offline contexts, extraversion and

openness negatively predicted use and addiction to social media, but positively predicted

these outcomes in social media (except social media openness for addition). Further,

openness prediction patterns for social media self-disclosure indicated different directions

depending on the contexts, and social media, but not offline, extraversion predicted social

media self-disclosure, contrary to previous findings in Hollenbaugh and Ferris (2014) and Seidman (2013) that found no relation between amount of social media self-disclosure, and context-free openness and extraversion.

Table 12
Correlations between Big Five reports and social media behaviors

	General Use	Social Media addiction	SM Self-Disclosure
O	$r_{off} = -.10$*	$r_{off} = -.14$**	$r_{off} = -.12$**
	$r_{SM} = .13$**	$r_{SM} = .07$	$r_{SM} = .17$***
	$Z = -3.68$***	$Z = -3.24$**	$Z = -4.69$***
E	$r_{off} = -10$*	$r_{off} = -.13$**	$r_{off} = .08$
	$r_{SM} = .22$**	$r_{SM} = .18$***	$r_{SM} = .49$***
	$Z = -5.17$***	$Z = -5.10$***	$Z = -7.38$***

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. off = offline context; SM = social media context. * = $p < .05$; ** = $p < .01$; *** = $p < .001$. Z = Fisher's Z observed score.

These findings suggest that understanding of how openness and extraversion relate to social media use may be misrepresented. Specific context designation may improve predictive validity in comparison to a context-free assessment with no specific context specified. In this case, it seems that people who report being social and curious offline avoid social media, while those who do report they are in social media cling to it.

Extension Analyses. I conducted additional analyses to address some concerns with the dimension analyses in this thesis. These concerns consider different exploratory methods proposed by psychometricians. The conventional method following the validation analyses, principal components analysis with varimax rotation, may not be the best exploratory method to examine the structure of the Big Five in these context-specified reports. Specifically, there are no latent factors in principal components analysis (Bryant & Yarnold, 1995). Thus, a principal components analysis of the 60 items from the Big Five Inventory-2 doesn't show how each item loads onto latent factors

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representing each Big Five dimension; an exploratory factor analysis is required to address this concern. Thus for an additional dimension analysis, I used principal axis factoring, as this is a good exploratory factor analysis method when items are not normally distributed (Fabrigar, Wegener, MacCallum, & Strahan, 1999)—which is the case in the current sample: all offline and social media Big Five item responses indicated significant Kolmogorov-Smirnov tests; ps < .001). Moreover, the varimax rotation used in the validation analyses assumes the factors/components are orthogonal. Given that the specification of context of measurement in the present research, the Big Five dimensions may not be orthogonal in these specific designations. Thus, I avoided this assumption by using direct oblimin instead of varimax rotation (see Clarkson & Jennrich, 1988; Jennrich & Sampson, 1966). I further did not within-person center the items (ipsatize), as this may affect psychometric properties.

To determine the number of likely factors, I looked at the number of factors above the "elbow" in the scree plots (see *Figure* 8), for both offline and social media context reports. Eigenvalues and variance accounted for by the first seven components are listed in Table 13.
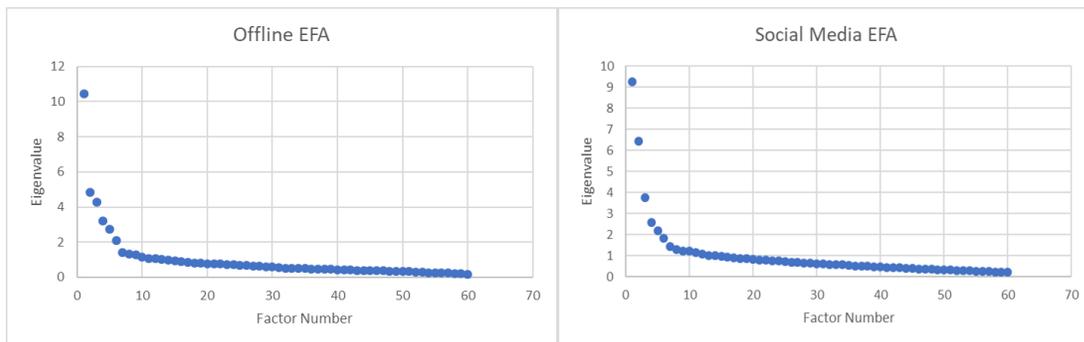
Figure 8. Scree plots of offline and social media raw items in EFAs

Table 13

Eigenvalues and variance accounted for seven components in raw EFAs

Component	Offline Eigenvalues		Social Media Eigenvalues	
	Total	% of Variance	Total	% of Variance
1	10.46	17.43	9.25	15.41
2	4.83	8.05	6.44	1.73
3	4.28	7.14	3.75	6.25
4	3.22	5.37	2.57	4.28
5	2.73	4.54	2.18	3.64
6	2.08	3.47	1.83	3.04
7	1.42	2.36	1.44	2.40

Note. Sample size = 518.

This suggests six factors that account for the variance, for both offline and social media context reports. One additional factor (6 factors total) appeared then for both offline and social media context reports compared to the validation analyses. Consequently, I extracted and examined six factors for offline and social media context reports, considering both the loadings on the a priori expected factor (primary loadings) and other factors (secondary loadings). Factor loadings are available in Appendix C. The average primary loading was .53 and the average secondary loading was .13 for the offline context reports. The average primary loading was .45 and the average secondary loading was .14 for the social media context reports. Like the validation analyses, this may suggest that loadings met a priori expectations more so for offline and social media contexts.

I then looked for significant cross loadings and non-loadings of the items in each context. Only three items in the offline context reports appeared to have loading issues: "Rarely feels excited or eager offline," "Is dependable, steady offline," and "Feels little sympathy for others offline" had no loading above .30. However, loading issues appeared

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in the social media context reports, particularity for conscientiousness and agreeableness items. The exact same conscientiousness items had issues: low loadings on the expected factor and three of the five items with high loadings with agreeableness items. But more agreeableness items (7 out of 12 total) had issues. Two items, "Feels little sympathy for others on social media and "Tends to find fault with others on social media" had no loading above .30. Five other items had weak loadings on the agreeableness factor, with four of them having strong loadings on the sixth factor: "Is compassionate, has a soft heart on social media." (.54); "Is helpful and unselfish with others." (.43) "Has a forgiving nature on social media." (.45); and "Assumes the best about people on social media." (.34). One other agreeableness item, "Is suspicious of other's intentions," had a strong loading on neuroticism (.31).

Like the validation analyses, these loadings suggest that the offline context reports indicated a five-factor structure, even with a sixth factor extracted. And for social media context reports, these results further suggest that conscientiousness items may be misinterpreted or that conscientiousness reflects a different construct in social media than offline contexts.

In contrast to the validation analyses, more agreeableness items could be loading separately on different factors because of the additional factor extraction. However, even after examining the loadings after a five-factor extraction with principal axis factoring and direct oblimin rotation, the agreeableness items loading onto the sixth factor, loaded with the majority of conscientiousness items, suggesting even more similarity between these two dimensions in social media context reports.

Congruence. Next, I conducted congruence analyses to test whether the factors were similar between offline and social media contexts. As a preliminary extension, I examined if it matters what method is used to compare factor/component similarity in Big Five reports designated for offline and social media contexts. Thus, I used three different methods for congruences: first, the validation method (i.e., principal components analysis with varimax rotation and ipsatized items); second, extension 1, where I tried the same configurations but with a switch from principal components analysis to an exploratory factor analysis framework (i.e, principal axis factoring with varimax rotation and ipsatized items); and third, extension 2, where I incorporated the method used to examine loadings (principal axis factoring with direct oblimin rotation and raw items). I compared congruences in three sets.

In sets 1 and 2, I compared each method to each other within each context. Thus, three types of comparisons appear: validation vs. extension 1, extension 1 vs. extension 2, and validation vs. extension 2. I conducted these comparisons for each Big Five dimension. The comparisons for offline context reports are listed in Table 14, and the comparisons for social media context reports are listed in Table 15.

Table 14
Offline congruence comparisons

	Validation vs. Extension. 1	Extension 1 vs. Extension 2	Validation vs. Extension 2
O	**1.00**	**.99**	**1.00**
C	**1.00**	.97	.98
E	**1.00**	.96	.96
A	**1.00**	.97	.98
N	**1.00**	.94	.95

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Coefficients above .95 are bolded.

Table 15

Social media congruence comparisons

	Validation vs. Extension. 1	Extension 1 vs. Extension 2	Validation vs. Extension 2
O	**.99**	**.99**	**.97**
C	.68	**.95**	.63
E	**.99**	**.99**	**.97**
A	**.96**	**.98**	**.95**
N	**.98**	**1.00**	**.97**

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Coefficients above .95 are bolded.

All method comparisons indicated high similarity between components/factors across methods in offline comparisons, suggesting no effect of method on offline context reports. However, method appeared to affect conscientiousness items in social media context reports: low component/factor similarity appeared when comparing the validation method to extension methods, but no differences appeared between extensions. This suggests that an exploratory factor analysis framework, specifically using principal axis factoring, may capture more factor differentiation in conscientiousness items. However, it also suggests that rotation and item type doesn't seem to impact component/factor congruence.

Next, I examined how similar components/factors were between offline and social media contexts for each item type in set 3 (see Table 16). Across methods, openness, neuroticism, and extraversion congruences indicated high similarity between offline and social media contexts. However, extension methods affected conscientiousness and agreeableness similarity. In the exploratory factor analysis framework, conscientiousness and agreeableness were less similar between contexts; and even less similarity appeared for conscientiousness when factors assumed to be orthogonal (extension 1) while even less similarity appeared for agreeableness when factors not assumed to be orthogonal

(extension 2). This provides further evidence that conscientiousness and agreeableness

may not be the same in social media than offline contexts.

Table 16
Offline vs. social media congruence comparisons by method

	Validation	Extension 1	Extension 2
O	**.96**	**.96**	**.96**
C	.90	.64	.80
E	.92	.92	.94
A	.92	.85	.64
N	**.96**	**.93**	**.96**

Note. Sample size = 518. O = openness; C = conscientiousness; E = extraversion; A = agreeableness; N = neuroticism. Coefficients above .95 are bolded.

      Finally, as part of exploratory extensions, I conducted a Procrustes rotation.

Procrustes rotation attempts to make one matrix of factor loadings as similar as possible

to another, target matrix (Ten Berge, 1977), and have been used by Big Five researchers

to make loadings in one sample similar to another sample (e.g., McCrae, Zonderman,

Costa, Bond, & Paunonen, 1996). I conducted congruence analyses after conducting a

Procrustes rotation to alter the social media context loadings in the extension 2 analysis to

match offline context loadings as much as possible (loadings are available in Appendix

D). Congruences between offline and social media context factors post Procrustes

rotation were .97 (openness), .89 (conscientiousness), .96 (extraversion), .93

(agreeableness), and .96 (neuroticism). Even after rotating conscientiousness and

agreeableness item loadings in the social media context reports to equal the offline item

loadings as much as possible, conscientious and agreeableness items still fail to meet the

criteria set by Lorenzo-Seva and Ten Berge (2006), indicating factor equivalence. This

suggests an additional piece of evidence that conscientiousness and agreeableness may

not be equivalent across offline and social media contexts.

Confirmatory factor analyses. This thesis also extended beyond the confirmatory factor analyses ran in the validation analyses. I ran four additional confirmatory factor analyses. The conceptual model for each confirmatory factor analysis is depicted in *Figure* 9. I made three changes from the models in Soto and John (2017): (1) the models included all 60 items, with all 15 facets and 5 substantive factors thought to be acquiescence. (2) Facet factors were not allowed to intercorrelate, and (3) substantive factors were allowed to intercorrelate.
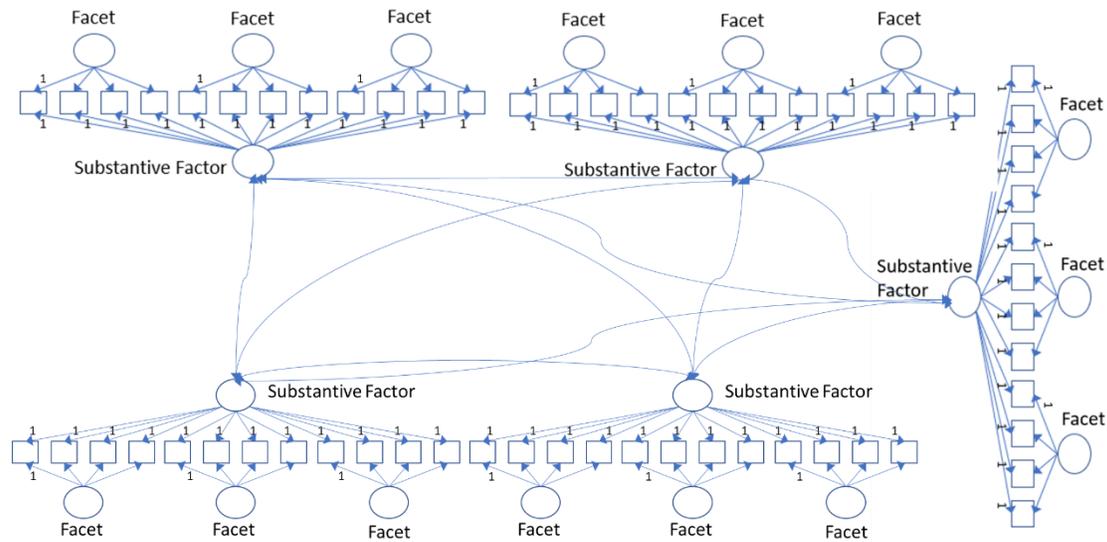
Figure 9. CFA model diagram of all Big Five items in extension analyses.

I ran this model four times, twice for each context (offline and social media) using different estimations: maximum likelihood and weighted least squares mean and variance adjusted. Soto and John (2017) did not specify estimation method, so I first ran the models with maximum likelihood as a default. But the 5-point scale of the BFI-2 can be seen as providing categorical data, and given the non-normality of our responses, I ran the models again with weighted least squares mean and variance adjusted, which is a good option for these specifics (see Brown, 2006; Byrne, 2006). Model fit indices by

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estimation method and context are reported in Table 17. I again used comparative fit

index values above .90 and root mean square errors of approximation below .08 as

indications of reasonable model fit (see Browne & Cudeck, 1993; Hu & Bentler, 1999).

Table 17
CFA model fits of all Big Five items for offline and social media reports

Estimator	Report Context	X^2	p	df	BIC	CFI	TLI	RMSEA
ML	Offline	6404.603	<.001	1695	88716.427	.601	.583	**.073**
ML	Social Media	6403.649	<.001	1695	91507.908	.553	.533	**.073**
WLSMV	Offline	7541.458	<.001	1695	N/A	.218	.184	.082
WLSMV	Social Media	7029.468	<.001	1695	N/A	.192	.156	**.077**

Note. Total sample size = 518. BIC = Bayesian information criterion; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation. RMSEA values below .080, are bolded. ML = Maximum likelihood. WLSMV = Weighted Least Squares Mean and Variance adjusted.

While root mean square errors of approximation indicated acceptable fit for

offline and social media models with maximum likelihood estimation, and social media

with weighted least squared mean and variance adjusted estimation, comparative fit

indices indicated unacceptable fit for four models. I cannot conclude that a five-factor

structure plus additional correlated substantive factors possibly indicating a method factor

appeared in either offline or social media context reports.

Summary of extension analyses. The extension analyses results were similar to

the validation results such that some conscientiousness items appeared to have factor

differentiation. However, it appeared that switching to an exploratory factor analysis

framework in the extension analyses revealed less factor similarity between offline and

social media conscientiousness, as well as more factor differentiation for agreeableness

items.

CHAPTER 4

GENERAL DISCUSSION

Summary of Findings and Implications: RQ1

Lower Big Five reports appeared on average in social media than offline contexts (except extraversion in the preliminary study), especially for individuals reporting higher offline Big Five. Thus, the findings replicated previous work on mean-level differences in the Big Five between context-free and online contexts found by Blumer and Döring (2012). However, those with very low conscientiousness, extraversion, and neuroticism offline had higher reports in social media context in the main study, contrary to Blumer and Döring's (2012) findings. I consider three possibilities for these results: (1) The findings are a product of regression towards the mean—as people in the higher quartiles of offline Big Five reported lower Big Five in social media context, while the opposite pattern occurred for those in the lowest quartiles of conscientiousness, extraversion, and neuroticism in the main study. However, those in the lowest quartile of offline openness and agreeableness did not report higher openness and agreeableness in social media context, suggesting that regression towards the mean is unlikely. Two other possibilities are that the environment of social media (2) *reinforces* more moderate Big Five or it (3) *constrains* extreme Big Five.

The main study findings for openness and agreeableness suggest these possibilities only for those in the highest quartiles of offline traits. Openness is likely affected by user-generated content, such as posts or comments, integral to social media communication (Smith, Fischer & Yongjian, 2012). Pre-programed algorithms manipulate user-generated content to steer users towards content that they will like (van

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Dijck & Poell, 2013). This aspect of social media may result in less complex ideas and imagination in social media, leading to reinforcement of lower or constraint of higher openness in social media contexts. Similarly, large audiences with deindividuation and instant messaging features of social media (see Lowry, Zhang, Wang, & Siponen, 2016; McFarland & Ployhart, 2015) may reinforce lower agreeableness because people don't have to worry about being singled out from 100-comment long posts degrading another user. Or, the lack of physical space in social media may constrain higher agreeableness by limiting compassion and warmth.

On the other hand, higher social media conscientiousness, extraversion, and neuroticism reports appeared for those in the lowest offline quartile. Thus, the two environmental possibilities may emerge for those on either end of the offline dimensions. Regarding reinforcement, I consider several possibilities. Information is spread faster, found more easily, and is retained with no limitations in social media compared to offline contexts (McFarland & Ployhart, 2015). Those reporting low conscientiousness offline may use social media as a tool while those reporting high conscientiousness offline may not require social media for organization or productivity. The high level of engagement and activity needed for physical relationships (see Dunbar, 2014) is no longer needed to connect with millions of others on social media in minutes. On the other hand, people may prefer offline interactions that carry the advantages of social interaction in real space in time. Thus, offline introverts may prefer social media and offline extroverts neglect it. A recent work showed that "likes" on one's own social media content activates reward centers of the brain (Sherman, Payton, Hernandez, Greenfield, & Dapretto, 2016). On the other hand, social media contains a wealth of content that may evoke negative emotions

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in some users (e.g., political arguments; Halpern, & Gibbs, 2013). Social media may then facilitate an environment where most users feel less neurotic due to self-enhancing features, but a harsh, anxiety provoking environment for those who are not neurotic in the offline word. Yet beyond these possibilities, the environment may constrain these traits on the extreme ends rather than merely reinforcing moderate expressions.

For the other aspects of research question 1, evidence from the preliminary study suggests that online and social media contexts are highly similar when comparing the Big Five between these contexts and offline context. What young adults think of when considering online contexts, at least when comparing who they are in these contexts compared to who they are offline, seems to be social media context. But despite similarity between social media and online contexts in comparison to offline contexts, it seems that online context today has changed since Blumer and Döring collected their data almost a decade earlier, given that not all individuals had lower Big Five reports in social media than offline contexts in the present study.

Summary of Findings and Implications: RQ2

The thesis found evidence of a five-factor structure in reports the Big Five labeled to reflect offline and social media contexts. Specifically, principal component and domain confirmatory factor analyses indicated high similarity of components and facet level structure between offline and social media context reports. Openness, extraversion, and neuroticism items in particular were robust between offline and social media contexts. However, some differences appear in the similarity of factors and items expected to represent conscientiousness and agreeableness across the contexts, particularly in an exploratory factor analysis framework used in the extension analyses.

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These differences could reflect difficulty in understanding items expected to represent these factors, or the constructs of conscientiousness and agreeableness may not appear in social media the same way as in offline contexts. In the former possibility, some items may indicate meaning that is sensible only in offline contexts. For example, social media context isn't a physical space where individuals can neglect to clean up a "mess." For the latter possibility, variations in traits expected to represent conscientiousness (e.g., being organized, responsible, having self-control) may intertwine with the social facets of agreeableness. One consideration is that social media context is rife with malicious, aggressive behavior (see Kowalski & Limber, 2007; Lowry, Zhang, Wang, & Siponen, 2016) juxtaposed against prosocial, fundraising endeavors (see Saxton & Wang, 2014). If conscientiousness and agreeableness constructs collide in social media, the present findings provide utility for research in both negative and positive behavioral veins of social media; organized, productive, and respectful users may make up the charitable side of social media, while stratified, impulsive, and malevolent users may be the cyberbullies and trolls terrorizing online social networks.

Summary of Findings and Implications: RQ3

The most critical findings and implications of this thesis concern predictive validity, as the structural similarity of the Big Five dimensions between offline and social media contexts suggests they are comparable. The Big Five designated by social media context, with exception of neuroticism, were better predictors of motivations than offline context reports. Thus, previous research on the relationship between the context-free Big Five and social media behaviors obscured this critical distinction. One possible consequence is that the Big Five in social media context may actually be more reflective

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of young adults' context-free traits than offline context reports. The present research further found that social media and offline extraversion and openness predicted some social media behaviors in different directions: offline context reports tended to reveal negative predictions while social media context reports tended to reveal positive predictions. Moreover, while previous research (i.e., Hollenbaugh, & Ferris, 2014; Seidman, 2013) found no relation between amount of social media self-disclosure and the context-free Big Five, the present research found that explicitly designating offline and social media context for openness and extraversion assessment resulted in statistically significant prediction of social media self-disclosure. These divergent predictive patterns of openness and extraversion depending on context specified suggests that people who are social and curious offline avoid social media, while those who *are* on social media cling to it; and previously unpredictable outcomes, such as social media self-disclosure, which has increasingly become of interest to psychologists (see Luo & Hancock, 2019), may now be predictable with explicit context designation.

Limitations and Future Directions

Several limitations are present in this thesis. First, the current studies cannot decipher whether social media environments reinforce or constrain the Big Five between offline and social media contexts. Previous research arguing that different contexts across environments alters the Big Five may be useful here. Researchers following the niche diversity hypothesis found, for example, that the socioecology of the Tsimané of Bolivia has fewer niches than typical western populations, thus explaining the emergence of only two dimensions out of a Big Five assessment of Tsimané participants (see Gurven et al., 2013). In another example, conscientiousness is the least basic of the Big Five

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dimensions across the animal kingdom, likely because most species aren't in contexts where conscientiousness has a function (Delgado & Sulloway, 2017; Gosling, 2001; Gosling & John, 1999). Future research might follow this insight and conduct context experiments to test whether social media contexts can be simulated and manipulated to observe whether environments reinforce or constrain the Big Five in social media contexts. Researchers could utilize theoretical frameworks of social media context (e.g., boyd & Ellison, 2013; Marwick & boyd, 2011; McFarland & Ployhart, 2015) to identify particular features that distinguish offline, social media, and other online contexts and then test whether the results of this thesis replicate, and whether the effects result from context constraint or reinforcement.

A second limitation is that this thesis did not contain an explicit test of the Big Five differences between online and social media contexts. Therefore, the thesis cannot conclude with certainty that these two contexts are equivalent. Despite the dominance of social media platforms in the online domain, popular online sites different from social media platforms still are in use. This thesis, for example, found that social media, but not online contexts, features no differences between openness in comparison to offline contexts for individuals in the lowest offline quartile. This suggests that online sources such as search engines may provide ways for individuals who lack creativity and exploration desire offline to express openness in ways that social media cannot. Future research could examine whether the Big Five is the same between social media and other online contexts.

Finally, the thesis did not include offline or context-free behaviors. To know whether the social media Big Five are representative of the context-free Big Five, offline

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and context-free behaviors such as mental health, which is of high interest in social media research (see Pantic, 2014; Guntuku, Yaden, Kern, Ungar, & Eichstaedt, 2017) and perceived offline personal and property safety, which is evidently influenced by social media (see Mitchell, Finkelhor, Jones, & Wolak, 2010; Zhang & Gupta, 2018), may be of interest. These outcomes would present a more conservative test of predictive validity differences, as semantic overlap of the Big Five reports in context would diminish—considering that higher correlations between the social media reports of the Big Five and outcomes may appear from outcome items sharing the same content as the "on social media" tags added to the Big Five Inventory-2 items for the social media context report in the main study.

Coda

In conclusion, this thesis provided evidence that the Big Five are not the same in social media as offline. This evidence extends beyond previous work to show lower Big Five reports in social media than offline contexts, that although the structure of the Big Five is similar between these two contexts, the dimensions of agreeableness and conscientiousness may not be identical between offline and social media contexts, and that Big Five assessment designated to indicate different contexts results in different predictive validities for outcomes important in social media research.

REFERENCES

Alhabash, S., & Ma, M. (2017). A tale of four platforms: Motivations and uses of Facebook, Twitter, Instagram, and Snapchat among college students?. *Social Media + Society*, *3*(1).

Allport, G. W. (1937). *Personality: A psychological interpretation.* New York: Holt.

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs, 47*(1).

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, *11*(2), 150-166.

Ashton, M. C., Lee, K., & Goldberg, L. R. (2004). A hierarchical analysis of 1,710 English personality-descriptive adjectives. *Journal of Personality and Social Psychology*, *87*(5), 707-721.

Benet-Martinez, V., & John, O. P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait-multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology*, *75*(3), 729-750.

Benet-Martínez, V., & Oishi, S. (2008). Culture and personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 542-567). New York, NY: Guildford Press.

Blumer, T., & Döring, N. (2012). Are we the same online? The expression of the five factor personality traits on the computer and the Internet. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 6(3).

Borkenau, P., & Ostendorf, F. (1993). NEO-Fünf-Faktoren Inventar (NEO-FFI) nach Costa und McCrae. Göttingen: Hogrefe.

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), 210-230.

Brown, T. (2006). *Confirmatory factor analysis for applied research.* New York: Guildford.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, *154*, 136-136.

Bryant, F. B., & Yarnold, P. R. (1995). Principal-components analysis and exploratory and confirmatory factor analysis. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 99 –136). Washington, DC: American Psychological Association.

Cattell, R. B. (1943). The description of personality: Basic traits resolved into clusters. *The Journal of Abnormal and Social Psychology*, *38*(4), 476.

Chaffey, D. (2019). Global social media research summary, 2019. Retrieved from http://www.smartinsights.com/social-media-marketing/social-media-strategy/new-globalsocial-media-research/

Clarkson, D. B., & Jennrich, R. I. (1988). Quartic rotation criteria and algorithms. *Psychometrika*, *53*(2), 251-259.

Correa, T., Hinsley, A. W., & De Zuniga, H. G. (2010). Who interacts on the Web?: The intersection of users' personality and social media use. *Computers in Human Behavior*, *26*(2), 247-253.

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, *4*(1), 5-13.

Delgado, M. M., & Sulloway, F. J. (2017). Attributes of conscientiousness throughout the animal kingdom: An empirical and evolutionary overview. *Psychological Bulletin*, *143*(8), 823-867.

Dunbar, R. I. (2014). The social brain: Psychological underpinnings and implications for the structure of organizations. *Current Directions in Psychological Science*, *23*(2), 109-114.

Ellison, N. B., & boyd, d. (2013). Sociality through social network sites. In W. H. Dutton (Ed.), *The Oxford handbook of internet studies* (pp. 151–172). Oxford, UK: Oxford University Press.

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*(4), 1143-1168.

Ellison N. B., Vitak J., Steinfield C., Gray R., Lampe C. (2011). Negotiating privacy concerns and social capital needs in a social media environment. In S. Trepte & L. Reinecke (Eds.), *Privacy online: Perspectives on privacy and self-disclosure in the social web* (pp. 19–32). Berlin, Germany: Springer.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272.

Fleeson, W. (2007). Situation-based contingencies underlying trait-content manifestation in behavior. *Journal of Personality*, *75*(4), 825-862.

Fleeson, W. (2017). The production mechanisms of traits: Reflections on two amazing decades. *Journal of Research in Personality*, *69*, 4-12.

Fraley, R. C., & Roberts, B. W. (2005). Patterns of continuity: a dynamic model for conceptualizing the stability of individual differences in psychological constructs across the life course. *Psychological Review*, *112*(1), 60-70.

Gerson, J., Plagnol, A. C., & Corr, P. J. (2017). Passive and active facebook use measure (PAUM): validation and relationship to the reinforcement sensitivity theory. *Personality and Individual Differences*, *117*, 81-90.

Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. *Review of Personality and Social Psychology*, 2, 141–165.

Gosling, S. D. (2001). From mice to men: what can we learn about personality from animal research?. *Psychological Bulletin*, *127*(1), 45-86.

Gosling, S. D., & John, O. P. (1999). Personality dimensions in nonhuman animals: A cross-species review. *Current Directions in Psychological Science*, *8*(3), 69-75.

Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504-528.

Guntuku, S. C., Yaden, D. B., Kern, M. L., Ungar, L. H., & Eichstaedt, J. C. (2017). Detecting depression and mental illness on social media: an integrative review. *Current Opinion in Behavioral Sciences*, *18*, 43-49.

Gurven, M., Von Rueden, C., Massenkoff, M., Kaplan, H., & Lero Vie, M. (2013). How universal is the Big Five? Testing the five-factor model of personality variation among forager–farmers in the Bolivian Amazon. *Journal of Personality and Social Psychology*, *104*(2), 354-370.

Halpern, D., & Gibbs, J. (2013). Social media as a catalyst for online deliberation? Exploring the affordances of Facebook and YouTube for political expression. *Computers in Human Behavior*, *29*(3), 1159-1168.

Hollenbaugh, E. E., & Ferris, A. L. (2014). Facebook self-disclosure: Examining the role of traits, social cohesion, and motives. *Computers in Human Behavior*, *30*, 50-58.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55.

Jennrich, R. I., & Sampson, P. F. (1966). Rotation for simple loadings. *Psychometrika, 31*(3), 313-323.

John, O. P., Donahue, E, M., & Kentle, R. L. (1991). The Big Five Inventory – Versions 4a and 54. Berkeley CA: University of California, Berkeley, Institute of Personality and Social Research.

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 114–158). New York, NY: Guilford Press.

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York, NY: Guilford Press.

Judge, T. A., & Zapata, C. P. (2015). The person–situation debate revisited: Effect of situation strength and trait activation on the validity of the Big Five personality traits in predicting job performance. *Academy of Management Journal*, *58*(4), 1149-1179.

Kayiş, A. R., Satici, S. A., Yilmaz, M. F., Şimşek, D., Ceyhan, E., & Bakioğlu, F. (2016). Big five-personality trait and internet addiction: A meta-analytic review. *Computers in Human Behavior*, *63*, 35-40.

Kenrick, D. T., & Funder, D. C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist*, *43*(1), 23-34.

Kircaburun, K., Alhabash, S., Tosuntaş, Ş. B., & Griffiths, M. D. (2018). Uses and gratifications of problematic social media use among university students: A simultaneous examination of the Big Five of personality traits, social media platforms, and social media use motives. *International Journal of Mental Health and Addiction*, 1-23.

Kircaburun, K., & Griffiths, M. D. (2018). Instagram addiction and the Big Five of personality: The mediating role of self-liking. *Journal of Behavioral Addictions*, *7*(1), 158-170.

Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health*, *41*(6), S22-S30.

Lin, J. S., Lee, Y. I., Jin, Y., & Gilbreath, B. (2017). Personality traits, motivations, and emotional consequences of social media usage. *Cyberpsychology, Behavior, and Social Networking*, *20*(10), 615-623.

Liu, D., & Campbell, W. K. (2017). The Big Five personality traits, Big Two metatraits and social media: A meta-analysis. *Journal of Research in Personality*, *70*, 229-240.

Lorenzo-Seva, U., & Ten Berge, J. M. (2006). Tucker's congruence coefficient as a meaningful index of factor similarity. *Methodology*, *2*(2), 57-64.

Lowry, P. B., Zhang, J., Wang, C., & Siponen, M. (2016). Why do adults engage in cyberbullying on social media? An integration of online disinhibition and deindividuation effects with the social structure and social learning model. *Information Systems Research*, *27*(4), 962-986.

Lukaszewski, A. W., Gurven, M., von Rueden, C. R., & Schmitt, D. P. (2017). What explains personality covariation? A test of the socioecological complexity hypothesis. *Social Psychological and Personality Science*, *8*(8), 943-952.

Luo, M., & Hancock, J. (2019). Self-Disclosure and Social Media: Motivations, Mechanisms and Psychological Well-Being. *Current Opinion in Psychology*, *31*, 110-115.

Lynn, R., & Martin, T. (1995). National differences for thirty-seven nations in extraversion, neuroticism, psychoticism and economic, demographic and other correlates. *Personality and Individual Differences*, *19*(3), 403-406.

Magidson, J. F., Roberts, B. W., Collado-Rodriguez, A., & Lejuez, C. W. (2014). Theory-driven intervention for changing personality: Expectancy value theory, behavioral activation, and conscientiousness. *Developmental Psychology*, *50*(5), 1442-1450

Marwick, A. E., & Boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society*, *13*(1), 114-133.

Marwick, A. E., & Boyd, D. (2014). Networked privacy: How teenagers negotiate context in social media. *New Media & Society*, *16*(7), 1051-1067.

McCrae, R. R. (2004). Human nature and culture: A trait perspective. *Journal of Research in Personality*, *38*(1), 3-14.

McCrae, R. R., & Costa Jr, P. T. (1985). Comparison of EPI and psychoticism scales with measures of the five-factor model of personality. *Personality and Individual Differences*, *6*(5), 587-597.

McCrae, R. R., & Costa Jr, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, *52*(5), 509-516.

McCrae, R. R., & Costa, P. T. (2008a). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 159–181). New York, NY US: Guilford Press.

McCrae, R. R., Terracciano, A., & 79 Members of the Personality Profiles of Cultures Project. (2005). Personality profiles of cultures: aggregate personality traits. *Journal of Personality and Social Psychology, 89*(3), 407-425.

McAdams, D. P. (1992). The five-factor model in personality: A critical appraisal. *Journal of Personality, 60*(2), 329-361.

McFarland, L. A., & Ployhart, R. E. (2015). Social media: A contextual framework to guide research and practice. *Journal of Applied Psychology*, *100*(6), 1653-1677.

Miller, R., Parsons, K., & Lifer, D. (2010). Students and social networking sites: the posting paradox. *Behaviour & Information Technology*, *29*(4), 377-382.

Mischel, W., & Peake, P. K. (1983). Analyzing the construction of consistency in personality. In M. M. Page (Ed.)*, Personality: Current theory and research* (pp. 233-262). Lincoln: University of Nebraska Press.

Mischel, W. (1968). *Personality and assessment*. Hoboken, NJ: Wiley.

Mischel, W., & Shoda, Y. (1995). A cognitive affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, *102*(2), 246–268.

Mitchell, K. J., Finkelhor, D., Jones, L. M., & Wolak, J. (2010). Use of social networking sites in online sex crimes against minors: an examination of national incidence and means of utilization. *Journal of Adolescent Health*, *47*(2), 183-190.

Monacis, L., De Palo, V., Griffiths, M. D., & Sinatra, M. (2017). Social networking addiction, attachment style, and validation of the Italian version of the Bergen Social Media Addiction Scale. *Journal of Behavioral Addictions*, *6*(2), 178-186.

Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, *17*(10), 652-657.

Pawlikowski, M., Altstötter-Gleich, C., & Brand, M. (2013). Validation and psychometric properties of a short version of Young's Internet Addiction Test. *Computers in Human Behavior*, *29*(3), 1212-1223.

Pawlikowski, M., Altstötter-Gleich, C., & Brand, M. (2013). Validation and psychometric properties of a short version of Young's Internet Addiction Test. *Computers in Human Behavior*, *29*(3), 1212-1223.

Pervin, L. A. (1994). A critical analysis of current trait theory. *Psychological Inquiry*, *5*(2), 103-113.

Saxton, G. D., & Wang, L. (2014). The social network effect: The determinants of giving through social media. *Nonprofit and Voluntary Sector Quarterly*, *43*(5), 850-868.

Schmitt, D. P., Allik, J., McCrae, R. R., & Benet-Martínez, V. (2007). The geographic distribution of Big Five personality traits: Patterns and profiles of human self-

description across 56 nations. *Journal of Cross-Cultural Psychology*, *38*(2), 173-212.

Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Differences*, *54*(3), 402-407.

Sheldon, K. M., Ryan, R. M., Rawsthorne, L. J., & Ilardi, B. (1997). Trait self and true self: Cross-role variation in the Big-Five personality traits and its relations with psychological authenticity and subjective well-being. *Journal of Personality and Social Psychology*, *73*(6), 1380-1393.

Sherman, L. E., Payton, A. A., Hernandez, L. M., Greenfield, P. M., & Dapretto, M. (2016). The power of the like in adolescence: effects of peer influence on neural and behavioral responses to social media. *Psychological Science*, *27*(7), 1027-1035.

Skeels, M. M., & Grudin, J. (2009, May). When social networks cross boundaries: a case study of workplace use of facebook and linkedin. In *Proceedings of the ACM 2009 International Conference on Supporting Group Work* (pp. 95-104). ACM.

Smaldino, P. E., Lukaszewski, A., von Rueden, C., & Gurven, M. (2019). Niche diversity can explain cross-cultural differences in personality structure. *Nature Human Behaviour*, 1-8.

Smith, A., & Anderson, M. (2018). Social Media Use in 2018. Retrieved from http://www.pewinternet.org/2018/03/01/social-media-use-in-2018/

Smith, A. N., Fischer, E., & Yongjian, C. (2012). How does brand-related user-generated content differ across YouTube, Facebook, and Twitter?. *Journal of Interactive Marketing*, *26*(2), 102-113.

Soto, C. J., & John, O. P. (2017). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, *113*(1), 117-143.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2008). The developmental psychometrics of big five self-reports: Acquiescence, factor structure, coherence, and differentiation from ages 10 to 20. *Journal of Personality and Social Psychology*, *94*(4), 718-737.

Statista (2019). Daily Time Spent on Social Networking by Internet Users Worldwide from 2012 To 2017 (in Minutes). Retrieved from https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/

Taber, L., & Whittaker, S. (2018, April). Personality depends on the medium: differences in self-perception on Snapchat, Facebook and offline. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (p. 607). ACM.

Tang, J. H., Chen, M. C., Yang, C. Y., Chung, T. Y., & Lee, Y. A. (2016). Personality traits, interpersonal relationships, online social support, and Facebook addiction. *Telematics and Informatics*, *33*(1), 102-108.

Tskhay, K. O., & Rule, N. O. (2014). Perceptions of personality in text-based media and OSN: A meta-analysis. *Journal of Research in Personality*, *49*, 25-30.

van Dijck, J., & Poell, T. (2013). Understanding Social Media Logic. *Media and Communication*, *1*(1), 2-14.

Veroff, J. (1983). Contextual determinants of personality. *Personality and Social Psychology Bulletin*, *9*(3), 331-343.

Zhang, Z., & Gupta, B. B. (2018). Social media security and trustworthiness: overview and new direction. *Future Generation Computer Systems*, *86*, 914-925.

APPENDIX A

OFFLINE AND SOCIAL MEDIA LOADINGS FROM RAW ITEM PCA

	Component				
Items	1	2	3	4	5
Openness					
1. Is curious about many different things.	-.09(.06)	.11(-.11)	.16**(.50)**	.19(-.07)	**.48**(.25)
25r. Avoids intellectual, philosophical discussions	.13 (.10)	-.18 (09)	.05 (-.05)	.13 (-.29)	**-.56 (-.43)**
4. Is complex, a deep thinker.	.16 (.08)	.09 (-.05)	.06 (.39)	-.05 (.25)	**.60 (.42)**
55r. Has little interest in abstract ideas.	.08 (.07)	-.02 (.12)	-.03 (-.05)	-.11 (.07)	**-.63 (-.57)**
5r. Has few artistic interests.	-.12 (-.05)	-.02 (.18)	.05 (.17)	-.07 (.18)	**-.41 (-.43)**
2. Is fascinated by art, music, or literature.	.10 (.13)	-.14 (.10)	-.04 (.12)	.18 (-.18)	**.65 (.68)**
35. Values art and beauty.	.15 (.11)	-.05 (.04)	-.03 (.23)	.23 (-.22)	**.65 (.62)**
50r. Thinks poetry and plays are boring.	-.05 (-.09)	.15 (-.02)	.00 (-.05)	-.10 (.12)	**-.56 (-.54)**
15. Is inventive, finds clever ways to do things	-.19 (.00)	.19 (-.29)	.18 **(.46)**	-.03 (.15)	**.51 (.38)**
30r. Has little creativity.	.07 (.06)	-.02 **(.35)**	-.08 (.01)	-.06 (.04)	**-.56 (-.54)**
45r. Has difficulty imagining things.	.21 (.14)	-.13 (.18)	-.06 (-.01)	-.07 (.02)	**-.54 (-.51)**
6. Is original, comes up with new ideas.	-.06 (-.02)	.20 (-.30)	.16 (.28)	-.09 (.18)	**.55 (.45)**
Extraversion					
1. Is outgoing, sociable	-.19 (.04)	**.75 (-.62)**	.02 **(.31)**	.20 (-.05)	-.04 (.09)
16r. Tends to be quiet.	.23 (-.08)	**-.72 (.80)**	.08 (-.13)	-.05 (-.06)	.04 (-.07)
31r. Is sometimes shy, introverted.	.27 (.17)	**-.65 (.74)**	.04 (.01)	.02 (-.03)	.04 (-.07)
46. Is talkative.	-.05 (.07)	**.77 (-.65)**	-.04 **(.37)**	.20 (.04)	-.02 (.07)
6. Has an assertive personality.	.05 (.01)	**.56 (-.38)**	.04 **(.32)**	-.20 **(.34)**	.05 (.06)
21. Is dominant, acts as a leader	-.01 (-.04)	**.68 (-.54)**	.15 **(.32)**	-.08 **(.32)**	.13 (.17)

Item					
36r. Finds it hard to influence people.	.27 (.28)	**-.46 (.32)**	.04 (-.03)	.03 (-.07)	-.24 (-.27)
51r. Prefers to have others take charge.	.13 (.15)	**-.52 (.54)**	-.11 (.10)	.16 (-.05)	-.13 (-.17)
11r. Rarely feels excited or eager.	.18 (-.02)	**-.28 (.41)**	-.13 (-.15)	-.28 (.14)	-.23 (-.20)
26r. Is less active than other people.	.21 (-.11)	**-.43 (.66)**	-.28 (-.15)	.02 (.00)	.00 (-.01)
41. Is full of energy.	-.19 (-.08)	**.62 (-.49)**	.20 **(.50)**	.25 (.05)	.14 (.21)
56. Shows a lot of enthusiasm	-.20 (-.02)	**.62 (-.50)**	.18 (.52)	.29 (-.06)	.15 (.20)
Conscientiousness					
3r. Tends to be disorganized.	.09 (.15)	.01 (.24)	**-.73** (-.15)	.05 (.25)	.07 (.12)
18. Is systematic, likes to keep things in order	.04 (-.02)	.00 (-.06)	**.72 (.55)**	.08 (-.21)	-.02 (-.06)
33. Keeps things neat and tidy	-.04 (-.11)	.02 (-.12)	**.77 (.48)**	.05 (-.31)	-.07 (-.12)
48r. Leaves a mess, doesn't clean up.	.10 (.19)	.04 (.08)	**-.58** (-.15)	-.20 (.49)	-.06 (-.09)
8r. Tends to be lazy.	.21 (.06)	-.17 **(.54)**	**-.60** (-.16)	.08 (.08)	-.13 (-.01)
23r. Has difficulty getting started on tasks.	.23 **(.30)**	-.15 (.18)	**-.56** (.22)	.01 (.22)	-.12 (-.02)
38. Is efficient, gets things done.	-.08 **(-.30)**	.23 (-.27)	**.67 (.45)**	.05 (.03)	.17 (.18)
53. Is persistent, works until the task is finished.	-.10 (-.23)	.13 (-.17)	**.59 (.52)**	.16 (-.09)	.13 (.10)
13. Is dependable, steady.	-.05 (-.02)	.19 (-.15)	**.34 (.59)**	.19 (-.04)	.23 (-.02)
28r. Can be somewhat careless	.23 (.19)	.06 (-.11)	**-.53** (-.05)	-.16 **(.49)**	.00 (-.01)
43. Is reliable, can always be counted on.	.05 (-.05)	.31 (-.28)	**.50 (.57)**	**.33** (-.02)	.15 (.06)
58r. Sometimes behaves irresponsibly.	.29 (.24)	.19 (-.15)	-.45 (.01)	-.16 **(.55)**	.01 (-.01)
Agreeableness					
2. Is compassionate, has a soft heart.	.04 (.17)	.04 (-.13)	-.01 **(.50)**	**.66 (-.41)**	.09 (.19)

17r. Feels little sympathy for others.	-.02 (-.10)	-.03 (.19)	.14 (-.01)	**-.31 (.34)**	-.08 (-.21)
32. Is helpful and unselfish with others.	-.02 (.00)	.13 (-.04)	.25 **(.46)**	**.50 (-.31)**	.18 (.11)
47r. Can be cold and uncaring.	.13 (.09)	.04 (.12)	-.15 (-.19)	**-.67 (.65)**	.00 (-.04)
7. Is respectful, treats others with respect.	.05 (-.03)	.04 (.05)	.22 **(.30)**	**.56 (-.62)**	.16 (.13)
22r. Starts arguments with others.	.20 (.13)	**.34** (-.16)	**-.31** (.04)	**-.46 (.68)**	.07 (-.01)
37r. Is sometimes rude to others.	.24 (.14)	.14 (-.03)	-.24 (-.04)	**-.61 (72)**	.06 (-.07)
52. Is polite, courteous to others.	.01 (-.06)	-.03 (.03)	.22 **(.33)**	**.57 (-.61)**	.16 (.08)
12r. Tends to find fault with others	**.42** (.25)	-.07 (.18)	-.09 (-.07)	**-.43 (.34)**	-.02 (.06)
27. Has a forgiving nature	-.10 (-.07)	-.01 (.06)	-.05 **(.50)**	**.67 (-.38)**	.11 (.01)
42r. Is suspicious of others' intentions	**.48 (.40)**	.08 (.15)	.05 (.03)	-.13 (.13)	.08 (.18)
57. Assumes the best about people.	-.20 (-.18)	.14 (-.12)	.04 **(.40)**	**.51** (-.21)	-.02 (-.07)
Neuroticism					
4r. Is relaxed, handles stress well.	**-.58 (-.56)**	.16 (-.02)	.14 **(.31)**	-.09 (.09)	.04 (.04)
19. Can be tense	**.58 (.50)**	-.02 (.17)	-.01 (.05)	**-.31 (.35)**	.08 (-.01)
34. Worries a lot.	**.73 (.67)**	-.25 (.04)	-.07 (.18)	.06 (.07)	-.03 (-.09)
49r. Rarely feels anxious or afraid.	**-.54 (-.54)**	.23 (.02)	.02 (.04)	-.03 (.13)	-.04 (-.10)
9r. Stays optimistic after experiencing a setback	**-.44 (-.46)**	.25 (.02)	.12 (.39)	.08 (-.01)	.22 (.08)
24r. Feels secure, comfortable with self.	**-.53 (-.49)**	**.35** (-.23)	.14 (.27)	.03 (.08)	.08 (.06)
39. Often feels sad	**.73 (.73)**	-.23 (.00)	-.08 (.00)	-.10 (.18)	.04 (.04)
54. Tends to feel depressed, blue	**.71 (.70)**	-.22 (.11)	-.14 (-.06)	-.13 (.20)	.02 (.00)
14. Is moody, has up and down mood swings.	**.68 (.65)**	-.03 (-.06)	-.18 (.03)	-.09 (.25)	.00 (-.02)
29r. Is emotionally stable, not easily upset.	**-.64 (-.58)**	.14 (.11)	.15 (.13)	.07 (-.09)	.04 (-.01)

44r. Keeps their emotions under control.	**-.48 (-.50)**	.10 (.22)	.09 (.19)	.09 **(-.32)**	.14 (.02)
59. Is temperamental, gets emotional easily.	**.72 (.63)**	.03 (-.14)	-.11 (.05)	.00 **(.37)**	-.06 (-.03)

Note. Sample Size = 518. Loadings outside of parenthesis are from the offline reports. Loadings from inside the parenthesis are from the social media reports. Loadings above .30 are bolded.

APPENDIX B

OFFLINE AND SOCIAL MEDIA LOADINGS FROM IPSATIZED PCA

	Component				
Item	1	2	3	4	5

Openness

Item	1	2	3	4	5
1. Is curious about many different things.	-.19(-.01)	.05(.20)	.17(.17)	.19(.25)	**.46(.31)**
25r. Avoids intellectual, philosophical discussions	.10(.04)	-.19(-.16)	.05(.00)	.15(.24)	**-.57(-.46)**
4. Is complex, a deep thinker.	-.05(.06)	.02(.08)	.07(.18)	-.08(-.13)	**.61(.52)**
55r. Has little interest in abstract ideas.	.01(.03)	-.06(-.16)	-.02(-.01)	-.10(-.10)	**-.65(-.57)**
5r. Has few artistic interests.	-.20(-.07)	-.07(-.12)	.05(.09)	.-.07(-.14)	**-.43(-.41)**
2. Is fascinated by art, music, or literature.	.04(.04)	-.16(-.13)	-.03(-.16)	.19**(.35)**	**.64(.64)**
35. Values art and beauty.	.10(.03)	-.08(-.08)	-.02(-.01)	.24**(.35)**	**.65(.60)**
50r. Thinks poetry and plays are boring.	-.14(-.11)	.10(-.04)	.00(.05)	-.10(-.17)	**-.58(-.54)**
15. Is inventive, finds clever ways to do things	-.29(-.03)	.14**(.31)**	.18**(.30)**	-.02(-.04)	**.49(.48)**
30r. Has little creativity.	-.02(.01)	-.08**(-.30)**	-.09(-.10)	-.07(-.01)	**-.59(-.56)**
45r. Has difficulty imagining things.	.14(.08)	-.17(-.18)	-.06(-.09)	-.06(.01)	**-.56(-.53)**
6. Is original, comes up with new ideas.	-.13(-.06)	.18(.27)	.18(.14)	-.07(-.09)	**.53(.51)**

Extraversion

Item	1	2	3	4	5
1. Is outgoing, sociable	-.21(-.07)	**.74(.70)**	.03(-.03)	.21(.19)	-.04(.08)
16r. Tends to be quiet.	.14(-.09)	**-.78(-.81)**	.07(-.07)	-.05(,03)	.02(-.11)
31r. Is sometimes shy, introverted.	.17(.13)	**-.73(-.70)**	.03(-.12)	.00(.09)	.03(-.10)
46. Is talkative.	-.10(-.02)	**.76(.77)**	-.03(.02)	.19(.12)	-.03(.08)
6. Has an assertive personality.	-.08(-.03)	**.51(.45)**	.03(.12)	-.26(-.25)	.04(.12)
21. Is dominant, acts as a leader	-.08(-.08)	**.65(.57)**	.16(.18)	-.10(-.24)	.12(.25)

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36r. Finds it hard to influence people.	.18(.21)	**-.53(-.30)**	.04(-.20)	.02(.13)	-.26**(-.33)**
51r. Prefers to have others take charge.	.05(.07)	**-.58(-.45)**	-.11(-.18)	.17(.16)	-.15(-.22)
11r. Rarely feels excited or eager.	.11(-.05)	**-.32(-.43)**	-.13(-.15)	-.25(-.15)	-.25(-.24)
26r. Is less active than other people.	.12(-.13)	**-.49(-.67)**	-.29(-.13)	.02(-.02)	-.01(-.06)
41. Is full of energy.	-.24(-.19)	**.59(.64)**	.21(.07)	.25(.15)	.13(.25)
56. Shows a lot of enthusiasm	-.28(-.13)	**.59(.66)**	.19(.08)	.28(.28)	.14(.23)

Conscientiousness

3r. Tends to be disorganized.	.01(.05)	-.03(-.17)	**-.75(-.49)**	.05(-.12)	.06(.04)
18. Is systematic, likes to keep things in order	-.06(.00)	-.06(-.02)	**.73(.69)**	.08(.22)	-.04(.03)
33. Keeps things neat and tidy	-.08(-.09)	.01(.00)	**.76(.66)**	.07(.28)	-.07(-.06)
48r. Leaves a mess, doesn't clean up.	.03(.12)	.01(-.08)	**-.58(-.33)**	-.19**(-.42)**	-.08(-.11)
8r. Tends to be lazy.	.11(-.03)	-.24**(-.48)**	**-.63(-.44)**	.07(.01)	-.14(-.10)
23r. Has difficulty getting started on tasks.	.13(.23)	-.23(-.14)	**-.59(-.26)**	.00(-.12)	-.13(-.05)
38. Is efficient, gets things done.	-.17**(-.32)**	.18(.20)	**.68(.47)**	.05(.00)	.16(.27)
53. Is persistent, works until the task is finished.	-.18(-.22)	.09(.10)	**.59(.59)**	.17(.11)	.12(.19)
13. Is dependable, steady.	-.17(-.05)	.12(.22)	**.35(.42)**	.18(.18)	.22(.05)
28r. Can be somewhat careless	.12(.13)	.00(.15)	**-.56(-.27)**	-.19**(-.41)**	-.02(-.02)
43. Is reliable, can always be counted on.	-.05(-.08)	.26**(.33)**	**.51(.45)**	**.32**(.13)	.14(.14)
58r. Sometimes behaves irresponsibly.	.19(.18)	.14(.23)	**-.48(-.27)**	-.20**(-.46)**	.01(-.01

Agreeableness

2. Is compassionate, has a soft heart.	-.01(.06)	.02(.25)	.01(.04)	**.67(.65)**	.08(.17)

17r. Feels little sympathy for others.	-.10(-.10)	-.08(-.23)	.14(,07)	**-.31(-.37)**	-.10(-.18)
32. Is helpful and unselfish with others.	-.10(-.11)	.09(.14)	.26(.05)	**.50(.51)**	.18(.09)
47r. Can be cold and uncaring.	.00(.07)	-.03(-.15)	-.16(-.22)	**-.69(-.64)**	-.02(-.04)
7. Is respectful, treats others with respect.	-.06(-.14)	-.01(-.09)	.23(.05)	**.56(.69)**	.15(.08)
22r. Starts arguments with others.	.09(.10)	.28(.19)	**-.32(-.11)**	**-.50(-.62)**	.06(.03)
37r. Is sometimes rude to others.	.11(.11)	.05(.06)	-.26(-.18)	**-.66(-.66)**	.04(-.05)
52. Is polite, courteous to others.	-.09(-.17)	-.09(-.05)	.23(.07)	**.57(.70)**	.15(.02)
12r. Tends to find fault with others	**.32**(.20)	-.14(-.16)	-.09(-.27)	**-.47**(-.26)	-.03(.04)
27. Has a forgiving nature	-.15(-.17)	-.03(.02)	-.04(.14)	**.67(.56)**	.10(-.01)
42r. Is suspicious of others' intentions	**.39(.34)**	.01(-.13)	.05(-.21)	-.19(-.02)	.07(.16)
57. Assumes the best about people.	-.24(-.26)	.12(.21)	.05(.08)	**.52(.35)**	-.03(-.09)
Neuroticism					
4r. Is relaxed, handles stress well.	**-.67(-.63)**	.10(.07)	.14(.05)	-.07(.02)	.01(.04)
19. Can be tense	**.50(.50)**	-.09(-.17)	-.01(-.05)	**-.37**(-.29)	.07(.02)
34. Worries a lot.	**.70(.67)**	-.28(-.02)	-.06(.04)	.04(.02)	-.03(-.07)
49r. Rarely feels anxious or afraid.	**-.60(-.58)**	.19(-.04)	.02(-.04)	.00(-.10)	-.07(-.12)
9r. Stays optimistic after experiencing a setback	**-.55(-.55)**	.19(.06)	.12(.07)	.09(.15)	.20(.09)
24r. Feels secure, comfortable with self.	**-.59(-.56)**	**.31**(,24)	.15(.10)	.05(-.01)	.05(.07)
39. Often feels sad	**.69(.72)**	-.28(-.03)	-.08(-.09)	-.13(-.12)	.05(.05)
54. Tends to feel depressed, blue	**.68(.69)**	-.26(-.14)	-.14(-.15)	-.16(-.15)	.02(.00)
14. Is moody, has up and down mood swings.	**.67(.63)**	-.04(.10)	-.17(-.20)	.11(-.15)	.00(-.03)
29r. Is emotionally stable, not easily upset.	**-.71(-.64)**	.08(-.11)	.15(-.05)	.09(.14)	.01(-.05)

44r. Keeps their emotions under control.	**-.62(-.54)**	.01(-.27)	.24(.11)	.09**(.33)**	.11(-.02)
59. Is temperamental, gets emotional easily.	**.71(.61)**	.02(.18)	-.11(-.15)	-.02(-.29)	-.06(-.02)

Note. Sample Size = 518. Loadings outside of parenthesis are from the offline reports. Loadings from inside the parenthesis are from the social media reports. Loadings above .30 are bolded.

APPENDIX C

OFFLINE AND SOCIAL MEDIA LOADINGS FROM RAW EFA

	Factor					
Item	UF	A	N	O	E	C
Openness						
1. Is curious about many different things.	.19 **(.32)**	.16 (.04)	-.13(-.03)	**.38**(.21)	.00(.07)	.05(.21)
25r. Avoids intellectual, philosophical discussions	-.05(.06)	.14(.27)	.14(.10)	**-.51(-.36)**	-.09(-.02)	.09(.01)
4. Is complex, a deep thinker.	.28(.12)	-.04(-.31)	.05(.08)	**.51(.38)**	-.03(-.06)	-.02(.25)
55r. Has little interest in abstract ideas.	.08(.01)	-.05(-.03)	.03(.06)	**-.60(-.50)**	.01(.04)	-.01(-.02)
5r. Has few artistic interests.	.07(.10)	-.03(-.17)	-.16(-.06)	**-.38(-.37)**	-.04(-.11)	.02(.11)
2. Is fascinated by art, music, or literature.	.03(.16)	.14(.11)	.07(.09)	**.62(.66)**	-.18(-.16)	-.07(-.08)
35. Values art and beauty.	.06(.17)	.19(.14)	.13(.10)	**.61(.60)**	-.09(-.12)	-.07(-.06)
50r. Thinks poetry and plays are boring.	.15(-.06)	-.03(-.08)	-.11(-.07)	**-.56(-.47)**	.12(.06)	-.02(-.04)
15. Is inventive, finds clever ways to do things	.15(.11)	-.05(-.24)	-.21(-.02)	**.43(.35)**	.07(.14)	.08(.03)
30r. Has little creativity.	.11(.15)	.00(.03)	-.01(-.02)	**-.54(-.50)**	-.02(-.21)	-.08(-.05)
45r. Has difficulty imagining things.	.05(.11)	-.01(-.00)	.16(.10)	**-.49(-.45)**	-.07(-.07)	-.02(-.04)
6. Is original, comes up with new ideas.	.08(.02)	-.11(-.22)	-.05(-.01)	**.49(.40)**	.13(.17)	.11(.19)
Extraversion						
1. Is outgoing, sociable	.00(.28)	.20(.00)	-.05(-.02)	-.09(.01)	**.75(.64)**	-.02(-.04)
16r. Tends to be quiet.	.17(-.01)	-.03(.02)	.04(.09)	.04(.01)	**-.77(-.82)**	.06(.02)
31r. Is sometimes shy, introverted.	.22(.17)	.06(.01)	.07(.13)	.03(.02)	**-.70(-.70)**	.01(.00)
46. Is talkative.	.11(.29)	.22(.09)	.05(.01)	-.10(-.02)	**.77(.68)**	-.09(-.01)

6. Has an assertive personality.	**.34**(.09)	-.14(**-.35**)	-.04(.00)	-.03(.03)	**.43(.31)**	-.05(-.16)
21. Is dominant, acts as a leader	.21(.03)	-.07(**-.35**)	.02(.04)	.06(.13)	**.58(.44)**	.09(.20)
36r. Finds it hard to influence people.	.14(.16)	.08(.08)	.14(.21)	-.24(-.24)	**-.43**(-.20)	.04(.10)
51r. Prefers to have others take charge.	.06(.27)	.19(.01)	.02(.07)	-.13(-.15)	**-.50(-.41)**	-.12(-.07)
11r. Rarely feels excited or eager.	.00(-.04)	-.22(-.09)	.11(-.03)	-.17(-.16)	-.22(**-.32**)	-.08(-.09)
26r. Is less active than other people.	.07(-.04)	.06(.01)	.08(-.12)	.01(.03)	**-.40(-.62)**	-.26(-.06)
41. Is full of energy.	.11(**.37**)	.23(.16)	-.11(-.15)	.06(.14)	**.54(.46)**	.12(.08)
56. Shows a lot of enthusiasm	.17(**.43**)	.27(.06)	-.15(-.09)	.06(.12)	**.53(.49)**	.07(.08)

Conscientiousness

3r. Tends to be disorganized.	.05(.13)	.13(.20)	-.05(-.02)	.07(.08)	.00(.12)	**-.76(-.36)**
18. Is systematic, likes to keep things in order	.29(.06)	.07(.09)	.02(.12)	-.10(-.04)	-.08(.09)	**.64(.70)**
33. Keeps things neat and tidy	.10(.01)	.00(.20)	.05(.05)	-.11(-.10)	-.01(-.03)	**.75(.67)**
48r. Leaves a mess, doesn't clean up.	-.01(-.02)	-.14(**-.40)**	.02(.10)	-.03(-.09)	.06(.02)	**-.53**(-.21)
8r. Tends to be lazy.	.14(.16)	.17(.07)	.03(-.05)	-.14(-.01)	-.17(**-.40)**	**-.62(-.33)**
23r. Has difficulty getting started on tasks.	.17(.09)	.11(.17)	.05(.21)	-.13(-.03)	-.17(-.10)	**-.58**(-.13)
38. Is efficient, gets things done.	.24(.00)	.01(.13)	-.05(-.21)	.09(.18)	.12(.10)	**.59(.46)**
53. Is persistent, works until the task is finished.	.16(.04)	.12(.03)	-.07(-.11)	.07(.11)	.05(.00)	**.49(.57)**
13. Is dependable, steady.	.29(.28)	.18(.07)	-.11(.00)	.13(.02)	.06(.08)	.21(**.39**)
28r. Can be somewhat careless	.17(.01)	-.08(**-.41)**	.07(.11)	-.02(-.03)	.03(.14)	**-.53**(-.16)

43. Is reliable, can always be counted on.	.29(.21)	**.31**(.09)	.06(.01)	.04(.04)	.21(.18)	**.38(.43)**
58r. Sometimes behaves irresponsibly.	.23(.05)	-.07**(-.49)**	.14(.14)	-.01(-.04)	.15(.19)	**-.45**(-.14)

Agreeableness

2. Is compassionate, has a soft heart.	-.01**(.54)**	**.61**(.28)	.08(.11)	.04(.14)	.05(.16)	-.05(.07)
17r. Feels little sympathy for others.	.10(-.13)	-.25(-.28)	-.06(-.06)	-.07(-.16)	-.06(-.18)	.10(.09)
32. Is helpful and unselfish with others.	.18**(.43)**	**.47**(.17)	-.03(-.05)	.09(.07)	.05(.06)	.14(.10)
47r. Can be cold and uncaring.	.24(-.19)	**-.59(-.56)**	-.03(-.05)	.01(.03)	-.03(-.11)	-.15(-.11)
7. Is respectful, treats others with respect.	.20**(.36)**	**.53(.50)**	.01(-.04)	.07(.11)	-.02(-.02)	.11(.06)
22r. Starts arguments with others.	.24(-.06)	**-.37(-.63)**	.09(.08)	.05(.03)	.27(.13)	**-.32**(-.01)
37r. Is sometimes rude to others.	**.34**(-.08)	**-.52(-.66)**	.05(.07)	.04(.08)	.05(.03)	-.26(-.06)
52. Is polite, courteous to others.	.18**(.39)**	**.54(.48)**	-.03(-.07)	.07(.06)	-.10(-.00)	.11(.08)
12r. Tends to find fault with others	.25(.02)	**-.34**(-.27)	.27(.17)	-.02(-.04)	-.09(-.12)	-.08(-.14)
27. Has a forgiving nature	.02**(.45)**	**.63**(.22)	-.09(-.10)	.05(.01)	-.03(-.04)	-.12(.19)
42r. Is suspicious of others' intentions	**.32**(.12)	-.06(-.11)	**.34(.31)**	.03(.15)	.03(.10)	.01(.09)
57. Assumes the best about people.	.00**(.34)**	**.46**(.09)	-.15(-.20)	-.06(-.08)	.11(.13)	-.01(.09)

Neuroticism

4r. Is relaxed, handles stress well.	.13(.17)	-.09(-.18)	**-.62(-.56)**	-.01(.02)	.00(.00)	.02(.06)
19. Can be tense	**.32**(.02)	-.23(-.30)	**.44(.45)**	.05(.00)	-.04(-.16)	.00(.08)
34. Worries a lot.	.12(.17)	.12(.06)	**.68(.64)**	-.02(-.09)	-.15(-.01)	.01(.15)

	UF	A	N	O	E	C
49r. Rarely feels anxious or afraid.	.02(.00)	-.04(-.14)	**-.53(-.52)**	-.07(-.10)	.13(.01)	-.06(-.04)
9r. Stays optimistic after experiencing a setback	.18(.26)	.07(.10)	**-.48(-.47)**	.14(.06)	.09(.03)	-.01(.09)
24r. Feels secure, comfortable with self.	.08(.09)	.01(.15)	**-.52(-.48)**	.02(.04)	.22(.17)	.04(.10)
39. Often feels sad	.18(.03)	-.04(-.11)	**.65(.71)**	.05(.04)	-.16(-.02)	-.01(.05)
54. Tends to feel depressed, blue	.15(.02)	-.07(-.12)	**.64(.68)**	.04(.01)	-.14(-.07)	-.06(.00)
14. Is moody, has up and down mood swings.	.08(.12)	-.04(-.19)	**.65(.58)**	.02(.04)	.07(.12)	-.09(-.07)
29r. Is emotionally stable, not easily upset.	.12(.13)	.05(.01)	**-.70(-.58)**	-.03(-.02)	-.03(-.09)	.01(.06)
44r. Keeps their emotions under control.	.27(.12)	.09(.21)	**-.58(-.46)**	.05(.03)	-.09(-.24)	.07(.11)
59. Is temperamental, gets emotional easily.	.08(.09)	.05**(.31)**	**.73(.56)**	-.04(-.05)	.14(.17)	-.02(-.02)

Note. Sample Size = 518. UF = Unknown Factor; A = agreeableness; N = neuroticism; O = openness; E = extraversion; C = conscientiousness. Loadings outside of parenthesis are from the offline reports. Loadings from inside the parenthesis are from the social media reports. Loadings above .30 are bolded.

APPENDIX D

SOCIAL MEDIA LOADINGS FROM PROCRUSTES ROTATION

			Factor			
Item	UF	A	N	O	E	C
Openness						
1. Is curious about many different things.	.29	.16	.02	.25	.10	.09
25r. Avoids intellectual, philosophical discussions	-.02	.25	.11	**-.38**	-.05	.08
4. Is complex, a deep thinker.	.27	-.20	.06	**.43**	-.04	.09
55r. Has little interest in abstract ideas.	.09	-.02	.06	**-.50**	-.03	.03
5r. Has few artistic interests.	.25	-.09	-.07	**-.34**	-.06	.03
2. Is fascinated by art, music, or literature.	.03	.19	.10	**.67**	-.18	-.14
35. Values art and beauty.	.06	.21	.10	**.61**	-.15	-.00
50r. Thinks poetry and plays are boring.	.03	-.11	-.08	**-.47**	.08	.07
15. Is inventive, finds clever ways to do things	.21	-.13	-.01	**.40**	.16	.22
30r. Has little creativity.	.22	.07	.02	**-.49**	-.16	-.09
45r. Has difficulty imagining things.	.14	.07	.10	**-.45**	-.05	-.05
6. Is original, comes up with new ideas.	.08	-.17	-.02	**.44**	.17	.11
Extraversion						
1. Is outgoing, sociable	.04	.22	-.03	.00	**.68**	-.05
16r. Tends to be quiet.	.20	-.05	-.08	.03	**-.81**	-.05
31r. Is sometimes shy, introverted.	**.33**	.06	.13	.01	**-.68**	-.11
46. Is talkative.	.10	.16	.00	-.02	**.73**	-.03

6. Has an assertive personality.	.18	-.22	-.03	.06	**.36**	.06
21. Is dominant, acts as a leader	.11	-.25	-.07	.16	**.47**	.12
36r. Finds it hard to influence people.	.14	.16	.23	-.24	-.20	-.13
51r. Prefers to have others take charge.	**.31**	.16	.08	-.14	**-.37**	-.17
11r. Rarely feels excited or eager.	.08	-.12	-.02	-.16	**-.30**	-.12
26r. Is less active than other people.	.12	-.07	-.11	.04	**-.60**	-.10
41. Is full of energy.	.26	.13	-.17	.16	**.55**	-.03
56. Shows a lot of enthusiasm	.25	.25	-.11	.14	**.57**	-.02
Conscientiousness						
3r. Tends to be disorganized.	.11	-.06	.04	.08	-.06	**-.45**
18. Is systematic, likes to keep things in order	.22	.06	.09	.02	-.15	**.66**
33. Keeps things neat and tidy	.12	.12	.02	-.06	-.09	**.68**
48r. Leaves a mess, doesn't clean up.	.12	**-.32**	.10	-.08	.03	**-.30**
8r. Tends to be lazy.	.17	.05	-.03	-.01	**-.33**	**-.41**
23r. Has difficulty getting started on tasks.	.14	-.07	.22	-.01	-.09	-.20
38. Is efficient, gets things done.	.14	-.14	-.24	.22	.12	**.40**
53. Is persistent, works until the task is finished.	.19	-.05	-.14	.16	-.01	**.52**
13. Is dependable, steady.	**.34**	.09	-.03	.02	.12	.29
28r. Can be somewhat careless	.11	**-.30**	.10	-.02	.19	-.25

43. Is reliable, can always be counted on.	.27	.04	-.04	.09	.20	**.33**
58r. Sometimes behaves irresponsibly.	.17	**-.33**	.13	-.02	.24	-.26

Agreeableness

2. Is compassionate, has a soft heart.	.27	**.57**	.11	.15	.18	.00
17r. Feels little sympathy for others.	.11	**-.33**	-.08	-.14	-.15	.04
32. Is helpful and unselfish with others.	.27	**.41**	-.06	.09	.11	.02
47r. Can be cold and uncaring.	.10	**-.57**	.04	-.01	-.07	-.21
7. Is respectful, treats others with respect.	.08	**.62**	-.03	.10	-.04	.08
22r. Starts arguments with others.	.19	**-.53**	.06	.01	.20	-.15
37r. Is sometimes rude to others.	.21	**-.57**	.05	-.05	.11	-.21
52. Is polite, courteous to others.	.12	**.62**	-.06	.05	-.01	.10
12r. Tends to find fault with others	.13	-.20	.18	.06	-.09	-.23
27. Has a forgiving nature	**.33**	**.44**	-.10	.01	.00	.11
42r. Is suspicious of others' intentions	.12	.00	**.32**	.16	-.11	-.16
57. Assumes the best about people.	.23	.28	-.22	-.07	.20	.04

Neuroticism

4r. Is relaxed, handles stress well.	.24	-.05	**-.59**	.05	.14	-.04
19. Can be tense	.21	-.23	**.45**	.04	-.19	-.04
34. Worries a lot.	.20	.07	**.64**	-.06	-.08	.07

49r. Rarely feels anxious or afraid.	.08	-.13	**-.53**	-.10	.09	-.06
9r. Stays optimistic after experiencing a setback	.28	.06	**-.49**	.09	.09	-.01
24r. Feels secure, comfortable with self.	.12	-.07	**-.50**	.05	.27	.04
39. Often feels sad	.07	-.05	**.72**	.06	-.08	.00
54. Tends to feel depressed, blue	.08	-.08	**.69**	.03	-.16	-.05
14. Is moody, has up and down mood swings.	.13	-.04	**.59**	-.03	.08	-.14
29r. Is emotionally stable, not easily upset.	.12	.07	**-.59**	-.02	.02	-.08
44r. Keeps their emotions under control.	.10	.21	**-.47**	.04	-.18	.11
59. Is temperamental, gets emotional easily.	.16	-.17	**.56**	-.03	.14	-.12

Note. Sample Size = 518. UF = Unknown Factor; A = agreeableness; N = neuroticism; O = openness; E = extraversion; C = conscientiousness. Loadings outside of parenthesis are from the offline reports. Loadings from inside the parenthesis are from the social media reports. Loadings above .30 are bolded.

APPENDIX E

IRB APPROVAL FOR PRELIMINARY STUDY

APPROVAL: MODIFICATION

Sau Kwan
Psychology
-
Virginia.Kwan@asu.edu

Dear Sau Kwan:

On 11/30/2018 the ASU IRB reviewed the following protocol:

Type of Review:	Modification
Title:	Fall 2018 PSY 101 Pre-screening - Individual IRB
Investigator:	Sau Kwan
IRB ID:	STUDY00008387
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• PreScreening Measures Spring 2019.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Prescreening IRB Spring 2019 Protocol.docx, Category: IRB Protocol; • Prescreening Consent Spring 2019.pdf, Category: Consent Form;

The IRB approved the modification.

When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator
cc: Cameron Bunker
        Sau Kwan

APPENDIX F

IRB APPROVAL FOR MAIN STUDY

ASU Knowledge Enterprise Development

APPROVAL: MODIFICATION

Sau Kwan
CLAS-NS: Psychology
-
Virginia.Kwan@asu.edu

Dear Sau Kwan:

On 4/5/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Modification
Title:	Cyber Self-Perception and Behavior
Investigator:	Sau Kwan
IRB ID:	STUDY00007363
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Recruitment_3_26.pdf, Category: Recruitment Materials; • CyberSelf_IRB_4_4_2019.docx, Category: IRB Protocol; • Consent_3_26.pdf, Category: Consent Form; • Additional Measures_4.4.2019.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);

The IRB approved the modification.

When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Cameron Bunker
            Sau Kwan
            Cameron Bunker