Psychopaths Online:

Modeling Psychopathy in Social Media Discourse

Honors Thesis

Presented to the College of Agriculture and Life Sciences, Social Science Program

of Cornell University

in Partial Fulfillment of the Requirements for the

Research Honors Program

Rachel Boochever

April 2012

Research Advisor: Jeffrey Hancock
Abstract

This is an exploratory study examining the relationship between discourse patterns in social media and undergraduate students’ levels of psychopathy when compared to discourse patterns in narratives produced in a laboratory. It expands on previous research findings that psychopathic murderers exhibit narcissistic tendencies and psychological distancing in their discourse when compared to non-psychopathic murderers. Undergraduate students’ emails, SMS messages, and Facebook messages were collected and analyzed in relation to their scores on the Self-Report Psychopathy Test III (SRP III). Findings support both main hypotheses: that discourse patterns in social media are distinctly different from discourse patterns in narratives produced in a laboratory, and that psychopathic tendencies are identifiable in social media discourse. Consistent with previous studies, students higher in psychopathy showed evidence of psychological distancing, produced less comprehensible language, potentially reflecting their low reading achievement levels, and produced more anger and swear words, consistent with the emotional deficits and disagreeableness central to psychopathy.
Individual language use can be indicative of personality traits as well as emotional states, identity and cognitive style (Pennebaker, Mehl & Niederhoffer, 2003; Pennebaker & King, 1999; Pennebaker, 2011). As Pennebaker (2011) describes, the words we use are like fingerprints; we all leave traces of ourselves behind in our words, both written and spoken. In the past few years, there have been a series of studies examining the relationship between language use and the personality construct of psychopathy, more specifically, whether discourse patterns reflect psychopathic tendencies (Hancock, Woodworth, & Porter, in press; Hancock, Woodworth, Morrow, McGillivray, & Boochever, 2012). The existing research supports the hypothesis that discourse patterns do, in fact, reveal psychopathic tendencies, showing that people high in psychopathy show evidence of narcissism and psychological distancing in their language (Hancock et al., 2012).

While these results are encouraging, they are limited in their applicability to the real world. The studies that have been conducted have focused on narrow populations and limited discourse types. For example, Hancock and colleagues (in press) examined the transcripts of psychopathic murderers talking about the murders they committed. Murderers are not considered comparable to the general population, and a first-hand account of a murder is not a relatable narrative. On the other hand, Hancock and colleagues (2012) analyzed the narratives of undergraduate students in relation to the students’ scores on a psychopathy inventory. Language produced by undergraduate students is considered generalizable. The students, however, were asked to come into a laboratory and write a story, and this contrived language may not provide true evidence of their individual discourse patterns. Pennebaker (2011) notes that language
styles are adaptive based on different situations. Thus, natural language, or language produced in the real world, might provide better insight into one’s personality.

With the increasing popularity of digital media, it is now easy to access language that has been produced naturally because it is automatically stored. Archived emails, SMS messages and Facebook activities are easily obtained, giving us the ability to analyze real world language produced in social media. This is an exploratory study that seeks to overcome the limitations of the lack of generalizability and limited, contrived discourse types faced by the previous studies in this area by examining the relationship between psychopathy and natural language produced in social media. Additionally, we seek to show that language produced in social media is indeed different from language produced in a laboratory setting, and can be more revealing in analyzing a psychopathic personality. We also include the personality dimensions of narcissism and Machiavellianism in our analysis as psychopaths tend to exhibit narcissistic traits and Machiavellianism has been found to overlap with both narcissism and psychopathy, otherwise known as the ‘dark triad of personality’ (Hancock et al., 2012; Paulhus & Williams, 2002).

Attributes of Psychopathy, Narcissism, and Machiavellianism

The concept of psychopathy was first proposed by Hervey Cleckley in 1941 in his book *The Mask of Sanity*. Describing them as masking their personality disorder, Cleckley (1988) thought of psychopaths as imitating normal functioning people. Today, psychopaths are thought of as manipulative, cunning and antisocial, and, according to Hare (2006) they comprise about 1% of the general population. Although they lack key emotional traits such as remorse and guilt, and have shallow affect, they can be excellent communicators and are often intelligent. Additionally, because of their devious use of manipulative skills, they are often described as being disagreeable and dark (Hare, 1998; Hancock et al., 2012).
Psychopathy is often broken down along four dimensions: interpersonal manipulation, callous affect, erratic lifestyle, and criminal tendencies. Subsequently, the interpersonal and affective dimensions are grouped together to represent Factor 1 psychopathy, and the lifestyle and criminal/antisocial dimensions represent Factor 2 psychopathy (Hare, Hakstian, Forth, Hart, & Newman, 1991). While these divisions of the psychopathic personality overlap differently with other personality traits, e.g. Factor 2 psychopathy and narcissism (Miller et al., 2010), the combination reliably assess a psychopathic personality (Hare & Neumann, 2008).

Narcissism has perhaps the longest and most varied history. According to Raskin and Terry (1988), the term was first introduced by Havelock Ellis in 1898 when he used the expression Narcissus-like to describe instances when sexual emotions reemerge as complete self-admiration. However, narcissism as a psychological construct was mostly popularized by Freud (Raskin & Terry, 1988). Today, narcissism is studied by both clinical psychologists and social personality psychologists as a categorical diagnostic entity (narcissistic personality disorder, NPD) and a dimensional trait, respectively (Miller, Gaughan, Pryor, Kamen, & Campbell, 2009).

As cited in Raskin & Terry (1988), the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980), defines narcissistic personality by the following clinical criteria:

- A grandiose sense of self-importance or uniqueness; a preoccupation with fantasies of unlimited success, power, brilliance, beauty, or ideal love;
- Exhibitionism; an inability to tolerate criticism, the indifference of others, or defeat; entitlement or the expectation of special favors without assuming reciprocal responsibilities; interpersonal exploitativeness, relationships that alternate between extremes of overidealization and devaluation; and a lack of
This list of criteria provides a concrete overview of what the term ‘narcissism’ means today, and shows how it has evolved since its beginnings in the 19th century.

Lastly, the term Machiavellianism stems from the work of Niccolo Machiavelli (1469-1527), a Florentine diplomat. Machiavelli wrote *The Prince* to help advise a new prince on how to acquire and stay in power after the regime with which Machiavelli served was overthrown. While the book was not well received by the prince, it became the basis for a “strategy of social conduct in which others are regarded entirely as a means toward personal ends” (Wilson, Near, & Miller, 1996, p. 285). In 1970, Christie & Geis were the first psychologists to study Machiavellianism as a personality construct, defining it, in short, as a manipulative personality (Paulhus & Williams, 2002; Wilson et al., 1996).

Paulhus and Williams (2002) argue that psychopathy, narcissism, and Machiavellianism make up the “dark triad” of personality. They argue that the three personality constructs are correlated mainly with disagreeableness. It has also been argued, separately, that Machiavellianism overlaps with psychopathy and narcissism, contributing to Paulhus & Williams’ (2002) argument for the existence of the dark triad (Fehr, Samsom, & Paulhus, 1992; McHoskey, Worzel, & Szyarto, 1998; McHoskey, 1995). McHoskey, and colleagues (1998) claim that Machiavellianism and psychopathy are essentially the same personality construct studied under two different areas, personality and social psychology, and clinical psychology, respectively. They argue that both personality constructs include glibness and superficial charm, grandiose sense of self-worth, pathological lying, cunning and manipulation, lack of remorse and guilt, shallow affect, callousness and lack of empathy, failure to accept responsibility for actions, anxiety, need for stimulation and proneness to boredom, lack of realistic long-term goals, and
impersonal and trivial sex life. Fehr and colleagues (1992) argue that “psychopaths simply may be high Machs who have run up against the law.” In other words, high Machs correlate with psychopaths in their lack of empathy and callousness toward others, but differ in that they do not necessarily possess antisocial behavior traits. Similarly, McHoskey (1995) showed that Machiavellianism overlaps with narcissism, the primary characteristic shared by the two being the inclination toward interpersonal manipulation.

**Language and Personality**

In the past few decades, using language to determine various aspects of personality has become popular among researchers in fields such as psychology, communication, and sociology. Language has been used to determine levels of deception (e.g. Hancock, Curry, Goorha, & Woodworth, 2008), gender identity (e.g. Pennebaker, Groom, Loew, & Dabbs, 2004), mental health (e.g. Lyons, Mehl, & Pennebaker, 2006), and even compatibility between potential partners (e.g. Finkel, Eastwick, & Matthews, 2007). Individual discourse patterns are like fingerprints in that they leave clues about our cognitive states, emotions and personal identity.

Function words, or stealth words as Pennebaker (2011) calls them, have been identified as the main component of language that serve as a window to people’s personalities and social connections. Pronouns, articles, prepositions, and other similar words (e.g. you, a, am, I, but the, for not) are considered function words because they are the words used to connect content words and actually form sentences. It is almost impossible to control the use of function use, and they are hard to consciously detect in conversation. According to Pennebaker (2011), function words “account for less than one-tenth of 1 percent of your vocabulary but make up almost 60 percent of the words you use” (p. ix). Similarly, Milic (1966) argues that the “grammatical or syntactic
component of writing [is] the best source of information about a writer’s style” (as cited in Oberlander & Gill, 2004).

**Existing Research on Psychopathy and Language**

Hancock and colleagues (in press) used function words, as well as tense and specific content words, to identify psychopathic tendencies in narratives of psychopathic murderers. They found that psychopathic murderers, as opposed to non-psychopathic murders, used more subordinating conjunctions, such as *because, since, as, and so that*. The use of conjunctions in this case evidences the use of more cause and effect statements, indicating that their murders were the logical outcome of a plan. They also found that psychopathic murderers used more past tense words, fewer present tense words, more articles and more concrete nouns than the control subjects used. The combination of these discourse patterns reveals that the psychopaths psychologically distanced themselves from their murders, reflecting their emotional deficit in not being affected by the homicide they committed. Lastly, psychopathic murderers were found to use twice as many content words relating to basic physiological needs, such as food, money, and shelter, indicating their lack of meaningful relationships and callousness toward others.

Hancock and colleagues (2012) examined transcripts from the same participants as in the Hancock et al. (in press) study, except in the 2012 study, the participants were asked to recount a positive experience and a negative experience, rather than tell about the murder they committed. Hancock and colleagues used function words to show evidence of psychopaths’ narcissistic tendencies. They found that psychopaths used more first person singular pronouns, fewer first person plural pronouns, and fewer third person pronouns (only when speaking about negative events), reflecting psychopaths’ narcissistic tendency to focus on themselves and not on others. They also analyzed tense to show evidence of psychological distancing. In general, people
PSYCHOPATHS ONLINE

should want to distance themselves more from negative events than positive events, and this
desire or need to create distance from negative events was expected to be more pronounced for
psychopaths. Hancock and colleagues found that psychopaths used fewer past tense verbs and
more present tense verbs in positive stories than did controls, showing that psychopaths were
indeed less psychologically distant than controls while talking about positive events, but the
same result was not found with negative events.

Hancock and colleagues (2012) also attempted to replicate their findings with criminal
psychopaths in a non-criminal, undergraduate student population. Not many significant
correlations were found between students’ scores on a self-report psychopathy inventory and
pronoun use or tense. However, they did find that students higher in psychopathy used more first
person plural pronouns (we) in negative stories, consistent with results from their first study in
which psychopaths used more first person plural pronouns when talking about negative events to
disassociate the self from the event.

Other work has focused more on the language comprehension skills of psychopaths,
which may have some bearing on our examination of language production. For instance, Vaughn
and colleagues (2011) found that juveniles high in psychopathy had poor reading achievement.
Vaughn and colleagues cite Hiatt and Newman’s (2006) observation that “‘Although
psychopaths/language [sic] abilities are grossly intact…psychopaths have difficulty using the
more subtle or contextual aspects of language’”, usually relating to emotional connotations (p.
2). Thus, poor reading achievement can be reflective of psychopaths’ emotional deficit.

The Present Study

The present study aims to expand the research discussed above by examining
undergraduate students’ language in social media in relation to psychopathy, as well as
narcissism and Machiavellianism. First, we expect that language in social media will be different than narratives produced in a laboratory.

H1: Discourse patterns in social media will differ from discourse patterns in narratives produced in a laboratory, regardless of story valence.

Second, we expect to find similar evidence of narcissistic tendencies and psychological distancing in social media as found in Hancock et al. (in press) and Hancock et al.’s (2012) first study.

H2: Students higher in psychopathy will use more first person singular pronouns, fewer first person plural pronoun and fewer third person pronouns in social media.

H3: Students higher in psychopathy will use more past tense and less present tense. Based on Hancock et al. (in press) results and the psychopathic trait of manipulativeness, we expect that students higher in psychopathy will use more cause and effect statements in social media.

H4: Students higher in psychopathy will use more subordinating conjunctions (e.g., because, so, etc.) in social media.

We also expect to see evidence of psychopaths’ focus on basic needs in social media, consistent with Hancock et al. (in press). Similarly we expect students high in psychopathy to focus less on higher level needs.

H5: Students higher in psychopathy will use more words related to basic needs (e.g., related to the body, food, drink) in social media.

H6: Students higher in psychopathy will use fewer words related to higher level needs (e.g., spirituality, religion) in social media.
PSYCHOPATHS ONLINE

Reflecting Vaughn et al.’s (2011) finding that juveniles high in psychopathy had poor reading achievement, we propose that students high in psychopathy will produce less comprehensible language.

H7: Students higher in psychopathy will produce less comprehensible language as measured by a readability index (six letter words plus words per sentence, minus words recognized by the LIWC dictionary) in social media.

Although this has not been shown previously for psychopathic language production, we expect psychopath’s language to reflect more deceptiveness (see Chung & Pennebaker, 2007; Newman, Pennebaker, Berry, & Richards, 2003), suggestive of their cunning and manipulative abilities.

H8: Students higher in psychopathy will produce language that is less honest, as determined by a deception index (more first person singular pronouns, more exclusive words, and fewer negative and motion words) in social media.

We also expect students higher in psychopathy to produce more words associated with anger and to use more swear words, reflecting their disagreeableness.

H9: Students higher in psychopathy will use more words associated with anger in social media.

H10: Students higher in psychopathy will swear more in social media.

Lastly, we expect that the aspects of psychopathy in H2 through H10 will be reflected more in social media discourse than in narrative discourse. We expect that discourse patterns in social media are more indicative of individual personality because language in social media is produced naturally and thus more reflective of individuals’ true personalities.

H11: The psychopathic tendencies in H2 through H10 will be reflected more in social media discourse than in narrative discourse.
Methods

Participants

The participants in this study were 110 undergraduate students at Cornell University. The participants were recruited from Cornell University’s psychology recruitment tool and received course credit or $5 in compensation for participating in this study. Of the 110 participants, 25 were male and 85 were female. Ages ranged from 18 to 24 years old, with a mean age of 20.2 years. The mean, standard deviation, minimum and maximum scores for the three personality inventories can be seen in Table 1.

Measures

Psychopathy: Self-Report Psychopathy Scale III (SRP III). Although multiple self-report scales have been developed, the most recent version of the Self-Report Psychopathy Scale (SRP III; Paulhus, Hemphill & Hare, in press) has proved to be a reliable self-report measure, congruent with the four-factor structure of the Psychopathy Checklist-Revised (Mahmut Menictas, Stevenson, & Homewood, 2011). The Psychopathy Checklist-Revised, or the PCL-R, is a clinical construct rating scale used widely to diagnose psychopathy. However, it requires semi-structured interviews and access to extensive case history information, so it is not easily applicable to the general population. The SRP III “has demonstrated good convergent and discriminate validity and a four-factor structure similar to that captured by the PCL-R” (Mahmut et al., 2011, p. 2). It has been tested using both student samples and community samples, finding similar results (Williams, Nathanson, & Paulhus, 2003; Williams, Paulhus, & Hare, 2007; Mahmut et al., 2011). It consists of 64 questions, 16 questions relating to four facets of psychopathy: callous affect, erratic lifestyle, interpersonal manipulation, and criminal tendency. These four factors are similar, but slightly different from the four-factor model of the PCL-R.
Narcissism: Narcissistic Personality Inventory (NPI). Raskin & Hall (1981) created the Narcissistic Personality Inventory (NPI) in 1979 as a response to the new diagnostic criteria defining Narcissistic Personality Disorder, published in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders: DSM-III (1980). It is a 40-item self-report survey that has been highly cited, and proved to be a reliable and valid measure (Raskin & Terry, 1988; Holtzman, Vazire, & Mehl, 2010; Miller et al., 2009). According to Cain, Pincus, & Ansell (2008), “since 1985, the NPI was used as the main or only measure of narcissistic traits in approximately 77% of social/personality research on narcissism” (p. 643). Further, Miller and colleagues (2009) found that the NPI maps well onto the pathological variants of narcissism assessed by the DSM-IV.

Machiavellianism: Mach IV. Christie & Geis (1970) developed a 20 Likert-type scale self-report, the Mach IV, measuring one’s agreement with interpersonal views and tactics based on Machiavelli’s political power strategies. Christie & Geis took three main themes from Machiavelli’s writing: endorsing manipulative tactics, regarding others as weak and untrustworthy, and disregarding conventional morality (Fehr et al., 1992). Unlike other self-report measures of personality constructs that have changed over time, the Mach IV is still the most widely used measure of Machiavellianism (McHoskey et al., 1998). Although it has faced considerable criticism since its origination in 1970, it is still recommended as the primary measure of Machiavellianism (Fehr et al., 1992).

Procedure

This study was conducted in the form of an online survey. After providing informed consent, participants were asked to complete three personality questionnaires and submit four types of language samples. The three personality questionnaires were the SRP III, NPI and
PSYCHOPATHS ONLINE

Mach IV. Participants were asked to write a short positive story and a short negative story, each about 100 words, input their most recent 20 sent SMS messages, 20 sent emails, 5 Facebook status updates, 5 Facebook messages, and 5 Facebook wall posts. The positive and negative stories were used as a control to compare language produced in a lab to language produced in social media. Participants were also asked a few demographic questions.

Scoring

**SRP III.** The SRP III was scored based on instructions from Paulhus, Hemphill, and Hare’s (in press) *Manual for the Self-Report Psychopathy Scale*. Each of the 64 questions was answered on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Of the 64 questions, the scoring of 21 questions was reversed to accurately reflect the meaning of the answer. For example, if a participant indicates that he strongly disagrees with the statement “I’m not tricky or sly”, his answer was reversed to indicate that he feels strongly he is “tricky or sly”. All answers were then added to create a total SRPIII score, with a possible range of 64 to 320. The total score was also broken down into four categories of 16 questions each, with a possible range of 16 to 80. The four categories are interpersonal manipulation (IPM), callous affect (CA), erratic lifestyle (ELS), and criminal tendencies (CT).

**NPI.** The NPI was scored based on instructions from Raskin & Terry’s (1988) *A principal-components analysis of the narcissistic personality inventory and further evidence of its construct validity*. For this inventory, participants were instructed to choose choice A or choice B for each question, depending on which one they felt was closer to them. For example, “I have a natural talent for influencing people”, or “I am not good at influencing people”. For every question, the scoring key indicated that choice A or choice B should receive 1 point, giving a possible range of 0 to 40.
Mach IV. The Mach IV was scored based on instructions from Christie and Geis’ (1970) *Studies in Machiavellianism*. Similar to the SRP III, each of the 20 questions was answered on a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Half the questions were reversed to accurately reflect the meaning of the answer. For example, if a participant indicates that he strongly disagrees with the statement “One should take action only when sure it is morally right”, his answer was reversed to indicate that he feels strongly one should not take action only when sure it is morally right. All answers were then added to create a total Mach IV score, with a possible range of 20 to 100.

Text Analysis

All language samples were transcribed into word documents and the text analysis program, *Linguistic Inquiry and Word Count (LIWC)*, was used to analyze the transcripts (Pennebaker, Boothe, & Francis, 2007). LIWC “identifies and categorizes words based on linguistic dimensions, psychological constructs, personal concern categories, and paralinguistic dimensions, among other output variables” (Hancock et al., 2012). Based on a dictionary of almost 4,500 words and word stems, LIWC counts the amount of words in each category, and divides the sum by the word count. Thus gives the percentage each category represent of the total word count, normalizing for verbosity. LIWC has been used in a large number and variety of studies, as can be evidenced in Pennebaker’s (2011) book, *The Secret Life of Pronouns: What Our Words Say About Us*.

Results

First, we present the results from the three personality inventories. These can be found in Table 2. Overall SRP III scores were significantly positively correlated with NPI and Mach IV
scores \( r = .354 \) and \( r = .481, p < .01, \) respectively), as well as all four factors of psychopathy. NPI and Mach IV scores were not significantly correlated \( (r = .176) \).

We do not include the NPI and Mach IV in further analyses because the focus in the present study was on psychopathy and language.

**Discourse Patterns in Social Media versus Narratives**

To address H1, that discourse patterns in social media are expected to be different than discourse patterns in narratives produced in a laboratory setting, we ran mixed model analyses with selected linguistic factors. Email, Facebook, and SMS transcripts were combined to create the variable Social Media, and positive and negative story transcripts were combined to create the variable Narratives. As noted in the hypothesis, although existing research has found differences between positive and negative stories (Hancock et al., 2012), we did not think it was necessary to distinguish between the two in this case.

As can be seen in Table 3, there are significant differences in the use of pronouns, tense, and emotions between social media and narratives produced in a laboratory. In narratives, participants wrote more about themselves, wrote more about past events, and used less emotion. In social media, participants wrote more about others, wrote more in the present, and used more emotions. Especially interesting is that students used more words relating to anger and swore more in social media than in narratives, indicating that social media is in fact more natural and conversational language use. Thus, H1 was supported as discourse patterns in social media are significantly different from discourse patterns in narratives produced in a laboratory.

**Discourse Patterns in Social Media and Psychopathy**
To address hypotheses H2 through H10, we ran correlation analyses with the Social Media variable and selected linguistic factors. The results can be seen in Table 4. Five of the nine hypotheses were fully supported, while two were partially supported and two were rejected.

The factors of psychological distancing, basic needs, higher level needs, readability, and honesty were created by combining multiple linguistic variables from LIWC. Psychological distancing was created based on Chung & Pennebaker’s (2007) definition: it is a combination of six letter words, articles, past tense, and the inverse of first person singular pronouns, present tense and discrepancy words. Basic needs and higher level needs were created based on Maslow’s (1943) hierarchy of needs. Basic needs include sex, money, leisure, achievement, work, health, and biology. Higher level needs include family, religion, positive emotion, social, friends, and the inverse of death. Readability is based on an approximation of the Flesch-Kincaid readability test (Kincaid, Fishburn, Rogers Jr., & Chisson, 1975): it is calculated by multiplying negative one by six letter words plus words per sentence minus the amount of words recognized by the LIWC dictionary, plus three. Lastly, honesty is based on Chung & Pennebaker’s (2007) and Newman et al.’s (2003) definitions: it is a combination of first person singular pronouns, exclusive words, and the inverse of negative emotion and motion words.

First, based on previous research we expected that students higher in psychopathy would exhibit narcissistic tendencies (H2). This hypothesis was only partially supported. Students higher in psychopathy used fewer third person pronouns ($r = -.238, p < .05$), but first person singular ($r = .048$) and first person plural pronoun ($r = -.017$) usage did not reach significance; therefore, those students did not exhibit strong narcissistic tendencies as we expected. We also expected that students higher in psychopathy would use more psychological distancing (H3), and this was supported ($r = .194, p < .05$), reflecting psychopaths’ emotional deficit.
Students high in the callous affect factor of psychopathy used fewer subordinating conjunctions ($r = -.191, p < .05$), rejecting our hypothesis that students high in psychopathy would use more conjunctions (H4). Therefore, psychopathy was not related to the use of cause and effect statements as Hancock et al. (in press) found.

Our hypothesis that students high in psychopathy would focus more on basic needs was partially supported (H5), but our hypothesis that students high in psychopathy would focus less on higher level needs was not supported (H6). Students high in the erratic lifestyle factor of psychopathy focused significantly more on basic needs ($r = .260, p < .01$), but overall SRP III scores did not reach significance ($r = .079$), although they were trending in the same direction. No significance was found between any psychopathic factors and higher level needs.

Readability, or the ability to produce comprehensible text, was significantly negatively correlated with overall SRP III scores and all four factors of psychopathy ($r = -.315, p < .01$), supporting our hypothesis (H7). This a strong indication that students higher in psychopathy were not able to produce text as comprehensible, complex, or subtle as students lower in psychopathy, reflecting psychopaths’ emotional deficit.

SRP III scores ($r = -.221, p < .05$) as well as callous affect ($r = -.196, p < .05$) and criminal tendencies ($r = -.195, p < .05$) were significantly negatively correlated with honesty, supporting our hypothesis that students higher in psychopathy would be less honest (H8). This reflects psychopaths’ tendency toward deception and manipulation.

Lastly, our hypothesis that students higher in psychopathy would use more words associated with anger (H9; $r = .222, p < .05$) and more swear words (H10; $r = .308, p < .01$) in social media was supported. This suggests that anger and swearing are related to psychopaths’ disagreeable personality and insensitivity towards others.
Psychopathy in Social Media versus Narratives

To address H11, we ran the same correlation analyses as above with the Narratives variable. The results can be seen in Table 5.

There were few significant correlations between psychopathic tendencies and discourse in narratives compared to the correlations found above in discourse in social media, supporting our hypothesis that discourse patterns in social media would be more reflective of psychopathy (H11). In narratives, only readability was significantly negatively correlated with overall SRP III scores ($r = -.146, p < .05$), indicating that regardless of context, students higher in psychopathy produce less comprehensible language.

Discussion

The goal of this study was two-fold: to show that discourse patterns in real world language differ from discourse patterns in contrived narratives, and to show that real world discourse patterns are more revealing in analyzing psychopathic tendencies. Both of these hypotheses were supported. Real world language was collected from archived emails, SMS messages, and Facebook messages, here forth known as social media, and analyzed in relation to students’ scores on the Self Report Psychopathy Test III. Findings showed that language produced in social media was significantly different than language produced in a laboratory setting in terms of pronoun use, tense, and use of emotions. In addition, more correlations between various components of psychopathy were found with language produced naturally in social media than in the narratives.

Five of our nine hypotheses about psychopathic tendencies in discourse patterns in social media were fully supported. Students higher in psychopathy used more psychological distancing, were less honest, produced less comprehensible text, and used more anger and swear
words in social media. However, students higher in psychopathy did not focus more on basic needs or less on higher level needs, did not use more conjunctions, nor did they exhibit strong narcissistic tendencies as expected.

While not all of our hypotheses were supported, they still provide some important results. Evidence of psychological distancing shows that at least part of Hancock et al.’s (in press) findings with criminal psychopaths is applicable to a more general population. Psychological distancing shows that psychopaths do not emotionally connect with what they are saying and are detached from their language. Although there has been research about deception and psychopathy (e.g. Porter & Woodworth, 2007), linguistic analysis of deception in relation to psychopathy has yet to be examined. Thus, our finding that students scoring higher in psychopathy are less honest could be the basis for future research in this area. Additionally, language production in relation to reading comprehension has never been studied. The fact that students higher in psychopathy produced less comprehensible text in both social media and narratives begs to be examined further.

Evidence of increased anger and swearing in social media by students higher and psychopathy is also interesting and lends itself to future research. Psychopaths are known for their callous affect and lack of empathy, and their language seems to reflect this. For example, one participant who scored a 200 on the SRP III (higher than two standard deviations above the mean score) wrote in an email: “I do not wish to talk to you anymore about anything ever again. I’m glad that this is over because talking to you is like sticking a spoon in my ass”. The same participant had the following Facebook status updates: “Dead”, “Bored”, “Tired”, “Fighting with her again”, and “Hate everyone”. It is clear to see this participant’s lack of empathy and callousness. He also uses a swear word and angry words such as *hate*. It is also important to
note that anger and swearing are significantly correlated with SRP III scores in social media but not in the narratives, suggesting that social media is a more accurate representation of individual discourse patterns.

Another important result to note is that the SRPIII scores were found to have positive correlations with both NPI and Mach IV ($p = .350$ and $p = .495$, respectively, $p < .01$), supporting the dark triad hypothesis. Many other studies have found the same results (e.g. Williams, Nathanson, & Paulhus, 2003; Williams, Paulhus, & Hare, 2007).

Although this is an exploratory study, the preliminary results we found are novel and exciting. There has been a significant amount of literature on how language is reflective of individual personality traits (e.g. Chung & Pennebaker, 2007; Pennebaker, 2011), but much less so on how language produced in social media relates to personality traits and how individual discourse patterns vary in different contexts. We were able to show a significant difference between language produced in social media and contrived narratives produced in a laboratory. Furthermore, we were able to show that language produced in social media is reflective of natural, conversational discourse and more indicative of psychopathic tendencies. While these results require further analysis, they support the overall notion that social media discourse is reflective of individual personality traits.

Suggestions for future research include more analysis of NPI and Mach IV scores, as we did not find many significant correlations between these personality inventories and the psychopathic factors we chose to examine. We suggest using more sophisticated regression analyses to examine the relationship between psychopathy and language. Additionally, we see future research expanding upon these results by examining the differences in language within
social media, expecting to find differences between discourse between email, SMS messages, and Facebook messages.

Lastly, this study may be limited in that the number of participants is fairly low, $N = 110$, and the language samples collected were fairly small (20 emails, 20 SMS messages, 5 Facebook messages, 5 Facebook wall posts, and 5 Facebook status updates). A larger, more diverse group of participants and a great number of language samples could produce different results. Additionally, psychopathy scores were moderately low, the highest being 215 points out of a possible 320. We suggest looking only at the upper half or quartile of participants to refine results.

**Conclusion**

This study attempted to expand the findings of previous studies finding a distinction between the discourse patterns of psychopaths non-psychopaths, specifically finding that psychopaths’ language shows evidence of psychological distancing and narcissistic tendencies. We examined undergraduate students’ language in social media compared to narratives produced in a laboratory. Our findings support the previous research, showing that discourse patterns of students’ higher in psychopathy are different from the discourse patterns of students’ lower in psychopathy. Students higher in psychopathy showed evidence of psychological distancing, produce less comprehensible text, are less honest, used more anger, and swore more, although they did not exhibit strong narcissistic tendencies. These results were more pronounced in social media discourse than in narrative discourse, supporting the findings that discourse in social media is distinct from discourse in narratives produced in a laboratory, and that real world discourse patterns in social media are more revealing in analyzing psychopathic tendencies. In
conclusion, our results reinforce the theory that individual personality can be reflected in discourse patterns.

References


Assessing credibility through text: A preliminary analysis for identifying psychopathy.

Proceedings of the Rapid Screening Technologies, Deception Detection and Credibility Assessment Symposium of the 45th Hawaii International Conference on System Sciences


PSYCHOPATHS ONLINE


Table 1. Descriptive Statistics for Personality Inventories

<table>
<thead>
<tr>
<th></th>
<th>SRP III Score</th>
<th>NPI Score</th>
<th>Mach IV Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>143.1</td>
<td>16.8</td>
<td>56.3</td>
</tr>
<tr>
<td><strong>Std. Deviation</strong></td>
<td>27.4</td>
<td>7.0</td>
<td>8.4</td>
</tr>
<tr>
<td><strong>Minimum</strong></td>
<td>82</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td><strong>Maximum</strong></td>
<td>215</td>
<td>32</td>
<td>86</td>
</tr>
<tr>
<td><strong>Possible Range</strong></td>
<td>64-320</td>
<td>0-40</td>
<td>20-100</td>
</tr>
</tbody>
</table>
Table 2. Pearson Bivariate 2-tailed Correlations between Personality Inventories

<table>
<thead>
<tr>
<th></th>
<th>IPM</th>
<th>CA</th>
<th>ELS</th>
<th>CT</th>
<th>NPI</th>
<th>Mach IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRP III</td>
<td>.833**</td>
<td>.870**</td>
<td>.801**</td>
<td>.737**</td>
<td>.354**</td>
<td>.481**</td>
</tr>
<tr>
<td>NPI</td>
<td>.411**</td>
<td>.228*</td>
<td>.313**</td>
<td>.178</td>
<td>1</td>
<td>.176</td>
</tr>
<tr>
<td>Mach IV</td>
<td>.591**</td>
<td>.490**</td>
<td>.228*</td>
<td>.231*</td>
<td>.176</td>
<td>1</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)
Table 3. Mixed Model Analysis of Discourse Patterns in Social Media vs. Narratives

<table>
<thead>
<tr>
<th></th>
<th>SOCIAL MEDIA</th>
<th>NARRATIVES</th>
<th>F STAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SE</td>
<td>M</td>
</tr>
<tr>
<td>Pronouns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>6.61</td>
<td>.19</td>
<td>9.47</td>
</tr>
<tr>
<td>We</td>
<td>1.03</td>
<td>.09</td>
<td>1.21</td>
</tr>
<tr>
<td>You</td>
<td>3.86</td>
<td>.11</td>
<td>.05</td>
</tr>
<tr>
<td>Tense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past</td>
<td>2.64</td>
<td>.14</td>
<td>8.95</td>
</tr>
<tr>
<td>Present</td>
<td>12.41</td>
<td>.21</td>
<td>3.31</td>
</tr>
<tr>
<td>Emotion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>7.24</td>
<td>.21</td>
<td>3.88</td>
</tr>
<tr>
<td>Negative</td>
<td>1.67</td>
<td>.11</td>
<td>2.25</td>
</tr>
<tr>
<td>Anger</td>
<td>.47</td>
<td>.05</td>
<td>.37</td>
</tr>
<tr>
<td>Swear</td>
<td>.25</td>
<td>.03</td>
<td>.02</td>
</tr>
</tbody>
</table>
Table 4. Pearson Bivariate 2-tailed Correlations between SRP III Scores and Selected Linguistic Factors in Social Media

<table>
<thead>
<tr>
<th></th>
<th>SRP III Score</th>
<th>IPM</th>
<th>CA</th>
<th>ELS</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>.048</td>
<td>.011</td>
<td>.025</td>
<td>.087</td>
<td>.035</td>
</tr>
<tr>
<td>We</td>
<td>-.017</td>
<td>.007</td>
<td>-.024</td>
<td>-.028</td>
<td>-.012</td>
</tr>
<tr>
<td>You</td>
<td>-.238*</td>
<td>-.167</td>
<td>-.211*</td>
<td>-.282**</td>
<td>-.116</td>
</tr>
<tr>
<td>Psychological Distancing</td>
<td>.194*</td>
<td>.113</td>
<td>.241*</td>
<td>.227*</td>
<td>.052</td>
</tr>
<tr>
<td>Conjunctions</td>
<td>-.122</td>
<td>-.140</td>
<td>-.191*</td>
<td>.104</td>
<td>-.178</td>
</tr>
<tr>
<td>Basic Needs</td>
<td>.079</td>
<td>-.085</td>
<td>.067</td>
<td>.260**</td>
<td>.029</td>
</tr>
<tr>
<td>Higher Level</td>
<td>-.012</td>
<td>.031</td>
<td>.032</td>
<td>.001</td>
<td>-.111</td>
</tr>
<tr>
<td>Needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readability</td>
<td>-.315**</td>
<td>-.237*</td>
<td>-.217*</td>
<td>-.341**</td>
<td>-.230*</td>
</tr>
<tr>
<td>Honesty</td>
<td>-.221*</td>
<td>-.147</td>
<td>-.196*</td>
<td>-.188</td>
<td>-.195*</td>
</tr>
<tr>
<td>Anger</td>
<td>.222*</td>
<td>.233*</td>
<td>.126</td>
<td>.182</td>
<td>.173</td>
</tr>
<tr>
<td>Swear</td>
<td>.308**</td>
<td>.302**</td>
<td>.231*</td>
<td>.212*</td>
<td>.253**</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)
Table 5. Pearson Bivariate 2-tailed Correlations between SRP III Scores and Selected Linguistic Factors in Narratives

<table>
<thead>
<tr>
<th></th>
<th>SRP III Score</th>
<th>IPM</th>
<th>CA</th>
<th>ELS</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong></td>
<td>.008</td>
<td>.054</td>
<td>.038</td>
<td>-.028</td>
<td>-.044</td>
</tr>
<tr>
<td><strong>We</strong></td>
<td>.032</td>
<td>.045</td>
<td>-.041</td>
<td>.057</td>
<td>.039</td>
</tr>
<tr>
<td><strong>You</strong></td>
<td>-.091</td>
<td>-.005</td>
<td>-.083</td>
<td>-.107</td>
<td>-.111</td>
</tr>
<tr>
<td><strong>Psychological</strong></td>
<td>.084</td>
<td>.058</td>
<td>.085</td>
<td>.064</td>
<td>.068</td>
</tr>
<tr>
<td><strong>Distancing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Conjunctions</strong></td>
<td>-.066</td>
<td>-.030</td>
<td>-.069</td>
<td>-.051</td>
<td>-.068</td>
</tr>
<tr>
<td><strong>Basic Needs</strong></td>
<td>.101</td>
<td>-.036</td>
<td>.067</td>
<td>.130</td>
<td>.186**</td>
</tr>
<tr>
<td><strong>Higher Level</strong></td>
<td>-.036</td>
<td>.008</td>
<td>-.045</td>
<td>.011</td>
<td>-.102</td>
</tr>
<tr>
<td><strong>Needs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Readability</strong></td>
<td>-.146*</td>
<td>-.079</td>
<td>-.147*</td>
<td>-.092</td>
<td>-.167*</td>
</tr>
<tr>
<td><strong>Honesty</strong></td>
<td>.023</td>
<td>.024</td>
<td>.046</td>
<td>.007</td>
<td>-.003</td>
</tr>
<tr>
<td><strong>Anger</strong></td>
<td>-.033</td>
<td>-.021</td>
<td>-.017</td>
<td>-.027</td>
<td>-.042</td>
</tr>
<tr>
<td><strong>Swear</strong></td>
<td>-.040</td>
<td>.010</td>
<td>-.012</td>
<td>-.130</td>
<td>.002</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)
Appendix A. Consent Form

Language and Social Media Study

You are being asked to take part in a research study of how people with differently personality traits use language in social media. You signed up to participate through SUSAN. Please read this form carefully and ask any questions that you may have before agreeing to take part in the study. Please email Prof. Jeff Hancock at jth34@cornell.edu, or call at (607) 255-4452 if you have any questions.

What the study is about: The purpose of this study is to learn how individuals use language across different social media.

What we will ask you to do: If you agree to be in this study, we will ask you to complete three tasks: writing two short stories, answering questions about your personality and providing some examples of your use of social media. The entire study will take place online through a Qualtrics survey and will take about 45 minutes to 1 hour to complete.

Risks and benefits: You will be asked a few questions about whether you have participated in any illegal activity. However, there will be no way for us to match you to your responses as you will be asked to input your name and net id at the end of this form and then navigate to a second survey that will remain anonymous. Benefits to you include compensation in the form of extra credit points on SUSAN, and gaining the satisfaction of participating in and contributing to research.

Compensation: You will receive 2 extra credit points on SUSAN for participating in this study.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide to take part or to skip some of the questions, it will not affect your current or future relationships with Cornell University. If you decide to take part, you are free to withdraw at any time.

Confidentiality: The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify you. Research records will be kept in a secure database; only the researchers will have access to the records.

If you have questions: The researcher conducting this study is Prof. Jeff Hancock. If you have any questions, you may contact Prof. Hancock at jth34@cornell.edu or (607) 255-4452. If you have any questions or concerns regarding you rights as a subject in this study, you may contact the Institutional Review Board (IRB) at (607) 255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077.
PSYCHOPATHS ONLINE

Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You may print a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and I consent to take part in the study.

By typing your name and clicking submit, you agree to take part in the study.

Your Name _________________________________________ Date ________________

Your Net ID ____________________________________________________________________

This consent form will be kept by the researcher for at least five years beyond the end of the study.
Appendix B. Survey Questions

The following survey will consist of six sections. First you will be asked a few questions about your background. Second, you will be asked to write two short stories. Next, you will be asked three different sets of questions about your personality. Please answer them to the best of your ability. You can be honest as your answers are anonymous and confidential. Lastly, you will be asked to give samples of how you use text messaging, email, and Facebook.

Section 1: Please answer the following questions to the best of your ability.

1. What is your age?
2. What is your gender
   a. Female
   b. Male
3. What is your class status?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Graduate Student

Section 2: We ask you to write two short stories: one about a positive event in your life, and one about a negative event in your life. We ask that each story be about 100 words.

Section 3: Please rate the degree to which you agree with the following statements about you.

1- Disagree Strongly
2- Disagree
3- Neutral
4- Agree
5- Agree Strongly

1. I’m a rebellious person.
2. I’m more tough-minded than other people.
3. I think I could "beat" a lie detector.
4. I have taken illegal drugs (e.g., marijuana, ecstasy).
5. I have never been involved in delinquent gang activity.
6. I have never stolen a truck, car or motorcycle.
7. Most people are wimps.
8. I purposely flatter people to get them on my side.
9. I’ve often done something dangerous just for the thrill of it.
10. I have tricked someone into giving me money.
11. It tortures me to see an injured animal.
12. I have assaulted a law enforcement official or social worker.
13. I have pretended to be someone else in order to get something.
14. I always plan out my weekly activities.
15. I like to see fist-fights.
16. I’m not tricky or sly.
17. I’d be good at a dangerous job because I make fast decisions.
18. I have never tried to force someone to have sex.
19. My friends would say that I am a warm person.
20. I would get a kick out of ‘scamming’ someone.
21. I have never attacked someone with the idea of injuring them.
22. I never miss appointments.
23. I avoid horror movies.
24. I trust other people to be honest.
25. I hate high speed driving.
26. I feel so sorry when I see a homeless person.
27. It's fun to see how far you can push people before they get upset.
28. I enjoy doing wild things.
29. I have broken into a building or vehicle in order to steal something or vandalize.
30. I don’t bother to keep in touch with my family any more.
31. I find it difficult to manipulate people.
32. I rarely follow the rules.
33. I never cry at movies.
34. I have never been arrested.
35. You should take advantage of other people before they do it to you.
36. I don’t enjoy gambling for real money.
37. People sometimes say that I’m cold-hearted.
38. People can usually tell if I am lying.
39. I like to have sex with people I barely know.
40. I love violent sports and movies.
41. Sometimes you have to pretend you like people to get something out of them.
42. I am an impulsive person.
43. I have taken hard drugs (e.g., heroin, cocaine).
44. I'm a soft-hearted person.
45. I can talk people into anything.
46. I never shoplifted from a store.
47. I don’t enjoy taking risks.
48. People are too sensitive when I tell them the truth about themselves.
49. I was convicted of a serious crime.
50. Most people tell lies everyday.
51. I keep getting in trouble for the same things over and over.
52. Every now and then I carry a weapon (knife or gun) for protection.
53. People cry way too much at funerals.
54. You can get what you want by telling people what they want to hear.
55. I easily get bored.
56. I never feel guilty over hurting others.
57. I have threatened people into giving me money, clothes, or makeup.
58. A lot of people are “suckers” and can easily be fooled.
59. I admit that I often “mouth off” without thinking.
60. I sometimes dump friends that I don’t need any more.
61. I would never step on others to get what I want.
62. I have close friends who served time in prison.
63. I purposely tried to hit someone with the vehicle I was driving.
64. I have violated my probation from prison.

**Section 4:** This inventory consists of a number of pairs of statements with which you may or may not identify with. Consider this example:

A. I like having authority over people

B. I don’t mind following orders
PSYCHOPATHS ONLINE

Which of these two statements is close to your own feelings about yourself? If you identify more with “liking to have authority over people” than with “not minding following orders”, then you would choose option A. You may identify with both A and B. In this case you should choose the statement which seems closer to yourself. Or, if you do not identify with either statement, select the one which is least objectionable or remote. In other words, read each pair of statements and then choose the one that is closer to your own feelings.

1. A. I have a natural talent for influencing people.
   B. I am not good at influencing people.
2. A. Modesty doesn’t become me.
   B. I am essentially a modest person.
3. A. I would do almost anything on a dare.
   B. I tend to be a fairly cautious person.
4. A. When people compliment me I sometimes get embarrassed.
   B. I know that I am good because everybody keeps telling me so.
5. A. The thought of ruling the world frightens the hell out of me.
   B. If I ruled the world it would be a better place.
6. A. I can usually talk my way out of anything.
   B. I try to accept the consequences of my behavior.
7. A. I prefer to blend in with the crowd.
   B. I like to be the center of attention.
8. A. I will be a success.
   B. I am not too concerned about success.
9. A. I am no better or worse than most people.
   B. I think I am a special person.
10. A. I am not sure if I would make a good leader.
    B. I see myself as a good leader.
11. A. I am assertive.
    B. I wish I were more assertive.
12. A. I like to have authority over other people
PSYCHOPATHS ONLINE

B. I don’t mind following orders.

13. A. I find it easy to manipulate people.
   B. I don’t like it when I find myself manipulating people.

14. A. I insist upon getting the respect that is due me.
   B. I usually get the respect that I deserve.

15. A. I don’t particularly like to show off my body.
   B. I like to show off my body.

16. A. I can read people like a book.
   B. People are sometimes hard to understand.

17. A. If I feel competent I am willing to take responsibility for making decisions.
   B. I like to take responsibility for making decisions.

18. A. I just want to be reasonably happy.
   B. I want to amount to something in the eyes of the world.

19. A. My body is nothing special.
   B. I like to look at my body.

20. A. I try not to be a show off.
   B. I will usually show off if I get the chance.

21. A. I always know what I am doing.
   B. Sometimes I am not sure of what I am doing.

22. A. I sometime depend on people to get things done.
   B. I rarely depend on anyone else to get things done.

23. A. Sometimes I tell good stories.
   B. Everybody likes to hear my stories.

24. A. I expect a great deal from other people.
   B. I like to do things for other people.

25. A. I will never be satisfied until I get all that I deserve.
   B. I take my satisfactions as they come.

26. A. Compliments embarrass me.
   B. I like to be complimented.

27. A. I have strong will power.
   B. Power for its own sake doesn’t interest me.
PSYCHOPATHS ONLINE

28. A. I don’t care about new fads and fashions.  
    B. I like to start new fads and fashions.

29. A. I like to look at myself in the mirror.  
    B. I am not particularly interested in looking at myself in the mirror.

30. A. I really like to be the center of attention.  
    B. It makes me uncomfortable to be the center of attention.

31. A. I can live my life in any way I want to.  
    B. People can’t always live their lives in terms of what they want.

32. A. Being an authority doesn’t mean that much to me.  
    B. People always seem to recognize my authority.

33. A. I would prefer to be a leader.  
    B. It makes little difference to me whether I am a leader or not.

34. A. I am going to be a great person.  
    B. I hope I am going to be successful.

35. A. People sometimes believe what I tell them.  
    B. I can make anybody believe anything I want them to.

36. A. I am a born leader.  
    B. Leadership is a quality that takes a long time to develop.

37. A. I wish somebody would someday write my biography.  
    B. I don’t like people to pry into my life for any reason.

38. A. I get upset when people don’t notice how I look when I go out in public.  
    B. I don’t mind blending into the crowd when I go out in public.

39. A. I am more capable than other people.  
    B. There is a lot that I can learn from other people.

40. A. I am much like everybody else.  
    B. I am an extraordinary person.

Section 5: Please rate the degree to which you agree with the following statements.

1- Disagree Strongly
2- Disagree
3- Neutral
4- Agree
PSYCHOPATHS ONLINE

5- Agree Strongly

1. Never tell anyone the real reason you did something unless it is useful to do so.
2. The best way to handle people is to tell them what they want to hear.
3. One should take action only when sure it is morally right.
4. Most people are basically good and kind.
5. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.
6. Honesty is the best policy in all cases.
7. There is no excuse for lying to someone else.
8. Generally speaking, men won’t work hard unless they’re forced to do so.
9. All in all, it is better to be humble and honest than important and dishonest.
10. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.
11. Most people who get ahead in the world lead clean, moral lives.
12. Anyone who completely trusts anyone else is asking for trouble.
13. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.
14. Most men are brave.
15. It is wise to flatter important people.
16. It is possible to be good in all respects.
17. Barnum was very wrong when he said there’s a sucker born every minute.
18. It is hard to get ahead without cutting corners here and there.
19. People suffering from incurable diseases should have the choice of being put painlessly to death.
20. Most men forget more easily the death of their father than the loss of their property.

Section 6:
Part 1: Please take out your cell phone. In the following boxes, please type the last 20 text messages you have sent. Each message should go in a separate box. It does not matter if multiple messages were sent to the same person. As you are typing, if you come across any identifying information such as proper names, phone numbers, or addresses, please delete and
replace with ****. For example, if a text message says, “Hi Sally, would you like to meet for lunch?”, you should type it as, “Hi ****, would you like to meet for lunch?” It is important that you replace the name, phone number, or address with ****, and not just delete it so that the message still makes sense. In addition, please skip messages that discuss any illegal activity.

Part 2: Please sign in to the email account you use most frequently. In the following boxes, please copy and past the last 20 emails you have sent. Each message should go in a separate box. It does not matter if multiple messages were sent to the same person. As you are copy and pasting, if you come across any identifying information such as proper names, phone numbers, or addresses, please delete and replace with ****. For example, if a text message says, “Hi Sally, would you like to meet for lunch?”, you should type it as, “Hi ****, would you like to meet for lunch?”. It is important that you replace the name, phone number, or address with ****, and not just delete it so that the message still makes sense. In addition, please skip messages that discuss any illegal activity.

Part 3: Please sign in to your Facebook account. In following boxes, please copy and paste the last 5 status updates you have posted, the last 5 messages you have sent, and the last 5 wall posts you have posted on someone else’s wall. Each message should go in a separate box. It does not matter if multiple messages were sent to the same person. As you are copy and pasting, if you come across any identifying information such as proper names, phone numbers, or addresses, please delete and replace with ****. For example, if a text message says, “Hi Sally, would you like to meet for lunch?”, you should type it as, “Hi ****, would you like to meet for lunch?”. It is important that you replace the name, phone number, or address with ****, and not just delete it so that the message still makes sense. In addition, please skip messages that discuss any illegal activity.
Appendix C. Debriefing Form

The purpose of this study was to examine the relationship between certain personality traits and how people use language in social media. The personality traits that we are examining in this study are psychopathy, narcissism, and Machiavellianism. All three of these personality traits are measured on a continuum (as opposed to being deemed psychopathic or not psychopathic, for example).

The first personality questionnaire you answered was the Self-Report Psychopathy Test III. This questionnaire has been designed to measure whether or not you possess psychopathic traits. Psychopaths are defined as having an emotional deficit and antisocial behavioral tendencies. They lack remorse and guilt and have shallow affect, although not appearing to lack any intellect.

The second personality questionnaire you answered was the Narcissistic Personality Inventory. This questionnaire has been designed to measure whether or not you possess narcissistic traits. Narcissists possess a grandiose sense of self worth, fantasies of success and power, inability to endure criticism, entitlement, exploitiveness and lack of empathy.

The third personality questionnaire you answered was the Mach-IV. This questionnaire has been designed to measure or not you possess Machiavellian traits. Machiavellians are defined as having a manipulative personality where they use personal relationships solely for their own benefit.

All answers and language samples that you submitted will be kept completely confidential and anonymous. No identifying information, such as your name or net id, will be associated with the information input into the survey. Additionally, we asked you to remove any names or phone numbers in the language samples you input into the survey so that we cannot identify you or anyone who you communicated with.

We request that you do not discuss this study with your friends, classmates or colleagues at Cornell University, so that we may include them in this study.

If you have any questions about this study, please ask contact Prof. Jeff Hancock at jth34@cornell.edu.

Your participation in this study is completely voluntary. If you would like to opt out of the study for any reason, please contact Prof. Jeff Hancock at jth34@cornell.edu.

We greatly appreciate your participation.