

The Power of Schadenfreude: Predicting Behaviors and Perceptions of Trolling Among Reddit Users

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Abstract

Trolling is an uncivil behavior that is increasingly prevalent in online social interactions. This study sought to understand trolling by examining the psychological predictors that motivate trolling behaviors, as well as perceptions of trolling among 438 Reddit users. A path analysis indicated the motivation of schadenfreude mediates the relationship between personality traits (i.e., the dark triad) and trolling. Outspokenness neither directly nor indirectly predicted trolling. Results also showed that Reddit users motivated by schadenfreude and users who exhibit trolling behaviors view trolling as not being a dysfunctional or undesirable response to online discourse. In addition, those with schadenfreude considered the practice of trolling to be functional/comprehensible. Those who merely observe trolling on Reddit did not consider trolling to be a functional part of online discourse. Age, time spent on Reddit, and the dark triad did not predict functional or dysfunctional perceptions of trolling, but gender played a role.

Keywords

trolling, schadenfreude, dark triad, outspokenness, Reddit

Trolling has become increasingly pervasive among users of social networking sites (SNSs). Trolls are Internet users who aim to disrupt online interactions and “lure . . . others into pointless and time-consuming discussions” (Humphreys, 2016, p. 178). As explained by media theorist Whitney Phillips, “[Trolling] is not the good-faith exchange of ideas . . . It’s just people being nasty, and if anything, it might encourage marginalized groups not to speak up” (quoted in Manjoo, 2014, para. 19). The mention of marginalized groups is particularly salient in a study about trolls; the “malicious pleasure” of schadenfreude (Leach et al., 2003, p. 932), which has been associated with antisocial motives in previous literature (Ouwerkerk & Johnson, 2016), involves deriving pleasure from seeing members of an “out-group” suffer (Leach et al., 2003). However, the phenomenon of online trolling is not exclusively the domain of in-group and out-group status (see Coleman, 2014); online incivility can be initiated because of feelings of competition, schadenfreude, and downward social comparison among individual users, too (Ouwerkerk & Johnson, 2016). Recent research has also shown that trolling behaviors now extend to general social media users when triggered by other factors like mood and discussion conditions (Cheng et al., 2017). In contrast,

behaviors and language regarded as external to online norms can also be considered trolling by those within an online community, despite a lack of malicious intent by the perceived troll (Bergstrom, 2011).

This study analyzes how trolling behaviors are employed and perceived on Reddit, an online social news aggregator and discussion platform that allows people to read, debate, and discuss issues with a community of interested persons. Reddit is a tremendously popular website, with a 2020 ranking as the sixth-most visited website in the United States and 18th in the world in web traffic (Alexa, 2020; Willet & Carpenter, 2020). On Reddit, users post text-based content with embedded links (images, videos, or articles) within topic-based discussion communities called subreddits. However, Reddit is not a typical news aggregator website; it has traditionally carried a reputation as an online forum that

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has a “seedy underbelly” (Bergstrom, 2011, para. 8), where users can (and do) engage in nasty conduct. Part of this online behavior can be attributed to a lack of consistent moderation; each subreddit has its own moderator who can voluntarily provide the community with any degree of censorship he or she desires. Users rate the content through upvotes and downvotes, which pushes content higher or lower on the discussion board. In this way, inflammatory content in these subreddits can be variously valorized or condemned, depending on the judgment of the users observing those interactions.

This study seeks to explain what causes participants in online discussion platforms to verbally express discontent and others to withhold such sentiment by investigating predictors of trolling behaviors. Specifically, this study explores whether or not being outspoken and possessing personality traits such as the dark triad (narcissism, Machiavellianism, and psychopathy; Paulhus & Williams, 2002) predicts trolling as well as whether or not *schadenfreude* (i.e., those who find pleasure in the misfortune of others) mediates these relationships. Related to this objective is an exploration into how discussion platform users perceive others who exhibit trolling behaviors in a space that encourages discussion and deliberation from community members with varying viewpoints.

Overall, this research provides an increased understanding regarding both the conceptual and behavioral elements of Internet trolls in environments where online deliberation and discussion is not only encouraged, but also rewarded. In short, this study contributes to the scholarly conversation surrounding online trolling, not only by examining the motivations behind the behavior, but also how others perceive that behavior. Findings also facilitate an awareness for everyday users of the existence of online trolls and those who engage in trolling behaviors on SNS like Reddit.

Literature Review

As the dynamics of social media have transformed drastically with increased reliance on these platforms, so has uncivil commentary and even trolling. Rösner and Krämer (2016) noticed that, where once user anonymity was a definitive quality of online aggression, uncivil participants were more influenced by the social norms of online discussions. In other words, engagement in incivility toward others had become normal for SNS users—despite their visible identities—as a consequence of the nature of the discussion in which they were engaging. Similar findings have also been found within a certain type of incivility known as *trolling* (Cheng et al., 2017). Incivility has often been studied in political communication, in both attempts to define the construct and differentiate incivility from similar behaviors (e.g., impoliteness, flaming, etc.). Some research has equated incivility with impoliteness (Mutz & Reeves, 2005), which is more prone to violating social norms (e.g., swearing, insults, sarcasm). Other research has maintained that such violations are different than incivility and promotes threats to

democracy (e.g., exclusion of out groups, stereotypes, calls to limit freedom; Papacharissi, 2004; Stryker et al., 2016). While this study acknowledges the extensive research of *political* incivility, this study examines trolling as one type of online incivility (Abril, 2016).

An online behavior that a quarter of Americans have engaged in (Gammon, 2014) trolling is defined by four primary characteristics: aggression, deception, disruption, and success (Hardaker, 2010). Trolling typically takes form in the initiation of commentary that purposefully seeks to disrupt discussions and pull others into meaningless argumentation (Herring et al., 2002). Research has been clear that trolling is associated with malicious intentions (Coles & West, 2016; Hardaker, 2010; Shachaf & Hara, 2010). Trolls’ primary motivating factor has been referred to as the *lulz*, which is “acquired most often at someone’s expense . . . and occasionally, bordering on disturbing or hateful speech” (Coleman, 2014, p. 31). The voluntary and intentional use of trolling behaviors to incite reactions from a larger online community (Barney, 2016; Hardaker, 2010) sets trolling apart from other types of online incivility such as flaming or cyberbullying. Flaming is not driven by a particular motive (Hmielowski et al., 2014), but has been associated with impolite spontaneous reactions rather than intentional threats to democratic discussion (Papacharissi, 2004). Cyberbullying occurs when online users aggressively act out against defenseless victims (Smith et al., 2008) and is more personal than trolling in its specific targeting of individuals (March & Marrington, 2019). While trolling shares some overlap with these behaviors, not all trolling is necessarily flaming or cyberbullying. As such, this study is more interested in examining trolling behaviors as disruptive behaviors aimed at online communities.

Research has explored online trolling on many online forums that welcome deliberation among users, including Facebook (Craker & March, 2016; Lopes & Yu, 2017), YouTube (McCosker, 2014), and of course, Twitter (Akhtar & Morrison, 2019; Kirkwood et al., 2019; Lopez et al., 2019). We acknowledge that in the last decade, studies have examined the presence of trolling on Reddit, including a number of conference papers (Datta & Adar, 2019; Flores-Saviaga et al., 2018; Mojica, 2016), peer-reviewed articles (Bergstrom, 2011; Sanfilippo et al., 2018), and book chapters (Lumsden, 2019; Robards, 2018). This study offers several important contributions to the literature; first, this study differs from past research in its application of *schadenfreude* as a mediator between the relationship of the dark triad and trolling behavior; indeed, this study has discovered that *schadenfreude* is an essential motivator to consider when examining online trolling. Second, this study differs significantly in its procedures for collecting data; unlike previous research, this study surveys the perceptions of trolling behaviors among Reddit users themselves. For these reasons, this study contributes not only to research on trolling but also toward an understanding of Reddit as a platform.

Perceptions of Online Trolling

According to Bergstrom (2011), the nature of Reddit's platform fosters conflicting perceptions about trolling. Perceived trolls may not behave with malicious intent, but they may still violate expectations of behavior or authenticity in discussion threads. Paradoxical perceptions of trolling are not unique to Reddit. While some online social groups encourage flaming, others have zero tolerance for similar uncivil behaviors (Baym, 2015). Baym (2015) considered a sense of community as an essential characteristic of digital platforms that function as online interactive forums. Among her proposed qualities for interactive platforms were *shared practices*, which consisted of the norms and expectations of individual users' online behavior among the community. One of the objectives of trolling behavior would then be to harm the community (Shachaf & Hara, 2010). If such is the case, the definition of a troll and its functionality is ultimately left to how the community perceives such behavior. Much like aggression has been perceived in face-to-face interactions (Abderhalden et al., 2002), functionality here is the way trolling is perceived as comprehensible to community discussions. Dysfunctionality implies trolling's undesirability in community discussions.

The perceptions of the functionality of trolling become even more intricate as some online populations are more susceptible to the effects of trolling than others. Considering the vulnerability of social groups that perceive trolling, Hardaker (2010) concluded that less emotionally attached audiences may perceive the behavior as fierce competition, whereas Baym (2015) noticed an online soap opera discussion group that shared a "commitment to friendliness" rejected the same behavior (p. 88). Arguably, as SNSs have become more diverse, perceptions of trolls and trolling behaviors themselves are influenced more by the communication medium itself. Consequently, different personality types will use the medium to troll for diverse gratifications (Buckels et al., 2014; Craker & March, 2016; Wang & Silva, 2018).

Troll Personality Types and Motives

Online trolls have been described as self-aggrandizing, individualistic, and unremorseful in their behavior (Coleman, 2014). Research suggests that trolls possess dark personality traits, including psychopathy, narcissism, sadism, and Machiavellianism (Buckels et al., 2014; Paulhus & Williams, 2002). Psychopathy has been characterized as lack of empathy toward others and the tendency to engage in antisocial behavior (Hare & Neumann, 2009), whereas sadism is that joy found in inflicting harm on others (Buckels et al., 2014). Buckels et al. (2014) found that both sadists and cyber trolls find amusement in causing harm to others and putting them in distress. Machiavellianism is the tendency to be more manipulative (Wilson et al., 1996); however, these manipulative behaviors are not as malicious or "remorseless" as those

with psychopathy (Lopes & Yu, 2017, p. 69). Narcissism is considered a "self-serving schema" consisting of a "distorted sense of self-importance and grandiosity" that motivates people to make social comparisons in an effort to safeguard their self-esteem and receive accolades from others (Lopes & Yu, 2017, p. 70).

This study specifically examines the influence of the dark triad personality traits on trolling. Past research has often used the dark triad (excluding sadism) or the dark tetrad (including sadism) in assessing adverse behaviors. For example, Foulkes et al. (2014) found that the dark triad personality types were positively associated with negative social potency, which can be described as being callous toward others and using others for personal gain. In other words, users who shared dark triad characteristics would be more likely to exploit social interactions for personal goals. In addition, Zuroff et al. (2010) found ruthless self-advancement to be highly present among individuals of all three personality types. Studies show antisocial behavior is significantly associated with the dark triad personality type of psychopathy among online users (Lopes & Yu, 2017; March et al., 2017). Moreover, past studies have relied heavily on the dark triad as an established component of empirical measurement for trolling characteristics and behaviors (Buckels et al., 2014; Craker & March, 2016; March et al., 2017).

Some scholars have affirmed that Internet trolls are solely distinguished by malicious intent to harm others (Bergstrom, 2011; Hardaker, 2010). Hardaker (2010) added that although a solid definition of trolling had yet to be established, "terms such as non-malicious, impoliteness, and failed politeness" did not apply to trolling because of the harmful nature that is primarily alluded to the behavior (p. 237). Moreover, Shachaf and Hara (2010) discussed how trolls may be motivated by boredom, attention-seeking, and revenge. Further insights into trolling motives can be gained from Ouwerkerk and Johnson (2016) who surveyed SNS users to better understand motives for "hate-following" other users. Applying their developed Following Motives Scale (FMS), these authors found that a significant reason for hate-following was antisocial motives. In addition, time spent on SNSs correlated with an increase in antisocial motives. In the context of this study, it is possible that malicious motives are developed as one becomes more engaged with the platform of choice. While this study acknowledges that individual motives and personality types have the power to influence uncivil behaviors, it is also worth considering how the social norms of online communities and individual platforms may influence uncivil communication.

Schadenfreude and Trolling. Another explanation for uncivil behavior may be *schadenfreude*, a German term that "refers to feeling pleasure at the misfortunes of another . . . and essentially wishing for bad outcomes for them" (Dalakas et al., 2015, p. 164). *Schadenfreude* has been linked with the disorder of narcissism and the process of downward social

comparison (Ouwerkerk & Johnson, 2016). As a result, it can be motivated by the desire for self-enhancement; in other words, online users who have lower self-esteem and less favorable opinions about themselves are more likely to experience *schadenfreude* when they see others fail (van Dijk et al., 2011). The “lulz” could be considered a form of *schadenfreude*, employed by “subcultural trolls” (Phillips, 2015) who enjoy watching others suffer. Important to this study is the distinction in how *schadenfreude* occurs—as Nietzsche once explained, *schadenfreude* offers a pleasure that comes from passively observing the suffering of others, rather than a pleasure derived from actively making others suffer: “seeing others suffer provides a more insidious, and thus illegitimate, pleasure because it is not actively earned through direct competition” (Leach et al., 2003, p. 932).

This study measures the antisocial motives of individuals who maliciously observe others online for their own self-aggrandizement as they gain pleasure by observing the foibles of others (Ouwerkerk & Johnson, 2016; Porter et al., 2014) and examines how possession of this motive influences trolling online. Based on the importance of this motive in Ouwerkerk and Johnson’s (2016) study, this study explores the more nuanced relationship between trolling and the dark triad.

Being Outspoken Online

Outspokenness is defined as speaking up about controversial issues and not remaining silent in one’s opinion (Lee & Kim, 2014). Research suggests that Internet users who appear anonymous online are more likely to express their opinions (Bargh et al., 2002; Hertel et al., 2008) because the “enactment of anonymity dissolves user accountability” (Curlew, 2019, p. 5). Reddit is a semi-anonymous platform that requires users to identify themselves through usernames (Kilgo et al., 2016). Although the site discourages users from providing identifying information, users are not completely anonymous as their interactions, posts, and level of reputation currency, or Reddit “karma,” reveal information about each user (Kilgo et al., 2018). However, the impact of masking one’s identity within a discussion board like Reddit could influence the degree to which people are more or less outspoken and subsequently engage in trolling behaviors. Through anonymous platforms, outspoken people are less likely to hold back their ideas and opinions; they are more likely to consider antisocial behavior like trolling to be a functional aspect of online communities in which they engage.

As this study has alluded to the existence of *schadenfreude* (Ouwerkerk & Johnson, 2016) and dark personality traits (Buckels et al., 2014; Craker & March, 2016) among antisocial online users, it is possible that the same motives and characteristics can be attributed to disinhibited individuals who regularly post content within online discussions as well as users who refrain from actively posting and passively follow other online users. Such individuals who do more observing

of online discussions have been described in general computer-mediated communication research as lurkers (Dennen, 2008; Rafaeli et al., 2004). Considering the public nature of online communities where this ridicule occurs, research reveals that different levels of publicness (varying by social media platform) determine how direct and outspoken a user may be (Wei & Liu, 2020). Ouwerkerk and Johnson’s (2016) research demonstrated that individual users can passively follow others for darker gratifications, which the authors called “hate-following.” The element of passivity in hate-following requires no active participation (e.g., no commenting, posting, upvoting, and downvoting on Reddit). Moreover, Ouwerkerk and Johnson (2016) indicated that such online followers possessed certain personality characteristics, including narcissism (a personality type within the dark triad) and a tendency for *schadenfreude*. It is this study’s argument that such types of individuals will both engage in trolling behavior and view it as a functional element of online discussion.

To better understand trolling, this study attempts to identify respondents’ levels of outspokenness and the dark triad personality types in relation to *schadenfreude*. The study also explores perceptions of online trolling in online discussion platforms like Reddit and postulates the following hypotheses and research question:

H1. *Schadenfreude* mediates the relationship between the dark triad and trolling.

RQ1. Does outspokenness lead to trolling behaviors?

H2. Those who possess (a) dark triad personality traits, (b) are outspoken, (c) possess *schadenfreude*, and (d) troll on Reddit will perceive trolling as a functional behavior in discussions.

H3. For Reddit users, there is a positive relationship between observing trolling on the platform and evaluating trolling as a dysfunctional behavior.

Methodology

An online survey was administered to explore and identify the online behaviors and perceptions of individuals who use Reddit. As Reddit features a network of online communities, or subreddits, which allows users to carry out topic-based discussions, multiple subreddits were accessed to recruit participants. This approach was taken in an effort to better understand trolling as it occurs on the discussion platform itself opposed to providing a case study of one individual community and that community’s experiences with trolling. A total of 438 Reddit users completed the survey, which was posted and made available on 13 subreddits where moderator permission to post the survey was obtained. Coe et al. (2014) found online newspaper articles about sports and politics ranked first and third, respectively, among articles that received the highest percentage of uncivil comments, so

political and even journalism-oriented subreddits were sought for the study. However, half (50.6%) of the voluntary sample who self-selected to take the survey obtained the link from r/SampleSize, a subreddit dedicated to soliciting survey participants, with r/TheDonald, r/GradSchool, and r/Journalism being the subreddits accessed next most frequently. The subreddits where participants accessed the survey most frequently were not surprising as they were either dedicated to research, accessed by aspiring researchers (i.e., graduate students), or were threads where political or journalism discussions took place.

In several instances, when seeking survey respondents, subreddit moderators pulled posts soliciting survey participation from their subreddits because this type of post violated the community's rules or cultural norms. Consequently, r/SampleSize provided ample space to recruit respondents. Although a majority of respondents were recruited in a subreddit dedicated to research, it should be noted that users who participate in one subreddit are never limited to discussions in that one community. In fact, users are likely to participate in multiple communities, on multiple topics of interest, because Reddit makes it possible for people to subscribe to, view, and monitor multiple subreddits from one page (Vicente, 2020). In an effort to obtain enough participants, researchers periodically posted the survey on different subreddits on 51 days between April and August 2017. As an incentive for taking the survey, participants were given an opportunity to be entered into a drawing for one of four US\$25 gift cards. Researchers obtained approval from the institutional review board before conducting the study.

Research Measures

Schadenfreude. Antisocial or malicious motives for following others on Reddit were assessed using 16 question items that captured the pleasure people receive from seeing the misfortunes of others, or schadenfreude (Dalakas et al., 2015). Ten of the question items focused on malicious motives for using Reddit. These measures were derived from a portion of the antisocial dimension of Ouwerkerk and Johnson's (2016) FMS. In addition to these 10 measures, which focused on the intent to observe and make fun of the online foibles of others (e.g., "I laugh when I see others put in their place by other commenters online"), researchers included six other items, which assessed other aspects of this concept, including subjugation ("I like to be in control even if it means I could hurt someone through my online comments" and "I make fun of other Reddit users so they know I am in control"), pleasures obtained from seeing others negatively impacted by uncivil behavior ("I mock other Reddit users because it is funny to see them get upset," and "I get pleasure from mocking people in front of other Reddit users," and "It excites me to see others fight each other online"), and a lack of empathy for others ("I want to hurt Reddit users who irritate me"). Survey respondents used a 5-point

Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5) for indicating the extent to which they agreed or disagreed with each statement regarding their activity on Reddit ($\alpha = .86$; $M = 2.00$, $SD = 0.61$).

Personality Traits. Participants were asked to identify personal characteristics that shed light on three deviant and hostile personality traits, or what researchers call the dark triad: Machiavellianism, narcissism, and psychopathy (Jonason & Webster, 2010; Lopes & Yu, 2017). Twelve question items developed by Jonason and Webster (2010) were adapted for this study. To assess Machiavellianism, participants assessed their tendency to use deceit, flattery, manipulation, and exploitation to get their way. Psychopathy assessed the degree to which participants lack remorse, are unconcerned with the morality of their actions, tend to be callous or insensitive, and tend to be cynical. Narcissism assessed attention-seeking behaviors, such as wanting others to admire and pay attention to them as well as whether or not they tend to seek prestige or status and expect special favors from others. Participants were asked to rate the degree to which they felt each of the 12 statements described themselves when they are in offline environments. Question items were given on a Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5). All 12 items were combined to reflect the dark triad ($\alpha = .82$; $M = 2.23$, $SD = 0.65$).

Outspokenness. This study explored the degree to which community members are outspoken and express their opinions. As Reddit is intended to facilitate community discussions and debates on topics of interest (Reddit, n.d.), respondents were asked to think about the subreddit where they obtained the survey link and then answer three questions adopted from Lee and Kim (2014) who measured outspokenness on Twitter. These questions assessed the degree to which Reddit users discussed the subreddit thread topic with other Reddit users as well as how frequently they expressed positive or negative opinions on the specific thread topic. All question items were measured on a Likert-type scale ranging from *never* (1) to *almost always* (5) ($\alpha = .76$; $M = 2.09$, $SD = 0.93$).

Trolling. Recognizing that Reddit users may have varying conceptualizations of trolling, survey participants were asked to define trolling and identify what this concept means to them at the beginning of the survey. Of the 438 survey participants, the majority (94.7%; $n = 415$) answered this open-ended question. Within each response, Reddit users conceptualized trolling quite differently from other discourteous online behaviors (e.g., cyberbullying, flaming, incivility, etc.). From these definitions, it was clear Reddit users understand trolling to be an intentional online interaction (post, comment, statement, conversation, etc.) aimed at bating, goading, provoking, or harassing others for the sake of garnering attention and eliciting a reaction. Here

are a few examples of the definitions Reddit users identified: “Deliberately provoking other users to get a reaction”; “Being a jerk just to get people mad. No other reason”; “Annoying/hurting others for your own benefit”; “Intentionally saying idiotic things in order to rile people up”; and “Saying something with the intent of creating drama within a community.” With these definitions of trolling in mind, participants then answered questions about their trolling behaviors, the trolling behaviors of others on Reddit, and their perceptions of trolling’s function in the online community.¹

Trolling Behaviors. To determine the degree to which Reddit users engage in trolling within this online community, the survey featured 10 items from Buckels et al.’s (2014) Global Assessment of Internet Trolling (GAIT) scale. Researchers adapted the GAIT scale for Reddit and included statements like “I have sent people to shock websites,” “I annoy other Reddit users,” and “I uplift other Reddit users.” Other scholars, like Craker and March (2016), adapted the GAIT for examining trolling on Facebook and included additional items that were subsequently adapted for this study as well: “I engage in other users’ cheerfulness and pleasure on Reddit,” “I refrain from not causing controversy or stirring up trouble,” and “I encourage other users’ inspiring and interesting posts on Reddit.” Before answering the questions, survey participants were asked to think about their activity on Reddit and then identify the frequency to which they engaged a list of 10 behaviors on the platform. Each of the trolling behaviors was measured using a 5-point Likert-type scale ranging from *never* (1) to *almost always* (5) ($\alpha = .82$; $M = 2.45$, $SD = 0.66$). Positively worded statements were reverse coded.

Observed Trolling. Reddit users were not only asked about trolling behaviors they may engage in on this platform (see Trolling Behaviors), but they were asked to identify how often they observed other Reddit users engaging in trolling behaviors on this medium. The observation of trolling on Reddit was measured using the same items leveraged for measuring trolling (Buckels et al., 2014; Craker & March, 2016). All 10 items were measured along a 5-point Likert-type scale ranging from *never* (1) to *almost always* (5), with participants being asked to think about their experiences on Reddit before answering the questions ($\alpha = .82$; $M = 2.56$, $SD = 0.56$).

Perceptions of Trolling on Reddit. This study examined perceptions of both the “functional/comprehensible” and “dysfunctional/undesirable” role trolling is perceived to play in Reddit’s computer-mediated environment (Abderhalden et al., 2002, p. 113). All 12 question items from the Shortened Perception of Aggression Scale (PoAS) were adopted to measure perceptions of trolling. The PoAS was developed to examine dimensions of perceived aggression among nurses

and then identify the perceived effect it has on patients and their treatment. Similarly, for this study, trolling is examined for the perceived function it has in Reddit and the potential impact this behavior has in this online community. The first dimension of the scale includes six question items that examine perceptions of aggression as a “dysfunctional and undesirable phenomenon” (Abderhalden et al., 2002, p. 113). These items were subsequently used to examine trolling in Reddit: Trolling is “an unpleasant and repulsive behavior,” “unnecessary and unacceptable,” “hurting others mentally or emotionally,” “an act of verbal aggression of one Reddit user to another,” “always negative; feelings should be expressed in another way,” and “a disturbing intrusion on others”. All six items from the functional dimension of aggression were then adapted to measure perceptions of trolling as a functional phenomenon on Reddit (e.g., Trolling is “the start of a positive online relationship,” “a healthy reaction to feelings of anger,” “an opportunity to get a better understanding of another Reddit user’s situation,” “not a destructive form of communication,” “a way to protect one’s self,” “the protection of one’s own territory,” etc.) One additional relevant item from the complete PoAS questionnaire was added to this measure (i.e., “trolling is an expression of emotions such as laughing or crying”; Jansen et al., 1997). Each item was measured along a 5-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5) (dysfunctional: $\alpha = .94$; $M = 3.69$, $SD = 1.11$; functional: $\alpha = .80$; $M = 2.00$, $SD = 0.77$).

Demographics. Participants were asked to disclose age, gender, education, ethnicity, political leanings, and time spent on Reddit (i.e., approximate number of hours, comments, and votes made on Reddit per day).

Survey Participants

As the survey data revealed, the sample consisted of 438 Reddit users, with a slight majority being male (51.1%) versus female (44.6%). The remainder either did not specify or indicated “other.” Overall, each day, participants said they spent an average of 2.16 hr ($SD = 0.96$) on Reddit, made 1.86 comments ($SD = 1.14$), and provided 3.75 ($SD = 1.97$) up/downvotes on content. Three fourths of the participants were White/Caucasian (77.2%), European (6.7%), Asian (6.3%), other (5.3%), Hispanic (2.3%), Latino (1.6%), and African American (.9%). The participants were fairly well educated. Less than 10% of the sample (7.6%) had a high school/GED or less than high school, whereas almost a third of the participants (27.2%) had some college education or a 2-year degree. The majority of participants had a 4-year college degree (37.3%), with a much smaller percentage having an advanced degree (master’s: 15.2%; doctoral: 3.2%; professional: 2.5%). Almost two-thirds of the participants (58.2%) considered themselves at least somewhat liberal, with 21.3%

Table 1. Bivariate Correlations for All Variables.

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|-------------------|--------|---------|--------|---------|---------|---------|---------|---------|---------|-------|---------|
| 1. Age | – | – | | | | | | | | | |
| 2. Gender | .015 | – | | | | | | | | | |
| 3. Hours | .024 | –.060 | – | | | | | | | | |
| 4. Comments | .205** | –.082 | .329** | – | | | | | | | |
| 5. Votes | –.040 | .039 | .303** | .320** | – | | | | | | |
| 6. Dark triad | –.091 | –.119* | .041 | .070 | .002 | – | | | | | |
| 7. Outspokenness | .130** | –.112* | .071 | .290** | .063 | .020 | – | | | | |
| 8. Schadenfreude | –.028 | –.186* | .128** | .140** | .095 | .492** | .145** | – | | | |
| 9. Trolling | –.017 | –.193** | –.065 | –.223** | –.221** | .086 | –.231** | .190** | – | | |
| 10. Obs. trolling | –.105* | –.152** | –.120* | –.077 | –.065 | –.070 | .014 | –.032 | .207** | – | |
| 11. Functional | .023 | –.233** | .029 | .050 | –.001 | .285** | .019 | .442** | .197** | –.095 | – |
| 12. Dysfunctional | .058 | .267** | –.063 | –.069 | –.089 | –.172** | –.008 | –.430** | –.268** | .016 | –.506** |

Obs. trolling = observed trolling.
* $p < .05$, ** $p < .01$, *** $p < .001$.

identifying as conservative, and 20.3% neither identifying as conservative nor liberal.

Data Analysis

Using MPlus, a path analysis was run to examine the first two hypotheses and explore the mediation of schadenfreude and outspokenness on the variables of interest. Multiple regression analyses in SPSS were conducted to answer Hypotheses 3 and 4.

Results

Before testing the hypotheses, bivariate correlations for each variable of interest were examined (see Table 1). The strongest correlation was between the dark triad and schadenfreude ($r = .492, p < .01$). No relationship existed between the dark triad and trolling ($r = .086, p > .05$). There was a positive relationship between schadenfreude and trolling ($r = .190, p < .01$) as well as outspokenness and schadenfreude ($r = .145, p < .01$), with a negative correlation between outspokenness and trolling ($r = -.231, p < .01$). Researchers used path analysis within a structural equation modeling framework to investigate the hypotheses that schadenfreude positively mediates the effect of the dark triad on trolling (H1) and explore the relationship between outspokenness and trolling (RQ1). Figure 1 illustrates the findings. To account for Type 1 error, Bonferroni correction suggests the threshold of $p < .016$ be used to determine the level of significance within the path analysis (.05/3). Results show the dark triad as being a significant positive predictor of schadenfreude ($\beta = 0.49, SE = 0.04, p = .000$) and schadenfreude as being a positive significant predictor of trolling ($\beta = 0.19, SE = 0.06, p = .001$). The results support the first mediation hypothesis. The dark triad was no longer a significant predictor of trolling ($\beta = -0.02, SE = 0.05, p > .05$). Approximately 24% of the

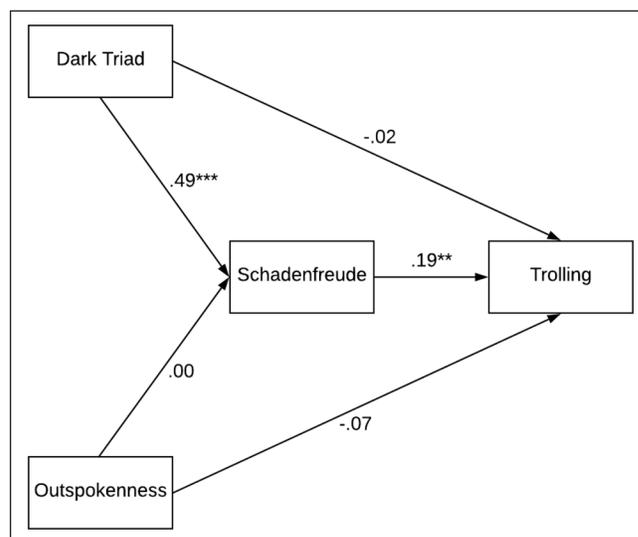


Figure 1. How the Dark Triad and Outspokenness Influence Trolling.

variance in schadenfreude was accounted for by the dark triad ($R^2 = .244, p < .001$) and 4% of the variance in trolling was accounted for by the predictors ($R^2 = .043, p < .05$). The indirect effect was tested using a bootstrap estimation approach with 5,000 samples. The results indicated there was an indirect effect from the dark triad on trolling through schadenfreude ($\beta = 0.10, SE = 0.03, p = .002$). Table 2 provides the total, indirect, and direct effects predicting malicious motives and trolling.

As Figure 1 shows, schadenfreude did not mediate the effect of outspokenness on trolling. In addition, outspokenness did not have a direct effect on trolling.

Table 3 shows the results for the remaining hypotheses. To account for Type 1 error, the threshold of $p < .005$ was used to determine the level of significance for the multiple

regression (Bonferroni correction: .05/10 variables). H2a and H2b were not supported; the dark triad and outspokenness did not predict perceptions of trolling as functional or even dysfunctional. H2c was supported, with schadenfreude ($\beta=0.37$, $SE=0.07$, $p=.000$) positively predicting functional perceptions of trolling. In addition, schadenfreude ($\beta=-0.36$, $SE=0.09$, $p=.000$) negatively predicted perceptions of trolling as being dysfunctional. H2d was partially supported. Trolling did not positively influence users' perceptions in such a way that they considered trolling to be a functional aspect of Reddit; instead, it negatively influenced perceptions of trolling when it was considered to be a dysfunctional and undesirable aspect of Reddit ($\beta=-0.20$, $SE=0.08$, $p=.001$).

Hypotheses 3 examined the influence of observing trolling on perceptions of the function trolling plays in the Reddit community. The data revealed observed trolling did not

predict dysfunctional perceptions of trolling. However, it negatively influenced functional perceptions of trolling ($\beta=-0.15$, $SE=0.06$, $p=.003$).

Age, as well as time spent on Reddit (hours, comments, and votes per day), did not predict functional or dysfunctional perceptions of trolling. However, gender was a significant predictor, with women considering trolling dysfunctional ($\beta=0.18$, $SE=0.11$, $p=.000$) and men considering it functional ($\beta=-0.12$, $SE=0.07$, $p=.000$).

Discussion

The purpose of this study was to examine motives, behaviors, and perceptions of trolling online. Reddit served as a valuable site for analysis because the communication norms established on subreddits allow users to provide insights and opinions on topics or ideas that might be construed as disruptive to the online community. From the range of qualitative responses the participants provided, the vast majority of them defined trolling to be an incendiary online behavior that users engage in to provoke or rile up an online community.

Specifically, this study explored how the personality traits of outspokenness and the dark triad (narcissism, Machiavellianism, and psychopathy) predicted trolling behaviors. The results of this study revealed that the dark triad's influence on trolling is mediated by malicious motives, particularly schadenfreude. Although individuals may exhibit darker personality traits, suggesting they are more self-centered, cunning, and insensitive to the needs of others (i.e., dark triad), simply possessing these traits does not mean one will engage in trolling online. However, those who exhibit narcissism, Machiavellianism, and psychopathy are more likely to demonstrate trolling behaviors if they derive enjoyment from passively observing others suffer.

Table 2. Mediation Model of Total, Indirect, and Direct Effects Predicting Malicious Motives and Trolling.

| Model | β | SE |
|---|---------|-----|
| DarkTriad → Trolling (total) | .08 | .05 |
| DarkTriad → Trolling (total indirect) | .10** | .03 |
| DarkTriad → MalMotives → Trolling | .10** | .03 |
| DarkTriad → Trolling (direct) | -.02 | .05 |
| Outspokenness → Trolling (total) | -.03 | .02 |
| Outspokenness → Trolling (total indirect) | .00 | .00 |
| Outspokenness → MalMotives → Trolling | .00 | .00 |
| Outspokenness → Trolling (direct) | -.00 | .02 |

SE: standard error; MalMotives = malicious motives.

Note. Indirect effects for outspokenness are not listed because no interactions were significant.

** $p=.002$.

Table 3. Multiple Regression Analysis of Predictors for Perceptions of Trolling Functionality.

| Predictor variables | Functional/comprehensible | | | | Dysfunctional/undesirable | | | |
|--------------------------|---------------------------|-----------------|---------------------|------|---------------------------|-----------------|---------------------|------|
| | B | SE _B | β | p | B | SE _B | β | p |
| Age | -0.00 | 0.00 | -0.02 | | 0.01 | 0.00 | 0.09 | |
| Gender | -0.18 | 0.07 | -0.12 | .000 | 0.40 | 0.11 | 0.18 | .000 |
| Hours per day | -0.03 | 0.04 | -0.04 | | 0.00 | 0.06 | 0.00 | |
| Comments per day | 0.02 | 0.04 | 0.02 | | -0.04 | 0.05 | -0.04 | |
| Votes on content per day | -0.02 | 0.02 | -0.04 | | -0.04 | 0.03 | -0.06 | |
| Dark triad | 0.07 | 0.06 | 0.06 | | 0.13 | 0.09 | 0.08 | |
| Outspokenness | 0.14 | 0.07 | 0.09 | | -0.11 | 0.10 | -0.05 | |
| Schadenfreude | 0.48 | 0.07 | 0.37 | .000 | -0.66 | 0.09 | -0.36 | .000 |
| Trolling online | 0.13 | 0.06 | 0.11 | .066 | -0.32 | 0.08 | -0.20 | .001 |
| Observed trolling online | -0.20 | 0.06 | -0.15 | .003 | 0.17 | 0.09 | 0.06 | .095 |
| | R | R ² | Adj. R ² | | R | R ² | Adj. R ² | |
| | .52 | .27 | .25 | | .51 | .26 | .24 | |

SE: standard error.

Note. Functional: $F(10, 367)=13.83$, $p<.001$; Dysfunctional: $F(10, 372)=13.11$, $p<.001$. Gender: male=0; female=1. Only p values less than .10 are included in the table. To account for Type I error, the threshold of $p<.005$ was used to determine the level of significance (.05/10).

This finding supports other related research, which indicates that users who engage in dysfunctional online behavior are often characterized by a predilection toward *schadenfreude* (Ouwerkerk & Johnson, 2016), or an appetite for pursuing the *lulz* (Coleman, 2014). Those individuals who possess these traits have a “need for self-enhancement” that spirals into downward social comparisons (Ouwerkerk & Johnson, 2016, p. 3; Porter et al., 2014), which, as the findings suggest, can result in trolling behavior.

Based upon this research, there is a high likelihood that Reddit users with personalities that exhibit traits from the dark triad will *not* engage in trolling. These findings align with past studies that were unable to find strong relationships between the dark triad traits and trolling behaviors (Buckels et al., 2014; Craker & March, 2016). But this study provides a possible explanation for these prior results by suggesting the motivation of *schadenfreude* is one necessary component for people with dark triad personalities to engage in trolling. Therefore, individuals who frequently observe and obtain pleasure from the foibles of others are more likely to troll (Porter et al., 2014).

Research shows that anonymity fosters disinhibition, thus opening the door to a wider variety of freely expressed opinions (Bargh et al., 2002; Hertel et al., 2008; Kilgo et al., 2018). Present results confirmed this, suggesting that outspoken users generally resemble disinhibited online personas. Crucially, however, outspoken users are not necessarily trolls; the desire to “speak out” on Reddit does not mean someone will necessarily troll online. The findings revealed that expressing one’s opinions did not directly or indirectly predict trolling, nor did it predict *schadenfreude*. Being vocal and sharing opinions, whether they be positive or negative, is not necessarily an effort to make downward social comparisons (Ouwerkerk & Johnson, 2016) or antagonize others online. In other words, online users are capable of speaking up for something they perceive to be right (or wrong) without being trolls. These results are encouraging because they suggest that it is possible for civil discourse to take place online.

In addition to exploring predictors of trolling behaviors, this study sought to examine user perceptions of other users’ trolling behaviors. The data revealed that those individuals motivated by *schadenfreude* considered trolling behaviors are not only functional/comprehensible, but also *not* dysfunctional (in other words, they did not find the behavior to be undesirable; see Table 3). Among users who actually contribute to trolling on Reddit, a much stronger sentiment accompanied their belief that trolling is *not* dysfunctional than their belief that trolling is functional. Therefore, trolls may be more reactionary than previously suggested, engaging in uncivil online behaviors for the *lulz*, but not committed to fully embracing its consequences as premeditated activists.² This finding parallels similar results from Coles and West (2016), which presented trolling as acceptable if directed toward a deserving target, therefore “trolling the

trolls” (p. 239). The present analysis of perceptions also indicated that outspoken users on Reddit perceived trolling to be functional. To them, the data infer, trolling is not necessarily perceived as destructive, but merely as a means for dialogue to take place. This finding challenges the common perception that online trolls mostly disrupt communities with “pointless” interjections (Humphreys, 2016); to outspoken Redditors, at least, trolling is a necessary means to an end—a way for others to “generate meaningful discourse” (Phillips, 2015, p. 7).

This study revealed that those who engaged in trolling behavior online did not frame the practice in moral or ethical terms—they neither saw the behavior as objectionable nor laudable. Addressing this ambivalent finding is a contribution of this study; it suggests that the data have empirically demonstrated the existence of the *lulz*. Another important finding of this study is that those who do not observe trolling and do not actively engage in the behavior online feel strongly that trolling behavior is not functional/comprehensible; however, they do not feel compelled to make the case that trolling is not dysfunctional/undesirable either, as do those who actively engage in trolling. This phenomenon seems to relate to *schadenfreude*, which can be a self-aware behavior. By not considering trolling to be a functional aspect of the community suggests this behavior is perceived to be a more destructive form of communication. This makes sense as those who are more aware of the occurrence of uncivil behavior online view trolling to be unacceptable because it impedes online deliberation.

These findings also appeared to be gendered; women viewed trolling as dysfunctional while men typically viewed it as functional. Past research has demonstrated that women’s voices can alleviate trolling in digital communities (Humphreys, 2016). Viewed cumulatively, these findings support the assertion by Hardaker (2010) that trolling behaviors must be determined as such by the community.

Time spent on Reddit did not predict perceptions of trolling. This result was somewhat surprising as it runs contrary to findings by Ouwerkerk and Johnson (2016), who found anti-social motives for following others on SNS to be predicted by the amount of time spent online. For this study, however, time spent participating in online discussions or lurking on Reddit as a whole may be a better predictor of (dys)functional perceptions of trolling. This study only examined time spent on one platform, Reddit (hours per day, comments, and votes on content per day), as opposed to time regularly spent participating in these behaviors online. Subsequent research should take care to consider this cultivation effect.

Online vitriol has become pervasive (Coe et al., 2014; Maia & Rezende, 2016). This study determined that user motives behind online trolling behaviors on Reddit stem from a combination of maladjusted personality traits—chiefly, Machiavellianism, psychopathy, and narcissism—coupled with *schadenfreude*, which all act as the impetus for trolling behaviors. These personality traits alone do not

directly predict trolling because they are associated chiefly with the individual; if the online user is cunning and unscrupulous, and/or unstable and selfish, these traits alone will not necessarily be made manifest through online interactions. The instigating factor for trolling must be a desire to derive pleasure from either inflicting or observing the suffering in others. Trolling is the reification of those desires. In other words, trolls do indeed have motives rooted in *schadenfreude* and a positive outlook on trolling behavior.

Limitations and Future Research

When recruiting participants, most subreddit moderators banned the survey and redirected the study to *r/SampleSize*, a subreddit specifically designated for the posting of surveys and questionnaires. While this prevented answers from Reddit users who participate in a variety of online communities, research remained within the bounds that subreddits determined. Future research examining behaviors and perceptions of Reddit users may also encounter this limitation to data collection, depending upon the subreddit moderators solicit.

Notably, however, this study provides a more holistic examination of trolling on the Reddit platform itself opposed to trolling within specific subreddits. While understanding the breadth and type of subreddits users engage in would add to the understanding of Reddit, future researchers should consider examining both the quantity and type of subreddits users engage in. It might be that the relationships identified in this study may be more prevalent in some subreddits than others.

Examining trolling online through self-reported measures may seem a limitation. Using self-reported measures required Reddit users to disclose the degree to which they engaged in trolling behaviors. In addition, the data in this study do suggest the majority of participants considered themselves to be more civil than uncivil on Reddit. While many of the measures used in this study (e.g., dark triad, *schadenfreude*, and trolling) showcase darker personality traits and antisocial behaviors, the researchers have no reason to believe that Reddit users would not be sincere or transparent regarding their trolling behaviors. Past netnographic research has shown that trolls are often transparent about their actions and are comfortable sharing them with researchers (Coleman, 2014; Phillips, 2015). Indeed, the qualitative responses were most often highly articulate and thoughtful.

Although the researchers collected the demographics of those who participated, the study did not take into account how race affected the findings. While people of color are frequently targeted by users with racist motivations, exploring this phenomenon was beyond the parameters of this study. This study, rather, was structured around the concept of the tone of the trolling rather than the *content* of the trolling. The questions in the survey, then, focused on the nastiness in the behavior of online trolls as opposed to the target of their trolling or the content of their uncivil messages.

Throughout the survey participants regularly assessed their experiences on Reddit. However, when assessing the outspokenness variable, users were prompted to identify their behaviors on one particular subreddit rather than their behaviors on the platform of Reddit itself. The variable was worded this way to encourage a higher degree of recall and minimize the likelihood of having respondents over- or under-report this behavior. We acknowledge that participants may be more outspoken on subreddits other than where they obtained the survey link, or vice versa. Ultimately, however, the findings related to outspokenness were not statistically significant; thus, we believe that the wording of the survey regarding this particular variable did not affect the overall outcome of this study.

The findings of this study also raised the possibility of *silent trolls*, online users who do not engage in trolling but still enjoy its presence in online discussion. The latter part of this description is crucial; these observers of trolling who do not intervene are not considered silent trolls just because they merely do not engage; rather, they secretly enjoy watching the incivility play out in front of them. Predicated on the condition of *schadenfreude*, silent trolls are more than bystanders—they enjoy watching suffering from afar. While silent trolls may possess similar motives and personality traits as vocal trolls, they would differ in regards to personal outspokenness, or willingness to express opinions online. Silent trolls would prefer to passively consume uncivil content rather than create it. This is supported by Liu and Wei (2018), which revealed that the public nature of online forums may discourage users' willingness to self-disclose messages. In other words, silent trolls may prefer to consume troll content than disclose or create it.

Future research should examine how these aspects of trolling are executed and perceived on Reddit or on other online platforms. Researchers should specifically measure how silent trolls engage in uncivil behaviors online. For Reddit, this might take the form of up- and downvoting. Therefore, researchers should take care to analyze specific motives and similar personalities that silent trolls share with outspoken trolls. Above all, measuring *schadenfreude* will be vital in studying trolling behaviors across multiple SNS to determine what drives trolling on different platforms.

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Notes

1. For interested readers, we have included the entire spreadsheet of responses that outlines how participants define trolling: <https://bit.ly/37hnqLa>
2. It is plausible that trolls may be individuals who lead very different online and offline lives (Bergstrom, 2011). Similarly, trolls might consider their true selves as different from their troll personas (Phillips, 2015, p. 79). On this note, the researchers feel compelled to justify that the data collected here is legitimate and not merely a byproduct of being trolled by the research participants. As evidence, two groundbreaking books on the subject by Coleman (2014) and Phillips (2015) indicates trolls are often inclined to share their authentic thoughts on the topic with researchers because—in addition to participating in the behavior—they find the topic fascinating to discuss with dispassionate observers.

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