



Trolls just want to have fun



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ABSTRACT

In two online studies (total $N = 1215$), respondents completed personality inventories and a survey of their Internet commenting styles. Overall, strong positive associations emerged among online commenting frequency, trolling enjoyment, and troll identity, pointing to a common construct underlying the measures. Both studies revealed similar patterns of relations between trolling and the Dark Tetrad of personality: trolling correlated positively with sadism, psychopathy, and Machiavellianism, using both enjoyment ratings and identity scores. Of all personality measures, sadism showed the most robust associations with trolling and, importantly, the relationship was specific to trolling behavior. Enjoyment of other online activities, such as chatting and debating, was unrelated to sadism. Thus cyber-trolling appears to be an Internet manifestation of everyday sadism.

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1. Introduction

Online *trolling* is the practice of behaving in a deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose. From a lay-perspective, Internet trolls share many characteristics of the classic Joker villain: a modern variant of the Trickster archetype from ancient folklore (Hyde, 1998). Much like the Joker, trolls operate as agents of chaos on the Internet, exploiting “hot-button issues” to make users appear overly emotional or foolish in some manner. If an unfortunate person falls into their trap, trolling intensifies for further, merciless amusement. This is why novice Internet users are routinely admonished, “Do not feed the trolls!”.

Despite public awareness of the phenomenon, there is little empirical research on trolling. Existing literatures are scattered and multidisciplinary in nature (Hardaker, 2010; Herring, Job-Sluder, & Scheckler, 2002; McCosker, in press; Shachaf & Hara, 2010). For instance, Shachaf and Hara (2010) conducted interviews of Wikipedia trolls, finding themes of boredom, attention seeking, revenge, pleasure, and a desire to cause damage to the community among their expressed motivations for trolling. In other research, Hardaker (2010) conducted a content analysis of Usenet posts that identified four primary characteristics of trolling: aggression, deception, disruption, and success. The deceptive and “pointless”

disruptive aspects may distinguish trolling from other forms of online antisociality, such as cyber-bullying, where perpetrator identities are usually clear (Lenhardt, 2013) and the intent is more straightforward.

Frequency of activity is an important correlate of antisocial uses of technology. For instance, cyber-bullying is often perpetrated by heavy Internet users (Juvonen & Gross, 2008), and disagreeable persons use mobile technologies more than others – not for socializing, but for personal entertainment (Phillips & Butt, 2006). Similarly, gamers who express non-social motivations for online gaming (e.g., competition, personal achievement) demonstrate lower levels of agreeableness and conscientiousness than others (Graham & Gosling, 2013). Still other research has linked low agreeableness, low conscientiousness, and high extraversion to heavy Internet use (Andreassen, Griffiths, & Gjertsen, 2013). These patterns parallel gender differences in online behavior: Men are higher in overall Internet use (Joiner, Gavin, & Duffield, 2005) and higher in antisocial behavior online (Zweig, Dank, Yahner, & Lachman, 2013). Overall, the findings suggest that it may be fruitful to examine associations of trolling with the Big Five, gender differences, and global Internet habits.

The noxious personality variables known as the *Dark Tetrad* of personality – narcissism, Machiavellianism, psychopathy, and sadistic personality (Buckels, Jones, & Paulhus, 2013; Furnham, Richards, & Paulhus, 2013) – are yet to be investigated in the trolling literature. Their relevance is suggested by research linking these traits to bullying in both adolescents (Fanti & Kimonis, 2013) and adults (Baughman, Dearing, Giammarco, & Vernon,

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2012; Jones & Paulhus, 2010; Linton & Power, 2013). Also suggestive is research showing that narcissists (Ljepava, Orr, Locke, & Ross, 2013) and those with antisocial personality disorder (Rosen, Whaling, Rab, Carrier, & Cheever, 2013) use Facebook more frequently than others, thus indicating that dark personalities leave large digital footprints. Of the Dark Tetrad, we expected everyday sadism (Buckels et al., 2013) to prove most germane to trolling. After all, trolling culture embraces a concept virtually synonymous with sadistic pleasure: in troll-speak, “lulz.”

To evaluate the predictors of Internet trolling, we administered questionnaires to student and community samples in two online studies. In Study 1, we focused on predicting enjoyment of trolling, as opposed to other online social activities, such as debating and chatting. We expected that the Dark Tetrad would be positively associated with a tendency to rate trolling as the most favored activity on “troll-able” websites (defined here as websites that permit users to interact by posting comments). We further expected that extraversion and agreeableness – the Big Five dimensions most relevant to the Dark Tetrad’s social world (Paulhus & Williams, 2002) – would evidence associations with trolling, with a preference for trolling indicative of extraverted but disagreeable personality traits.

2. Study 1

2.1. Method

2.1.1. Participants and procedure

We recruited 418 participants (42.4% female; M age = 29.2, SD = 11.0) from Amazon’s Mechanical Turk website (<http://www.mturk.com>) to complete survey questions online. The sample was restricted to respondents from the United States. The key questions regarding trolling and other online behaviors were embedded in a larger battery of personality questionnaires. Participants received monetary compensation (\$0.50) for their time.

2.1.2. Measures

Two measures of sadistic personality were administered. First was the Short Sadistic Impulse Scale (SSIS; O’Meara, Davies, & Hammond, 2011), containing 10 items to assess a dispositional tendency to enjoy hurting others (e.g., “Hurting people is exciting”; α = .88), rated on five-point scales from 1 (*strongly disagree*) to 5 (*strongly agree*). Second was the Varieties of Sadistic Tendencies scale (VAST; Paulhus & Jones, in press), containing six items to assess *direct sadism*, (e.g., “I enjoy hurting people”; α = .61) and seven items to assess *vicarious sadism* (e.g., “In video games, I like the realistic blood spurts”; α = .69), rated on seven-point scales ranging from 1 (*not at all*) to 7 (*very much*). The VAST direct sadism subscale is conceptually equivalent to the SSIS, and the scores were highly correlated in this sample (r = .73, p < .001). Hence, we standardized and summed them to create a *direct sadism* composite score.

The 27-item Short Dark Triad scale (SD3; Jones & Paulhus, in press) was used to assess narcissism (e.g., “I have been compared to famous people”; α = .72), Machiavellianism (e.g., “It’s not wise to tell your secrets”; α = .80), and subclinical psychopathy (e.g., “Payback needs to be quick and nasty”; α = .79). The 44-item Big Five Inventory (John & Srivastava, 1999) was used to assess extraversion (α = .87), agreeableness (α = .79), conscientiousness (α = .83), neuroticism (α = .85), and openness to experience (α = .78).

Finally, the section on Internet behavior asked participants to estimate their overall commenting frequency: “How many hours per day do you spend posting comments on websites (e.g., YouTube, news sites, forums, etc.)?” A second question probed their preferred activity when commenting online: “What do you enjoy doing most on these comment sites?” with five response options: “debating is-

sues that are important to you”, “chatting with other users”, “making new friends”, “trolling other users”, and “other (specify)”. The order of the first four answer options was randomized. Those participants who indicated that they did not spend any time posting comments were labeled as “non-commenters.”

2.2. Results

2.2.1. Online commenting frequency

Across all participants, the mean number of commenting hours per day was 1.07, SD = 1.77.¹ Commenting time was associated with lower conscientiousness scores, $r(418) = -.16$, p < .001, and higher scores on all Dark Tetrad measures except narcissism: direct sadism, $r(508) = .12$, p = .01, vicarious sadism, $r(508) = .21$, p < .001, psychopathy, $r(512) = .12$, p = .005, and Machiavellianism, $r(512) = .16$, p < .001; narcissism, $r(512) = .04$, p = .37.

Commenting time was also negatively associated with age, $r(508) = -.23$, p < .001, and men reported greater numbers of hours posting comments (M = 0.88, SD = 0.78) than did women (M = 0.49, SD = 0.62), $t(505.91) = 6.19$, p < .001, d = 0.55. In contrast, extraversion, agreeableness, neuroticism, and narcissism were all non-significant predictors of commenting frequency, p ’s > .18.

2.2.2. Favored activity when commenting

A total of 23.8% of participants expressed a preference for debating issues, 21.3% preferred chatting, 2.1% said they especially enjoy making friends, 5.6% reported enjoying trolling other users, and 5.8% specified another activity. The remaining 41.3% of participants were non-commenters. Because of low endorsement rates of the “making friends” option, we combined² that category with the “other” category in the following analyses.

A multivariate analysis on the Dark Tetrad revealed a significant effect of activity preference: Wilks’ λ = 0.97, $F(20, 1646.00) = 1.65$, p = .03. Inspection of the pattern depicted in Fig. 1 confirmed that, as expected, the Dark Tetrad scores were highest among those who selected trolling as the most enjoyable activity. Planned orthogonal contrasts indicated that the effect was significant for all Dark Tetrad measures: direct sadism, $t(500) = 3.03$, p = .003, d = .27, vicarious sadism, $t(500) = 2.91$, p = .004, d = .26, psychopathy, $t(500) = 3.09$, p = .002, d = .28, narcissism, $t(500) = 2.64$, p = .009, d = .24, and Machiavellianism, $t(500) = 2.78$, p = .006, d = .25. A second multivariate analysis on the Big Five scores indicated that, as expected, participants who chose trolling as their favorite activity were higher on extraversion, $t(413) = 2.02$, p = .04, d = .20, and lower on agreeableness, $t(413) = -2.04$, p = .04, d = .20, than others, but did not differ on conscientiousness, neuroticism, or openness, p ’s > .21.

3. Study 2

A limitation of Study 1 is that we asked participants to select their favorite activity from a list of options. This necessitated a categorical index of trolling that likely underestimated the effects. Hence in Study 2, we assessed enjoyment of each commenting activity (including trolling) on separate continuous scales. To rule out the possibility that overall Internet use explains relations with trolling, we also included a question about total time spent online for use as a control variable. Finally, to triangulate on trolling with multiple measures, we constructed a second brief index: the *Global Assessment of Internet Trolling* (GAIT) scale, which assessed trolling

¹ Because the frequency scores were positively skewed, we applied a square root transformation to the raw scores, resulting in a transformed mean of 0.72 h of commenting per day, SD = 0.75. The transformed scores were used in the analyses that follow.

² The pattern of results was unchanged when all categories were used.

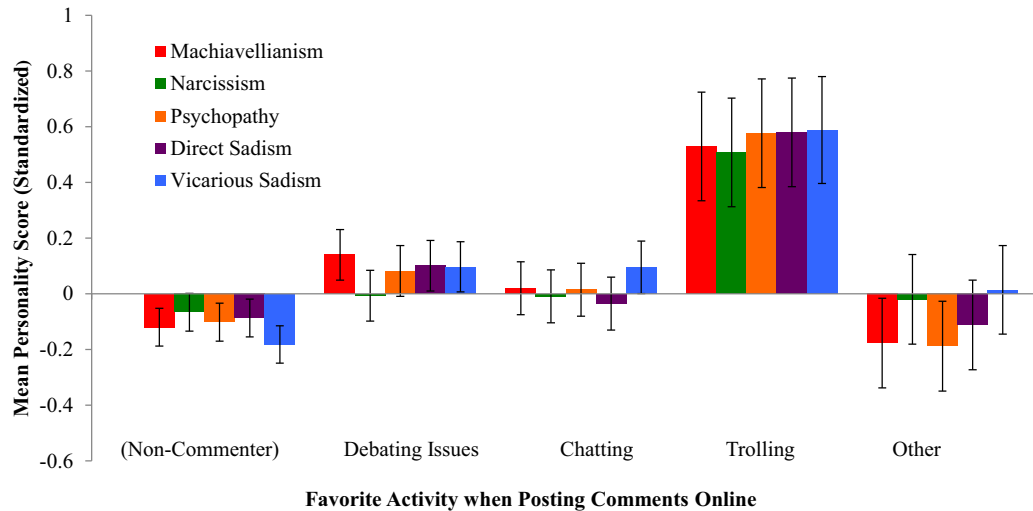


Fig. 1. Dark Tetrad scores as a function of favorite online activity in Study 1. Error bars represent standard errors.

behavior, identification, and enjoyment. As in Study 1, measures of the Big Five were included for comparison.

Study 2 also featured data from a larger and more diverse sample, furnishing us with enough statistical power to test hypotheses about the unique contributions of the Dark Tetrad. For reasons articulated earlier, we expected sadism to dominate personality effects on trolling. Thus we predicted that the relations between sadism and trolling would remain significant even when controlling for overlap with psychopathy, narcissism, and Machiavellianism.

3.1. Method

3.1.1. Participants and procedure

Two large samples were collected online. The first consisted of 188 Canadian psychology students (55% female; M age = 21.15, SD = 3.63) who completed the questionnaires for extra course credit points. The second consisted of 609 United States residents (43% female; M age = 35.04, SD = 12.98) recruited on Amazon's Mechanical Turk website (MTurk; <http://www.mturk.com>). The latter participants received \$0.50 each for their time. Although all participants completed the dark personality measures and the short trolling scale, only a subset of MTurk participants (N = 207; 52% female; M age = 36.1, SD = 13.4) completed the questionnaire on commenting behavior, and only the student sample completed the Big Five Inventory.

3.1.2. Measures

The 44-item Big Five Inventory (John & Srivastava, 1999) was used to assess extraversion (α = .83), agreeableness (α = .79), conscientiousness (α = .81), neuroticism (α = .78), and openness to experience (α = .80).

The 27-item Short Dark Triad scale (Jones & Paulhus, in press) assessed narcissism (α = .75), Machiavellianism (α = .80), and sub-clinical psychopathy (α = .79). To assess sadistic personality, we used the 18-item Comprehensive Assessment of Sadistic Tendencies (CAST; Buckels & Paulhus, 2013). The CAST item set succeeds the VAST used in Study 1, boasting expanded content coverage and improved reliabilities. The CAST assesses three distinct varieties of sadistic tendencies: direct physical sadism (e.g., "I enjoy physically hurting people"; five items, α = .80), direct verbal sadism (e.g., "I enjoy making jokes at the expense of others"; six items, α = .81), and vicarious sadism (e.g., "I enjoy playing the villain in games and torturing other characters"; seven items, α = .81). Items

were rated on 5-point scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).³ We computed a composite for direct sadism as the mean of the 11 physical and verbal items (α = .86). Coefficient alpha for CAST total scores was .89.

The section on Internet use asked participants, "How many hours per day do you spend on the Internet?" Participants additionally responded to a yes/no question, "Do you post comments on websites (e.g., YouTube, news sites, forums, etc.)? (even occasionally?)". Those who answered "yes" (i.e., the commenters) were asked to provide additional information about their posting behavior: "How many hours per day do you spend posting comments on websites (e.g., YouTube, news sites, forums, etc.)?" We regressed commenting hours on overall Internet hours and saved the residual scores to create a second index of commenting frequency when controlling for overall Internet use. Finally, commenters rated their enjoyment of each activity used in Study 1 (debating, chatting, trolling, and making friends) on scales from 1 (not at all enjoyable) to 7 (very enjoyable).

We also included four items relevant to trolling that were interspersed in the other measures: "I have sent people to shock websites for the lulz", "I like to troll people in forums or the comments section of websites", "I enjoy grieving other players in multiplayer games", and "The more beautiful and pure a thing is, the more satisfying it is to corrupt",⁴ rated on 5-point scales from 1 (strongly disagree) to 5 (strongly agree). The first three items addressed trolling experience and enjoying various forms of trolling, while the last item addressed identification with trolling and Internet subcultures. Mean responses to these four items (α = .82) formed the composite score labeled, Global Assessment of Internet Trolling (GAIT).

3.2. Results

Table 1 displays correlations between the Dark Tetrad, commenting frequency, and rated enjoyment of various activities – including trolling – while posting comments online. As expected, Dark Tetrad scores were positively correlated with commenting frequency. Partial correlations (also displayed in Table 1) indicated that controlling for Internet use (M = 6.61, SD = 3.14) did not affect

³ Responses to the CAST are commonly collected on 7-point scales; here 5-point rating scales were used to stay consistent with the SD3.

⁴ This statement is from the evolving (and often trolled) *Rules of the Internet* (see <http://rulesoftheinternet.com>).

Table 1

Associations of Dark Tetrad variables with commenting behavior and enjoyment in Study 2.

Personality scale	Commenting frequency (h/day)	Commenting frequency (controlling for overall Internet use)	Rated enjoyment:				GAIT scores
			Trolling	Debating	Chatting	Making friends	
Sadism Total	.43***	.40***	.52***	.21	.07	-.12	.68***
Direct Sadism	.35***	.36***	.54***	.14	-.001	-.17	.65***
Direct Physical	.35***	.34**	.44***	.19	.04	-.20	.62***
Direct Verbal	.32**	.33**	.53***	.10	-.02	-.15	.56***
Vicarious Sadism	.39***	.40***	.39***	.25*	.13	-.03	.55***
Machiavellianism	.33**	.33***	.37***	-.06	-.10	-.14	.34***
Narcissism	.27*	.30**	-.09	.23*	.19	.21	.18***
Psychopathy	.23*	.23*	.38***	.07	-.23*	-.21	.55***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. All tests are two-tailed.

GAIT scores were a composite of four items capturing trolling behavior, enjoyment, and identity.

those associations. Among commenters, commenting frequency ($M = 0.82$, $SD = 0.83$) was positively correlated with overall Internet use, $r(81) = .35$, $p < .001$, but was positively associated with trolling enjoyment even when controlling for overall Internet use, $r(78) = .27$, $p = .01$.

Also as expected, sadism, psychopathy, and Machiavellianism scores were positively correlated with self-reported enjoyment of trolling, all r 's $> .37$ (see Table 1), even when controlling for overall Internet use, all r 's $> .39$. Narcissism, in contrast, was not correlated with trolling enjoyment, but was instead positively correlated with enjoying debating issues important to them. Vicarious sadism was similarly positively correlated with enjoyment of debating, while enjoyment of chatting was negatively correlated with psychopathy.

Turning next to scores on the short trolling index, GAIT scores were strongly associated with commenters' trolling enjoyment, $r(83) = .71$, $p < .001$. Critically, GAIT was positively associated with scores of all Dark Tetrad measures (see Table 1),⁵ and especially strongly with sadism (r 's $> .55$). Among commenters, GAIT scores were positively correlated with commenting frequency, $r(80) = .43$, $p < .001$, and remained so when controlling for overall Internet use, $r(78) = .47$, $p < .001$. Across all participants, men had stronger GAIT scores ($M = 1.78$, $SD = 0.92$) than did women ($M = 1.34$, $SD = 0.62$), $t(530) = 7.29$, $p < .001$, $d = .63$. Participants with stronger GAIT scores tended to be younger ($r = -.21$, $p < .001$), lower in conscientiousness ($r = -.24$, $p < .001$) and agreeableness ($r = -.18$, $p < .001$), and marginally higher in openness ($r = .13$, $p = .08$), as compared to their low GAIT counterparts. Scores on extraversion and neuroticism were unrelated, p 's $> .50$.

3.2.1. Unique contributions of the Dark Tetrad to trolling

To examine the unique contributions of the Dark Tetrad on trolling enjoyment, we conducted a multiple regression analysis with data from the subsample of commenters. Total sadism, Machiavellianism, narcissism, and psychopathy were entered as predictors of trolling enjoyment. This analysis indicated that sadism, $\beta = 0.53$, $t(78) = 4.21$, $p = .002$, and Machiavellianism, $\beta = 0.23$, $t(78) = 2.23$, $p = .03$, were unique predictors of trolling enjoyment. In contrast, when controlling for the other Dark Tetrad scores, narcissism was negatively associated with trolling enjoyment, $\beta = -0.30$, $t(78) = -3.30$, $p = .001$, and psychopathy was unrelated to trolling enjoyment, $p = .89$. The pattern of association was unaffected by controlling for overall Internet use.

We ran an identical analysis for scores on the GAIT scale with data from the full sample. As was the case for trolling enjoyment, sadism predicted stronger GAIT scores, $\beta = 0.61$, $t(735) = 15.41$,

$p < .001$, even when controlling for scores on the Dark Triad measures. Psychopathy was also a unique (though weaker) predictor of GAIT scores, $\beta = 0.10$, $t(734) = 2.43$, $p < .001$. Machiavellianism and narcissism were not significant, p 's $> .75$.

3.2.2. Mediation via trolling enjoyment

Because the associations between sadism and trolling were particularly strong, we ran a mediation analysis to examine if, among commenters, rated enjoyment of trolling explained the relationship between sadism and GAIT scores.⁶ In other words, we sought to test the hypothesis that sadism leads to trolling *because* those behaviors are *pleasurable*. Significance was tested with both Sobel's test and a bootstrapped 95% confidence interval for the standardized indirect effect (constructed with 10,000 re-samples and a percentile distribution).

Recall that, among commenters, sadism scores were strongly associated with rated trolling enjoyment. A regression analysis indicated that enjoyment of trolling was, in turn, positively associated with GAIT scores when controlling for sadism, $\beta = 0.48$, $t(80) = 6.31$, $p < .001$. The mediated effect of sadism through enjoyment was significant, Sobel's $z = 4.10$, $p < .001$; 95% CI = [0.09, 0.45]. It remained significant even when controlling for scores on the Dark Triad, Sobel's $z = 3.44$, $p < .001$; 95% CI = [0.10, 0.51]. The direct effect of sadism was substantially reduced, but remained significant when controlling for trolling enjoyment, $\beta = 0.40$, $t(80) = 5.07$, $p < .001$, indicating partial mediation. An alternative mediation analysis found no support for the opposite causal direction; the standardized indirect effect of GAIT on sadism via trolling enjoyment was not significant, Sobel's $z = 0.74$, $p = .46$; 95% CI = [-0.09, 0.25].

4. General discussion

The present research was the first to examine comprehensive personality profiles of Internet trolls. Across two studies and two measures of trolling, the personality projections of trolls emerged in Quadrant II of the Interpersonal Circumplex (Wiggins, 1995), that is, High Agency and Low Communion (Jones & Paulhus, 2012). In other words, they displayed high levels of the Dark Tetrad traits and a BFI profile consistent with those traits. It was sadism, however, that had the most robust associations with trolling of any of the personality measures, including those of the Big Five. In fact, the associations between sadism and GAIT scores were so

⁵ The patterns of associations were comparable across the student and community samples.

⁶ Results were identical when omitting GAIT items overlapping with enjoyment, leaving a "pure" measure of troll identity and behavior (2 items; $\alpha = .65$). The impact of sadism on troll identity/behavior was mediated by enjoyment: Sobel's $z = 2.90$, $p = .004$; 95% CI for the standardized indirect effect = [0.03, 0.30]. The direct effect was also significant, 95% CI = [0.28, 0.61] with a BCa correction.

strong that it might be said that online trolls are prototypical everyday sadists (Buckels et al., 2013). Note that the Dark Tetrad associations were specific to trolling. Enjoyment of other online activities, such as chatting and debating, was unrelated to sadism.

Subsequent analyses confirmed that the Dark Tetrad associations were largely due to overlap with sadism. When their unique contributions were assessed in a multiple regression, only sadism predicted trolling on both measures (trolling enjoyment and GAIT scores). In contrast, when controlling for sadism and the other Dark Tetrad measures, narcissism was actually negatively related to trolling enjoyment. Given that controlling for overall Internet use did not affect these results, personality differences in broader tendencies of Internet use and familiarity cannot explain the findings.

In the final analysis of Study 2, we found clear evidence that sadists tend to troll because they enjoy it. When controlling for enjoyment, sadism's impact on trolling was cut nearly in half; and the indirect effect of sadism through enjoyment was substantial, significant, and remained significant when controlling for overlap with the Dark Triad scores. These findings provide a preliminary glimpse into the mechanism by which sadism fosters trolling behavior. Both trolls and sadists feel sadistic glee at the distress of others. Sadists just want to have fun ... and the Internet is their playground!

Study 2 also found strong positive relations among online commenting frequency, trolling enjoyment, and trolling behavior and identity, pointing to high levels of consistency among the measures. Our findings add to accumulating evidence linking excessive technology use to antisociality (Carr, 2011; Juvonen & Gross, 2008; Phillips & Butt, 2006; Rosen et al., 2013). The causal direction of these associations is yet unclear. Do antisocial persons use technology more than others because it facilitates their nefarious goals/motives? The findings of this study suggest that this is indeed the case, but more empirical work is needed. Some authors go further to argue that use of Internet technology actually shifts users in an antisocial direction (Carr, 2011; Immordino-Yang, Christodoulou, & Singh, 2012; Suler, 2004).

The Internet is an anonymous environment where it is easy to seek out and explore one's niche, however idiosyncratic. Consequently, antisocial individuals have greater opportunities to connect with similar others, and to pursue their personal brand of "self expression" than they did before the advent of the Internet. Online identity construction may be important to examine in research on trolling, especially in terms of antisocial identity (Boduszek & Hyland, 2011; Walters, 2007) and its role in trolling behavior. The troll persona appears to be a malicious case of a virtual avatar (Dunn & Guadagno, 2012; McCreery, Krach, Schrader, & Boone, 2012), reflecting both actual personality (Dunn & Guadagno, 2012; McCreery et al., 2012) and one's ideal self (Bessi re, Seay, & Kiesler, 2007). Our research suggests that, for those with sadistic personalities, that ideal self may be a villain of chaos and mayhem – the online Trickster we fear, envy, and love to hate: the cyber-troll.

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