Bullshit Ability as an Honest Signal of Intelligence

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Abstract

The ability to navigate social systems efficiently is critical to our species. Humans appear endowed with a cognitive system that has at least partially formed to best meet the unique cognitive challenges that emerge in a highly social species. Bullshitting, a style of communication characterised by an intent to be convincing or impressive without concern for the truth, is ubiquitous within human societies. Across two studies ($N = 1,017$), we assess whether participants' ability to produce satisfying and seemingly accurate bullshit (i.e., explanations of fake concepts) acts as an honest signal of their intelligence. Consistent with our hypotheses, we find that bullshit ability is predictive of participants' intelligence and individuals capable of producing more satisfying bullshit are judged by second-hand observers to be higher in intelligence. We interpret these results as adding further evidence for human intelligence being naturally geared towards the efficient navigation of social systems. The ability to produce satisfying bullshit may serve to assist individuals in negotiating their social world, both as an energetically efficient strategy for impressing others and as an honest signal of one's intelligence.

Keywords: intelligence, social navigation, bullshit, social signalling

Bullshit Ability as an Honest Signal of Intelligence

“[The Bullshitter] ... is neither on the side of the true nor on the side of the false. His eye is not on the facts at all, as the eyes of the honest man and of the liar are, except insofar as they may be pertinent to his interest in getting away with what he says. He does not care whether the things he says describe reality correctly. He just picks them out, or makes them up, to suit his purpose”

-Harry G. Frankfurt (2009)

Human intelligence has been a long-standing mystery to psychologists: In particular, why humans differ so greatly in their intelligence compared not only to distantly related animals, but our closest primate cousins. Large brains are energetically expensive (Raichle & Gusnard, 2002; Cunnane et al., 1993) and necessitate that human children require inordinate levels of post-partum investment from caretakers (Rosenberg & Trevathan, 2002). Nevertheless, human brains have continued to increase in size over our evolutionary history until only recently (Beals et al., 1984; Bednarik, 2014). A long-standing puzzle is to explain why humans continue to support the steep investment of resources that comes with maintaining a large and powerful brain, with leading theories suggesting that the cognitive, social and cultural advantages afforded by such large brains outweigh the costs (Seyfarth & Cheney, 2002).

Several theories posit that the primary reason for humans' high level of intelligence is to assist us in navigating the complex social systems that characterize our species. Whether by allowing us to cooperate with others (McNally et al., 2012), engage in successful negotiation (Sharma et al., 2013), or deceive others in social competition (Handel, 1982), possessing a high level of intelligence offers numerous advantages for successfully navigating social systems. Beyond the Machiavellian value of social savvy, evidence suggests that large brains may have been selected for as a result of sexual appeal (Schillaci, 2006; Crow, 1993). Charisma in the form

of humor and leadership abilities has been argued to function as an honest signal¹ of desirable qualities (Greengross & Miller, 2011; Grabo et al., 2017). Bullshitting, with its emphasis on impressing others without regard for truth or meaning (Frankfurt, 2009; Pennycook et al., 2015), may represent an energetically inexpensive strategy for social navigation. Indeed, past work provides initial evidence for this claim, demonstrating that indiscriminately attaching meaningless pseudo-profound bullshit titles to artworks increases their perceived profundity (Turpin et al., 2019). On this basis, it has been hypothesized that bullshit can be used to gain a competitive advantage in any domain of human competition where the criteria for determining who succeeds and fails at least partially relies on impressing others.

A growing body of literature has investigated peoples' receptivity to bullshit, specifically computer-generated pseudo-profound bullshit consisting of random arrangements of superficially impressive words in a way that maintains syntactic structure (e.g., "*Wholeness quiets infinite phenomena*"; Pennycook et al., 2015; Pennycook & Rand, 2019; Walker et al., 2019). Other work has begun to examine peoples' willingness to bullshit (Littrell, 2019), including investigation of the conditions under which people are most likely to produce bullshit (Petrocelli, 2018). Yet, minimal work has assessed how bullshit can be used to navigate social systems (Turpin et al., 2019; McCarthy et al., 2020). For example, a person who is capable of producing good bullshit may be perceived as especially charming, convincing, or competent as long as their deception is left undiscovered. Relatedly, styles of bullshitting that allow one to avoid awkward or uncomfortable social situations may go far in fostering social harmony (Littrell, 2019). Given the potential usefulness of bullshit as a method for navigating social systems, and with evidence

¹ In biology, an "honest signal" is one that conveys accurate information about an unobservable trait to another organism. For example, a brightly coloured frog that is poisonous honestly signals its toxicity to predators. In contrast, a dishonest signal is an attempt to mislead another organism into believing that the signaler possesses a trait which it does not.

that human intelligence may be set up largely for navigating the social world, an open question is whether bullshitting ability as a behavioral feature reveals something about one's relative intelligence. If our brains have evolved for the purpose of manipulating information about social relationships (i.e., using tactical deception; Dunbar, 1998), then it is plausible that intelligent people will produce bullshit that is of higher quality, as a means of efficiently navigating their social surroundings.

The current work investigates bullshit's role as a signal of intelligence. We assess both how the quality of bullshit reveals the true intelligence of bullshit producers as well as how bullshit quality is received as a signal of intelligence by observers. To examine these questions, we had a sample of participants attempt to explain fictional concepts in a way that appeared satisfying and accurate (i.e., bullshit), while other samples judged the quality of these explanations and the intelligence of their creators. We hypothesized that bullshit would behave as an honest signal of one's intelligence such that those able to create the most satisfying and seemingly accurate bullshit would also score higher on various tests of cognitive ability. Furthermore, we predicted that those judged as producing high quality bullshit would also be perceived as more intelligent. Therefore, we expected bullshit ability to relate positively with measures of cognitive ability as well as perceptions of intelligence.

Study 1

Method

Participants

A sample of 483 University of Waterloo undergraduates volunteered to complete Study 1 in exchange for course credit.

Materials and Measures

A full list of the materials and measures presented in Study 1 can be viewed in the supplementary materials (Part A).

Bullshit Willingness and Generation Task. Inspired by Jerrim and colleagues (2019), we presented participants with ten concepts (e.g., cognitive dissonance) four of which were fake (e.g., subjunctive scaling). Participants' first task (bullshit willingness task) was to rate their knowledge of each concept on a 5-point scale ranging from "*never heard of it*" to "*know it well, understand the concept.*" Responses given to fake concepts were summed to create an index of participants' bullshit willingness, with higher scores indicating a greater tendency to bullshit (i.e., feign knowledge of fake concepts). Next, a subset of participants (Bullshit Producers) were presented with each of the ten concepts individually and instructed to "produce the most convincing and satisfying explanation" they could for each concept. For concepts they were unfamiliar with, participants were instructed to "be creative and make up an explanation that you think others will find convincing and satisfying." Lastly, consistent with descriptions of bullshit as being characterized by a lack of concern for the truth (Frankfurt, 2009), we instructed participants not to worry about the truth of their claims when generating explanations. A bullshit ability score for each participant in our Bullshit Producers sample was calculated by taking the average of the highest ratings of satisfactoriness and accuracy provided by a distinct Bullshit Raters sample.

Explanation Evaluations. We had a sample of participants (Bullshit Raters) judge how accurate and satisfying they found explanations of various concepts (produced by a sample of Bullshit Producers in our bullshit generation task). Participants evaluated the accuracy of each explanation with the prompt "How accurate is this explanation," responding on a 5-point scale ranging from "*Not at all Accurate*" to "*Very Accurate.*" Similarly, for each explanation,

participants were asked “How satisfying is this explanation,” providing responses on a 5-point scale ranging from “*Not at all Satisfying*” to “*Very Satisfying*.”

Wordsum Task. The Wordsum task is a 10-item vocabulary test commonly used as a measure of verbal intelligence (see Malhotra et al., 2007 for a review). In this task, a word in large print (e.g., “CLOISTERED”) appears above a series of smaller print words (e.g., bunched, secluded, malady, miniature, arched). Participants’ objective is to pick a small print word that is the best synonym for the large print target word. Scores on the Wordsum task were equal to the total number of correct responses provided.

Raven’s Progressive Matrices. We administered Raven’s Progressive Matrices (RPM) as a measure of abstract reasoning and non-verbal fluid intelligence (Bilker et al., 2012). In this task, participants are presented with a partially obscured visual pattern and must select the available pattern fragment that will successfully complete the pattern. The RPM is comprised of 60 items broken up into five levels of difficulty. In order to decrease time demands on participants, we randomly selected four items from each of the five difficulty levels, resulting in 20 RPM items being presented in Study 1. We calculated an RPM score for each participant by calculating the number of correct responses they provided.

Profundity Ratings. We assessed participants’ receptivity and sensitivity to pseudo-profound bullshit by having them assess the profundity of 30 statements originating from Pennycook and colleagues (2015). These 30 statements consisted of 10 pseudo-profound bullshit statements, 10 motivational quotations, and 10 mundane statements. Pseudo-profound bullshit statements were originally retrieved from websites able to create meaningless statements by randomly arranging a list of profound-sounding words in a way that preserves syntactic structure (e.g., “*Wholeness quiets infinite phenomena*”). These statements, while perhaps superficially

impressive, were created such that they lack an intended meaning. Contrasting meaningless pseudo-profound statements were motivational quotations and mundane statements. Motivational quotations were designed to capture a true attempt at communicating something meaningful and profound (e.g., “*A wet man does not fear the rain*”) while mundane statements were designed to be easily interpretable, yet not contain truth of a grand or profound nature (e.g., “*Newborn babies require constant attention*”). Participants assessed the profundity of all 30 statements on a 5-point scale which ranged from 1 (*Not at all profound*) to 5 (*Very profound*). A bullshit receptivity score (BSR) was calculated for each participant by averaging the profundity ratings provided to pseudo-profound bullshit statements. Additionally, a bullshit sensitivity score (BSS) measuring participants’ ability to distinguish pseudo-profound bullshit from motivational quotations was calculated by subtracting participants’ average profundity rating given to motivational quotations from their average profundity rating given to pseudo-profound bullshit statements.

Design and Procedure

Study 1 was conducted in two phases (see Figure 1). First, we had 219 participants (Bullshit Producers) complete a bullshit willingness task in which they reported their knowledge of ten (six real and four fake) concepts. Next, participants were presented with these same concepts independently and attempted to generate convincing and satisfying explanations of each concept (bullshit generation task). Following the completion of these tasks, participants assessed the profundity of 30 statements and completed the RPM and Wordsum.

In a second phase, 263 participants (Bullshit Raters) were presented with and evaluated how accurate and satisfying they found 120 explanations of both real and fake concepts. All explanations were generated by participants in our Bullshit Producers sample, with each

participant in our Bullshit Raters sample evaluating the explanations generated by a subset of 12 Bullshit Producers. Participants in this sample completed the bullshit willingness task prior to all explanation evaluations and completed our profundity task, the RPM, and Wordsum following these evaluations.

Figure 1

Methodology Infographic

Note. Visual depiction of the methodology used in the present research. Participants in our Bullshit Producers sample ($N = 219$) generated explanations of both real and fake concepts which were then judged by the Bullshit Raters sample of Study 1 ($N = 263$) and Study 2 ($N = 538$). These judgments were used to calculate a bullshit ability score for each Bullshit Producer.

Results and Discussion

We conducted correlational analyses between our main variables of interest (see Table 1). As our primary focus was on the characteristics (e.g., intelligence) of those producing bullshit,

we focus exclusively on the associations within our Bullshit Producers sample here.² All analyses focused on individual differences within our Bullshit Raters sample can be viewed in the supplementary materials (Part B). Of primary interest was to assess whether participants' ability to bullshit (i.e., produce seemingly satisfying and accurate explanations of fake concepts) would correlate positively with measures of their intelligence. To this end we observed significant positive correlations between participants' bullshit ability and Wordsum scores, $r(203) = .23, p < .001$, as well as between bullshit ability and RPM scores, $r(202) = .15, p = .032$. Therefore, we find initial evidence of bullshit ability sharing a modest positive association with measures of intelligence.

Additionally, we find that participants' bullshit ability was uncorrelated with their willingness to bullshit (i.e., feign knowledge of fake concepts), $r(216) = .04, p = .544$, and their receptivity to pseudo-profound bullshit (i.e., endorse meaningless pseudo-profound statements as profound), $r(216) = .01, p = .891$. Furthermore, participants' willingness to bullshit was negatively associated with scores on the Wordsum, $r(204) = -.17, p = .014$, and RPM, $r(203) = -.33, p < .001$, suggesting that those scoring higher on our measures of cognitive ability were less willing to bullshit. Finally, we find that those more willing to bullshit were also more likely to be receptive to pseudo-profound bullshit, $r(217) = .23, p < .001$, as well as fail to distinguish between meaningless pseudo-profound bullshit and meaningful motivational quotations, $r(217) = .22, p = .001$. Thus, contrary to the common expression, it may indeed be possible to “bullshit a bullshitter.”

² Although note that the bullshit ability of each participant in our Bullshit Producers sample was judged exclusively by our Bullshit Raters sample.

Table 1

Study 1 Correlations

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Bullshit Ability	2.73	0.65	-					
2. Bullshit Willingness	6.30	2.95	.04	-				
3. BSR	2.48	1.03	.01	.23**	-			
4. BSS	-0.76	0.77	-.05	.22*	.45**	-		
5. RPM	14.61	2.93	.15*	-.33**	-.32**	-.20*	-	
6. Wordsum	6.27	1.77	.23**	-.17*	-.36**	-.29**	.40**	-

Note. Pearson correlations (Study 1 Bullshit Producers; $N = 219$). In Study 1, Bullshit Ability was judged by our Study 1 Bullshit Raters sample ($N = 263$). *BSR* = Bullshit Receptivity; *BSS* = Bullshit Sensitivity; *RPM* = Raven's Progressive Matrices. ** $p < .001$, * $p < .05$.

Study 2

Study 1 provided initial evidence suggesting that bullshit ability serves as an honest yet modest signal of a person's cognitive ability. However, what may be more important from the perspective of social navigation is how that signal of intelligence is *received* by others.

Independent of one's true intelligence, having others believe that one is intelligent may confer reputational and social advantages. Therefore, in Study 2, we assessed whether those able to generate convincing bullshit would be viewed as more intelligent.

Method

Participants

A sample of 534³ University of Waterloo undergraduates completed Study 2 in exchange for course credit.

Materials and Measures

The materials and measures used in Study 2 mirrored that of Study 1. The only difference was that in Study 2 participants also judged the intelligence of the creator of each explanation.

Explanation Evaluations. As in Study 1, we had participants judge how accurate and satisfying they found explanations of various concepts. However, in Study 2 participants were also asked “How intelligent is the person who provided this explanation.” All responses to this item were made on a 5-point scale ranging from “*Not at all Intelligent*” to “*Very Intelligent*.”

Design and Procedure

As in Study 1, participants began Study 2 by completing a bullshit willingness task in which they self-reported their knowledge of 10 (six real and four fake) concepts. Next, they were presented with 120 explanations of these concepts (produced by the Bullshit Producer sample of Study 1) and made judgments regarding the satisfactoriness and accuracy of each explanation and the intelligence of each explanation creator. Following all evaluation judgments, participants rated the profundity of 30 statements (10 pseudo-profound bullshit statements, 10 motivational quotations, and 10 mundane statements) and completed both the RPM and Wordsum task.

Results and Discussion

We conducted correlational analyses between our main variables of interest (see Table 2). As our focus remained on the characteristics (e.g., intelligence) of those producing bullshit, we once again focused exclusively on the associations within our Study 1 Bullshit Producers sample.

³ Originally, 278 participants were collected, however, during the Covid-19 outbreak in March of 2020, all researchers in the department of psychology were requested to collect more data online so that students could have the opportunity to receive course credit. As a result, an additional 256 participants were collected. These additional participants were collected before any analyses were conducted.

Importantly, the results reported here feature judgments of Bullshit Producers' bullshit ability and perceived intelligence, as judged exclusively by our Study 2 sample. Analyses examining the associations between the bullshit willingness, bullshit receptivity, and cognitive ability of our Study 2 sample can be viewed in the supplementary materials (Part B).

Examining the hypothesized positive association between bullshit ability and intelligence, we find that bullshit ability was positively associated with verbal intelligence (as measured by the Wordsum), $r(204) = .38, p < .001$. Similarly, we observe a positive association between bullshit ability and abstract reasoning (as measured by RPM), $r(203) = .31, p < .001$. Furthermore, the perceived intelligence of Bullshit Producers was positively correlated with assessments of their bullshit ability, $r(217) = .95, p < .001$. Thus, producing satisfying and seemingly accurate explanations of completely fictional concepts was perceived as a signal of intelligence. Interestingly, the perceived intelligence of Bullshit Producers was negatively associated with their receptivity to pseudo-profound bullshit, $r(217) = -.17, p = .013$. Thus, those perceived as more intelligent on the basis of the bullshit they produced were less likely to themselves judge pseudo-profound bullshit as profound. Lastly, consistent with Study 1, we observed no association between bullshit ability and bullshit willingness, $r(217) = -.05, p = .48$. Therefore, those able to produce more convincing bullshit were no more likely to report knowledge of fake concepts. This is surprising as one might expect that a person naturally skilled in producing bullshit would bullshit more often. However, individual factors such as honesty may prevent someone who would otherwise be a skilled bullshitter from fully making use of bullshit as a strategy.

Table 2

Study 2 Correlations

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Bullshit Ability	2.66	0.56	-						
2. Bullshit Willingness	6.30	2.95	-.05	-					
3. BS Intelligence	2.75	0.60	.95**	-.02	-				
4. BSR	2.48	1.03	-.12	.23**	-.17*	-			
5. BSS	-0.76	0.77	-.16*	.22*	-.14*	.45**	-		
6. RPM	14.61	2.93	.31**	-.33**	.32**	-.32**	-.20*	-	
7. Wordsum	6.27	1.77	.38**	-.17*	.38**	-.36**	-.29**	.40**	-

Note. Pearson correlations (Study 1 Bullshit Producers; $N = 219$). In Study 2, Bullshit Ability and BS Intelligence was judged by our Study 2 sample ($N = 538$). *BSR* = Bullshit Receptivity; *BSS* = Bullshit Sensitivity; RPM = Raven's Progressive Matrices. ** $p < .001$, * $p < .05$.

General Discussion

The current work provides initial evidence for bullshit as an honest signal of intelligence. We find that the ability to create satisfying and seemingly accurate bullshit (e.g., explanations of fake concepts) was associated with obtaining higher scores on two measures of cognitive ability (i.e., the Wordsum and RPM). Further, we find that bullshit ability may especially signal verbal as opposed to non-verbal intelligence as the association between bullshit ability and scores on the Wordsum (a measure of verbal intelligence) was stronger than the association between bullshit ability and RPM scores (a measure of abstract reasoning and non-verbal fluid intelligence). This makes sense, as the ability to produce satisfying bullshit may predominantly be a verbal task, especially as elicited in the current work. For example, bullshit production may emerge as an

intuitive form of communication akin to the “gift of gab” whereby a person may effortlessly be able to create satisfying sounding prose or speech without engaging in much reasoning about what they are communicating. Nevertheless, across two samples of Bullshit Raters, we also observed modest, yet reliable, positive associations between bullshit ability and non-verbal intelligence.

Overall, we interpret these results as initial evidence that the ability to bullshit well honestly signal a person’s ability to successfully navigate social systems, fitting the current work into existing frameworks whereby human intelligence is geared towards efficiently navigating such systems (Dunbar, 1998; Crow, 1993). More specifically, we propose that the ability to produce satisfying bullshit may have emerged as an energetically efficient strategy for achieving an agent’s goals (such as acquiring status or impressing mates). That is, an agent can engage in the arduous process of acquiring expert skills in domains that they could then leverage to accomplish certain goals, or can utilize bullshit as a strategy that potentially produces the same benefits at a much smaller cost (Turpin et al., 2019). Of course, these strategies need not be mutually exclusive, as the ability to produce satisfying bullshit may help even highly skilled individuals achieve their goals over equally skilled peers. This may be especially true in domains in which success depends largely on the subjective evaluations of others (e.g., art).

A possible explanation for the observed modest associations between bullshit ability and cognitive ability is that while good bullshit producers may very likely be highly intelligent, the reverse inference may not be true. That is, a person who is unable to bullshit in a satisfying manner may not necessarily be *unintelligent*. By analogy to humor, a person who is funny is likely to be rather intelligent, however one can identify many brilliant people who are profoundly unfunny. This asymmetry may have resulted in an underestimation of the true predictive power

of bullshit ability as it relates to intelligence. Lending support to this claim, across both studies and both measures of cognitive ability, it is rare to find people who score low on measures of intelligence while simultaneously demonstrating high bullshitting ability (circled regions in Figure 2) demonstrating that bullshitting ability is a reliable indicator of when someone is intelligent, while having low bullshitting ability does not necessarily mean that one is unintelligent.

Figure 2

Note. Scatterplots comparing measures of cognitive ability to scores of bullshit ability for both Studies 1 and 2. Circled is the region representing people who score low on measures of intelligence but high on ability to bullshit. Note that this region is very sparsely populated.

Regardless of whether bullshit ability honestly signals one's intelligence, of potentially greater importance is that skilled bullshit producers are *perceived* by others as highly intelligent. From the perspective of navigating social systems, being perceived as intelligent may be just as valuable to an agent as actually being intelligent, as this perception may afford one opportunities to obtain status and form relationships as well as have greater trust placed in their competence. To this point, we observed a strong positive association between bullshit ability and perceived intelligence. However, this association was found in a situation in which those judging the intelligence of bullshit producers knew nothing of these individuals except their ability to produce satisfying explanations of real and fake concepts. Thus, it is likely that the strength of this association was overestimated in the present work as—with limited information—any signal of quality may have been exaggerated.

Conclusion

The current work provides initial evidence for bullshit as an honest signal of intelligence. Thus, while much research has focused on the cognitive shortcomings of those receptive to bullshit (Čavojová, 2020; Pennycook et al., 2015; Walker et al., 2019), the current work focuses on the cognitive properties of bullshit producers. We find that those more skilled in producing satisfying and seemingly accurate bullshit score higher on measures of cognitive ability and are perceived by others as more intelligent. Overall, the ability to produce satisfying bullshit may serve to assist individuals in navigating social systems, both as an energetically efficient strategy for impressing others and as an honest signal of one's intelligence.

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