Dazzled and Confused: Bullshitting as a Strategic Behaviour

by

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The following served on the Examining Committee for this thesis. The decision of the Examining Committee is by majority vote.

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Statement of Contributions

While I served to lead all projects listed in this thesis in terms of conceptualization, design, and execution, they are also supported by additional contributions from several collaborators. For example, the work in Chapter 2 was reported in a journal article in *Judgment and Decision Making* and features contributions from the authors: Alexander Walker, Mane Kara-Yakoubian, Nina Gabert, Jonathan Fugelsang, and Jennifer Stolz. Similarly, the work in Chapter 4 was reported in a journal article in *Evolutionary Psychology* and features contributions from the authors: Mane Kara-Yakoubian, Alexander Walker, Heather Walker, Jonathan Fugelsang and Jennifer Stolz. The work in Chapters 3 and 4 was conducted in collaboration with Alexander Walker, Jonathan Fugelsang, and Derek Koehler. The general pattern for these collaborations is that I would formally conceptualize the idea for the project, and my various collaborators would help me focus the idea and pair it down into a practical project. That is all to say, that I acknowledge that the work in this thesis is not solely the product of my individual effort.

Citations:

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Abstract

While much work has focused on receptivity to bullshit as a form of irrational belief which may predict the endorsement of other irrational beliefs, much less has been done examining how bullshit may be used strategically. For a highly social species such as humans, much can be gained by deploying cognitive and linguistic tricks to impress, confuse, and entice others toward favourable actions for the bullshitter. In the current research, I examine the persuasive power of bullshit in 9 studies. First, I demonstrate how the use of bullshit affects people's judgments of things unrelated to the content of the bullshit itself, including enhancing the perceived profoundness of abstract art through the inclusion of bullshit titles (Chapter 2) or increasing reported willingness-to-pay for questionable products which are described using bullshit (Chapter 3). Further, I demonstrate that effective bullshitting may confer benefits in terms of how others perceive the bullshitter, including that good bullshitters are judged to be more intelligent. I also demonstrate that this judgement may not be completely unfounded insofar as cognitive ability predicts the ability to bullshit well (Chapter 4). I then propose a potential mechanism for why bullshit carries persuasive power, that is, through a unique combination of aesthetic appeal and confusing construction which leaves the target of bullshit baffled, but open to be impressed by the odd beauty of flowery nonsense. I ultimately find that the strongest predictor of receptivity to bullshit is how beautiful it is judged to be (Chapter 5). I discuss these results as they contribute to an understanding of bullshitting as a strategic behaviour which affords good bullshitters the opportunity to gain advantages through confusion, superficial impressiveness, and a flexible commitment to truth telling.

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Dedication

Dedicated to Sarah Jane Patrick, for always believing in me when I always didn't, and for being the most precious person in my life.

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Chapter 1
Introduction

Most people are familiar with the stereotypical description of “bullshitters”: excessive superficial confidence, an ability (or at least, a willingness) to speak endlessly on any given topic regardless of any obvious signals of expertise, flexible morality, a tenuous commitment to truth telling, myopic ambition, and perhaps, despite their noted flaws, somewhat charming. Bullshitting as a human behavior has both fascinated and frustrated people interested in honest communication. The first work in philosophy to analyze this phenomenon under the specific name of “bullshit” was Harry G. Frankfurt’s *On Bullshit* wherein he characterizes bullshit as communication without a concern for truth (Frankfurt, 1989, 2005). That is, a bullshitter may prioritize many hypothetical goals when deciding to communicate, but the earnest communication of true information does not factor in as a goal. The bullshitter may say things that are true, untrue, or completely indecipherable, the truth value of what they say is irrelevant in the face of satisfying other communicative goals. Examples could include: impressing others, convincing people to support an idea or movement, amusing people, sparing another’s feelings, etc.

Bullshit in Psychology

Bullshit as a topic of research in psychology began with work on what is known as Pseudo-profound bullshit (Pennycook et al., 2015) a form of bullshitting characterized by statements which conform to legal syntactic structure and make use of inflated language but which lack clear author-intended meaning. This lack of intent has been commonly operationalized using randomly generated statements by computers, formalized in the Bullshit Receptivity Scale (Pennycook et al., 2015). Since then, work on receptivity to pseudo-profound bullshit (the tendency to report perceiving profoundness in pseudo-

profound bullshit statements) has been connected to belief in fake news (Pennycook & Rand, 2020), the tendency to overperceive patterns in noise (Walker et al., 2019), political disposition (Sterling et al., 2016; Nilsson et al., 2019), epistemically suspect beliefs (Majima et al., 2022) and much more (see Iacobucci & De Cicco, 2022 for a review of the bullshit receptivity literature). With the noted exception of work examining self-reported frequency to engage in bullshitting (Littrell et al., 2021; 2022), much of the work conducted has focused on the connection between bullshit receptivity as a type of irrational thinking, and how that predicts other forms of irrational thinking (Iacobucci & De Cicco, 2022). Much less has been done focusing on how bullshit may be realistically applied for its strategic value, how it may be used to influence judgements of economic or cultural value to the benefit of the bullshitter, how bullshitters may leverage an ability to bullshit to impress others, and possible mechanisms for why bullshit carries persuasive power. These gaps in the literature were the motivation for this thesis.

Beyond Frankfurt, the Unclarifiable Nature of Bullshit.

While the account of bullshitting forwarded by Frankfurt (Frankfurt, 1989, 2005) (commonly referred to as the “Frankfurtian view”) has served as strong background motivation for interest in the phenomenon of bullshitting, its application to a study environment is complicated due to it being strictly defined in terms of the motivations of the bullshitter. Private motivations for why a person may communicate are necessarily difficult (or potentially impossible) to access. An expanded account of bullshitting offered by Gerry Cohen (Cohen, 2002) reconceptualizes bullshit in terms of the properties of the bullshit itself, namely, the notion of bullshit as *unclarifiable unclarity*. That is to say, at least one property of bullshit is a form of communication that is unclear and cannot be rendered clear by examination. Although the notion of unclarity itself may be debatable and difficult to pin

down, Cohen offers an illustrative “test”, which is, if one can negate a statement (i.e., add a “not” if one is absent, or subtract a “not” if one is present) without the statement changing in terms of its plausibility, it may be described as “unclarifiable”. This view is useful specifically for psychological research as it allows the properties of bullshit to be accessed empirically independent of the motivations of a hypothetical bullshitter. It is further useful in understanding the strategic use of bullshit as the unclarifiably unclear property of bullshit communication introduces ambiguity which may be abused in the fashion of a smokescreen. If a bullshitter can obfuscate the truth around a given matter, they may gain the advantage in being the first to subsequently shape impressions around it.

Strategic Bullshit

A major theme of the work in this thesis is to examine the capacity for bullshitting to be a low-cost strategy for gaining advantages in competitive domains. For someone maximally interested in social climbing, the incentive is strong to be a bullshitter. As is described in the “bullshit asymmetry principle” (Brandolini, 2014), it takes more effort to debunk a dubious claim than it does to make one, meaning, given equal energy, an effective bullshitter needs to exert themselves far less to reap the advantages of bullshitting than it would take to debunk all the bullshitter’s bullshit. Further, even if the bullshitter is caught bullshitting, they may be treated less seriously than if they had been caught lying, meaning, they may expose themselves to the benefits of having potentially misled others, while protecting against the risk of the resulting social consequences. This dynamic was originally proposed by Harry G. Frankfurt (Frankfurt, 1989,2005), and recently formalized in the psychology literature as the “insidious bullshit hypothesis” (Petrocelli et al., 2021, 2023) relatedly, recent work on doublespeak has shown a similar effect in the use of euphemism (Walker et al., 2021) as a means of softening perceptions of immoral actions. Bullshit may

fundamentally derive its deceptive power through a combination of confusion and influencing impressions. Through the strategic deployment of evocative but unclarifiable nonsense, receivers of bullshit may face what is analogous to “choice paralysis” in that, there are so many things that a bullshit statement *could mean* that it becomes difficult or impossible to form a well-reasoned analysis, leaving only factors which influence *impression* to derive a conclusion.

This thesis represents a series of explorations into bullshit and bullshitting behavior informed by its strategic uses, and the consequences of its endorsement. In Chapter 2, I explore the application of bullshit strategically for the purposes of enhancing the perceived profoundness of abstract art. This chapter also includes a comparison of real-world artist language “artspeak” and pseudo-profound bullshit as a means of establishing a plausible extant environment where bullshitting thrives. In Chapter 3, I examine receptivity to bullshit as it relates to self-reported engagement in real-world maladaptive behavior, as well as willingness-to-pay for products with dubious benefits. In Chapter 4, I examine whether those who produce more convincing bullshit are perceived to be more intelligent than less convincing bullshitters. Finally, in Chapter 5, I examine a potential mechanism for the effectiveness of pseudo-profound bullshit focusing on perceived aesthetics, the unclarifiable nature of bullshit, and likelihood of elaboration when interpreting bullshit.

Chapter 2
Bullshit Makes the Art Grow Profounder

Previous research on aesthetic preferences demonstrates that people have a general dislike of art that they consider meaningless (Dissanayake, 1988; Donald, 1991; Humphrey, 1999; Lewis-Williams, 2002; Ramachandran & Hirstein, 1999). Those high in a personal need for structure especially dislike seemingly meaningless modern art (Landau, Greenberg, Solomon, Pyszczynski & Martens, 2006). In contrast, openness to experience and a preference for non-conformity has been shown to be positively associated with a liking of modern art (Feist & Brady, 2004). Despite these individual differences, in general, people find a lack of meaning aversive. For example, when faced with meaninglessness or uncertainty, people go so far as endorsing illusory patterns and forming irrational beliefs in order to avoid this uncomfortable experience (Van Harreveld, Rutjens, Schneider, Nohlen, & Keskinis, 2014; Whitson & Galinsky, 2008). Relatedly, external stimuli that help people make sense of art (e.g., titles) have been found to not only increase peoples' perception of meaning for abstract modern art (Russell & Milne, 1997), but also their liking of difficult-to-interpret abstract art images (Landau et al., 2006). Overall, it seems that the way people experience abstract art is inseparably tied to the ways in which they deal with meaning, lack of meaning, and their relative comfort with perceived meaninglessness.

Pseudo-Profound Bullshit

Related to peoples' perception of meaning is a growing body of research demonstrating peoples' frequent endorsements of meaningless computer-generated statements as profound (Pennycook, Cheyne, Barr, Koehler & Fugelsang, 2015). These statements (referred to as pseudo-profound bullshit) while superficially impressive, are generated by a computer program randomly arranging a set of profound-sounding words in

a way that retains proper syntactic structure; as such they lack any intent to communicate something true or meaningful (see Dalton, 2016, for a comment, and Pennycook, Cheyne, Barr, Koehler & Fugelsang, 2016, for a response). Research examining peoples' susceptibilities to pseudo-profound bullshit have utilized Frankfurt's (2005) conception of bullshit as an absence of concern for truth or meaning. Thus, pseudo-profound bullshit is characterized not for its falsity but its fakery; bullshit may be true, false, or meaningless, what makes a claim bullshit is an implied yet artificial attention to truth and meaning.

While previous work has mostly focused on the characteristics of individuals who are susceptible to endorsing profundity in meaningless pseudo-profound statements (Pennycook et al., 2015; Pennycook & Rand, 2019; Walker, Turpin, Stolz, Fugelsang, & Koehler, 2019), of potentially greater consequence is how people deploy bullshit to gain social advantages. That is, research dealing with the idiosyncratic tendency to find meaning in randomly generated stimuli, while interesting, largely overlooks the real-world domains in which peoples' susceptibilities to pseudo-profound bullshit may be exploited to gain prestige, status, and material goods. An aim of the current work is to propose a new theoretical framework which views bullshitting as a low-cost strategy for gaining an advantage in prestige-awarding domains.

Bullshit as a Low-Cost Strategy

For many domains in which humans compete for prestige, status, or material goods, the criteria for determining who succeeds and fails at least partially rely on impressing others. In these domains, bullshit may be deployed as a low-cost strategy for gaining prestige. An agent working towards being successful in a domain, can engage in the long and arduous process of acquiring expert skills and knowledge that they could then leverage to accomplish certain goals. Alternatively, an agent could engage in a less effortful process

that produces similar benefits (i.e., impressing others with bullshit). These two strategies need not be mutually exclusive. A person with impressive skills and competence could potentially use bullshit to enhance their outcomes, and as such, yield more success compared to equally skilled peers who are either unwilling or unable to bullshit well. That is to say, a person may leverage a highly observable talent for bullshitting to their advantage, especially when the true competence or ability in a domain is not as easily assessed.

The extent to which bullshit can be deployed as an effective low-cost strategy for success may greatly vary by domain. First, bullshit is less likely to be effective in domains in which success is objectively judged, and thus, impressing others is not required. For example, in athletic competitions focused on speed (e.g., 100m race), endurance (e.g., a marathon), or strength (e.g., powerlifting), the ability to impress others with bullshit should be a) difficult and b) of little value, as one's degree of competence in these competitions can be easily and objectively measured. Nevertheless, in many domains, success can be obtained, or at least enhanced, by impressing others. For example, in artistic endeavours such as music, poetry, or art, technical skills are unlikely to be the sole determiner of success. What is likely to be equally important is the ability to impress others by making one's artwork appear unique, profound, and meaningful (Miller, 2001). A quick and efficient way to impress others in this manner is with claims that imply, yet do not contain, any specifically interpretable truth or meaning (i.e., with bullshit). Of course, 'bullshit' in this context need not carry any negative connotation. If the goal of a piece of art is to inspire the feeling of profoundness in its viewers, whether this feeling originates from the art itself or is created by the viewer is of no consequence. Such situations may be contrasted with circumstances in which truth, rather than pleasure or profoundness, is a primary goal (e.g., science or

medicine), where the use of bullshit to gain advantages is antithetical to the primary purpose of the discipline.

“Bullshit” in Science

While we may wish to believe that bullshit is ineffective in more objectively judged domains (e.g., science), where truth is of primary importance, a growing body of research hints that even here bullshitting may be able to offer a competitive advantage. For example, Eriksson (2012) demonstrated that the inclusion of irrelevant (and nonsensical in context) math formulae in the abstracts of scientific papers caused graduate-degree holders in education, the humanities, and other non-mathematics fields to rate these scientific papers as higher in quality. Similarly, Weisberg, Keil, Goodstein, Rawson, and Gray (2008) found that including irrelevant neuroscience explanations for psychological phenomena caused readers to judge these explanations as more satisfying compared to when the same explanation was given without irrelevant neuroscience information. Notably, this difference was especially pronounced when an initial explanation was of poor quality. In both instances, these empirical findings highlight how the inclusion of seemingly impressive language that was irrelevant to the truth-value of a scientific claim improved readers’ reception of the work. While it can be debated whether these two instances qualify as “bullshit” technically, these cases do highlight how the goal of scientific communication can become less about strictly communicating true knowledge about the universe and more about impressing an audience.

The extent to which a domain attends to and effectively polices the fakery characteristic of bullshit is likely to determine how successfully bullshit can be utilized as a low-cost strategy for achieving success. Consistent with this notion, research on the antecedents of bullshitting has demonstrated that people bullshit more (i.e., make claims

less concerned with the truth) when they believe they are communicating with an unknowledgeable person, a like-minded individual, or believe they will not have to justify their claims (Petrocelli, 2018). Thus, people appear to bullshit more when they feel it will either go unnoticed or be tolerated. In such cases, bullshit may not only be prevalent, but effective.

Bullshit Makes the Art Grow Profounder

Some abstract artists have embraced a radically subjective view toward art, that is to say, there is no possible objective standard for beauty or meaning. These artists maintain a goal to impress a sense of depth or beauty, while going further than merely not being concerned about truth, but instead denying that any objective truth could possibly exist (for discussion of these views of art see: Crowley, 1958; Young, 1997; similar views have been expressed regarding pseudo-profound bullshit: Dalton, 2016). With the popular view that all experiences of meaning in art are self-generated, and all experiences are equally valid, the domain of abstract art may perfectly exemplify an environment for which bullshit is likely to be rampant and effective. That is, not only is it possible that bullshit enhances the perceived quality of abstract art, but the mutually agreed upon notion among some abstract artists and enthusiasts that no objective truth exists, may serve to disarm anyone who might otherwise be skeptical of the meaning attached to an art piece. In the current study, we test whether the presence of a pseudo-profound bullshit title, consisting of a random arrangement of words commonly used to describe art, can influence peoples' perceptions of the profoundness of abstract art. We hypothesize that abstract art accompanied by pseudo-profound bullshit titles (e.g., *Evolving Model of Dreams*) will be judged as more profound compared to abstract art that is untitled or is accompanied by a mundane title (e.g., *Objects*

in Tint; see Figure 1). The current study tests these hypotheses using computer-generated and artist-created abstract art.

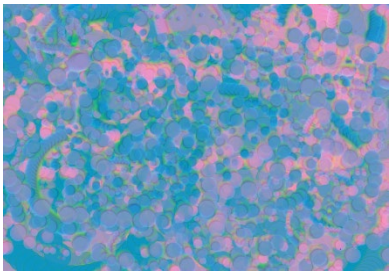
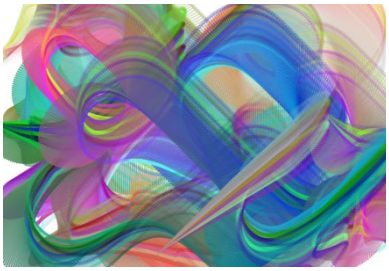
Computer Generated Abstract Art		
Pseudo-Profound Bullshit Title	**Mundane Title**	**No Title**
Undefined Singularity of Pain	Version 4: Abstract Elements	
		
Artist-Created Abstract Art		
Pseudo-Profound Bullshit Title	**Mundane Title**	**No Title**
The Pathological Interior	Colour Mixing	
		

Figure 1. Example of computer-generated and artist-created abstract art presented to participants in the current study. All abstract art was presented with either a pseudo-profound bullshit, mundane, or no title.

If the world of abstract art does in fact represent an ideal environment for bullshit to be deployed as an effective low-cost strategy for gaining prestige, then one would expect the presence of bullshit to be widespread in this domain. Artists, especially abstract or modern artists, appear to have an idiosyncratic way of describing and discussing art. These unique communicative habits collectively make up “International Art English” (Rule & Levine 2012). Features of International Art English, as described by Rule and Levine, include the morphing of verbs and adjectives into nouns (e.g., *potential* to *potentiality*), the pairing of like terms (e.g., *internal psychology and external reality*), and the favouring of hard-to-picture spatial metaphors (e.g., *culmination of many small acts achieves mythic proportions*) over clear and concise language. Now consider an example of pseudo-profound bullshit: “the future will be an astral unveiling of inseparability,” and compare it to the characteristics of International Art English. There is a noticeable similarity, such that they both include the morphing of adjectives into nouns (i.e., *inseparable to inseparability*) and both make use of impossible-to-picture visual metaphors. In this way, both modes manage to be stylistically impressive while not communicating anything specific that could be challenged. Linguistically, it seems that the English artists use to describe and discuss their practice is either the same, or is at least tapping into the same cognitive mechanisms that give pseudo-profound bullshit its effect. That is to say, that the linguistic features that elevate the perceived profoundness of pseudo-profound bullshit above a mundanely stated truth are also present in International Art English, and this may allow for the use of bullshit to enhance the perception of profoundness of a given piece of abstract art.

It could be the case that artists have independently stumbled upon the competitively advantageous potential that good bullshitting affords in a prestige-awarding domain. These predictions are not intended to be taken as a value judgment on the quality of modern art,

nor a dismissal of the subjectively derived meaning formed when exposed to such pieces. If anything, the production of good and satisfying “bullshit” (i.e., statements meant to be impressive regardless of truth) may simply be part of the artistic process as much as the production of a painting. The prediction that follows from this is that there should be a strong association between peoples’ receptiveness to pseudo-profound bullshit and their endorsement of profoundness in International Art English (Study 3).

Study 1

Study 1 explores whether computer-generated pseudo-profound bullshit can be used to increase the profundity of computer-generated abstract art. To address the possibility that the profundity enhancing effect of our pseudo-profound bullshit titles may simply be a result of participants using *any* cue to inform their ratings we introduce mundane titles into the title set. If simply providing *any* title to an abstract art image enhances the perceived profundity of that image, we should expect that both pseudo-profound bullshit and mundane titles will increase the profundity of abstract art. However, if this effect is unique to bullshit, then we should expect that only art paired with pseudo-profound bullshit will be perceived as more profound compared to untitled art. We therefore hypothesized that abstract art accompanied by a pseudo-profound bullshit title would be judged as more profound compared to art accompanied by a mundane title, or no title.

Method

Measures

A full list of items for all measures and materials used in the current study can be found in Appendix A.

Bullshit Receptivity Scale. The *Bullshit Receptivity* (BSR) scale, taken from Pennycook and colleagues (2015), was administered in Study 1. This scale consists of thirty pseudo-profound bullshit statements originally retrieved from two websites (http://wisdomofchopra.com and http://sebpearce.com/bullshit/), both of which 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, are not specifically interpretable. That is, due to their method of generation, they do not have a specific intended meaning. Participants rated the profundity of each pseudo-profound bullshit statement on a 5-point scale which ranged from 1 (Not at all profound) to 5 (Very profound). A *bullshit receptivity* score was calculated for each participant by averaging the profundity ratings provided to each of the thirty pseudo-profound bullshit statements.

Motivational Quotation Scale. To contrast the meaningless pseudo-profound statements featured in the BSR, we included ten motivational quotations, also originating from Pennycook and colleagues (2015). These statements were designed to capture a true attempt at communicating something meaningful and profound (e.g., “A wet man does not fear the rain”). Participants rated the profundity of each motivational statement using the same 5-point scale as the BSR. Similarly, participants’ profundity ratings to all ten motivational quotations were averaged to create a *motivational quotation* scale score for each participant.

Mundane Statements. Ten mundane statements were included in Study 1 (Pennycook et al., 2015). These statements, while technically true and specifically interpretable, did not contain truth of a grand or profound nature (e.g., “Newborn babies require constant attention”). Once again, participants rated each of these ten mundane

statements using the same 5-point scale as the BSR and motivational quotations. A profundity score for *mundane statements* was calculated for each participant by averaging the profundity ratings provided to mundane statements.

Bullshit sensitivity. As done previously by Pennycook and colleagues (2015), we calculate *bullshit sensitivity* as a measure of a participant's ability to distinguish pseudo-profound bullshit statements from meaningfully profound motivational quotations. *Bullshit sensitivity* was computed by subtracting participants' mean profundity ratings given to pseudo-profound bullshit statements from their mean profundity ratings given to motivational quotations. Higher scores indicate greater sensitivity in detecting bullshit.

Materials

Pseudo-Profound Bullshit Title Generation. Approximating computer-generated pseudo-profound bullshit, we gathered 150 randomly-generated titles using a website (http://noemata.net/pa/titlegen/) which strings together words commonly used in art titles and descriptions. As these titles were generated via a computer program randomly arranging words commonly used to describe art, and therefore lacked any intent to communicate something meaningful, we categorized these randomly-generated titles, as bullshit. We removed eight pseudo-profound bullshit titles due to the fact that they referenced specific features (e.g., "Crying Boy in a Corner"). This left us with 142 randomly-generated titles which were included in Study 1.

Abstract Art Image Generation. Abstract art images were generated by a research assistant blind to the studies' purpose and hypotheses. Images were generated using two websites (http://bomomo.com and http://windowseat.ca/viscosity/create.php), which provided drawing tools that behave in a pseudo-random fashion, only affording the user coarse-grained control over an image's content (i.e., colour, broad shapes, and pattern

types). As such, these websites allowed us to produce 200 pseudo-randomly generated abstract art images which lacked any human-defined intention to communicate meaning. In order to match the number of pseudo-profound bullshit titles, we eliminated 58 abstract art images by randomly sampling 142 out of our 200 images using the random sampling functions provided in the NumPy library for Python (Walt, Colbert, & Varoquaux, 2011).

Mundane Titles. One-hundred fifty mundane titles were generated by a research assistant blind to both the purpose and hypotheses of Study 1. These titles were generated by combining various descriptive words commonly used in art contexts. All mundane titles were created such that they pertained to the physical properties of art as opposed to the meaning of an art piece (e.g., shape, colour, arrangement). Using a random sampling procedure, we selected 71 mundane titles to be used in this study. This ensured that half of the titles used in Study 1 were mundane titles, with the other half being pseudo-profound bullshit titles.

Method

Participants

A sample of 218 University of Waterloo undergraduates volunteered to complete a study in exchange for course credit.

Procedure

Study 1 utilized a within-subjects design in which participants were presented with 142 computer-generated abstract art images in PsychoPy (Peirce, 2007) in a random order, with each image having an equal likelihood of being accompanied by a randomly-generated bullshit title, a mundane title, or no title. Following the presentation of each abstract art image, participants were asked to rate the profundity of the image using a 5-point scale

which ranged from 1 (Not at all profound) to 5 (Very profound). Consistent with past work (Pennycook et al., 2015), participants were instructed that the definition of profound was to be taken as "*of deep meaning; of great and broadly inclusive significance*" prior to the start of the study. Following participants' profundity judgements of all 142 abstract art images, participants were asked to rate the profundity of all 142 titles (71 pseudo-profound bullshit titles and 71 mundane titles) unaccompanied by an image. Next, participants were asked to rate the profundity of fifty statements (i.e., BSR, motivational quotations, and mundane statements) that were presented in a randomized order.

Results

A repeated measures ANOVA revealed a main effect of title type (pseudo-profound bullshit title, mundane title, untitled) on profundity ratings of abstract art images $F(2, 434) = 81.63$, $p < .001$, $\eta_p^2 = .273$. Follow-up paired samples *t*-tests revealed significant differences between profoundness ratings for pseudo-profound bullshit titled abstract art and untitled [$t(217) = 9.96$, $p < .001$, $d = 0.55$] and mundane titled [$t(217) = 9.92$, $p < .001$, $d = 0.50$] abstract art images. No difference was detected between profundity ratings given to mundane titled and untitled art [$t(217) = 1.24$, $p = .22$, $d = 0.05$]. Collectively, these results suggest that it is pseudo-profound bullshit titles specifically that enhance the profundity of abstract art, as opposed to any and all titles. Specifically, the addition of mundane titles to abstract art images did not enhance the profundity of these images compared to untitled art.

The results of correlational analyses examining the associations between various key variables can be viewed in Table 1. We observed a strong positive association between participants' *bullshit receptivity* and their profundity judgments of abstract art images across all title types [BS Title: $r(216) = .52$, $p < .001$; Mundane Title: $r(216) = .45$, $p < .001$; No Title: $r(216) = .44$, $p < .001$]. Similarly, we also find that participants' *bullshit sensitivity* was

negatively correlated with their profoundness judgments of abstract art images [BS Title: $r(216) = -.23$, $p = .001$; Mundane Title: $r(216) = -.22$, $p = .001$; No Title: $r(216) = -.28$, $p < .001$], once again demonstrating that participants failing to distinguish between psuedo-profound bullshit and motivational quotations were more likely to judge abstract art as profound. Taken together, these associations provide further evidence that those finding meaning in pseudo-profound bullshit statements are more likely to perceive profoundness in abstract art.

Table 1

Study 1 Correlations

	M	*SD*	1	2	3	4	5	6	7	8	9
1. BS Titled Art	2.68	0.74	-								
2. Mundane Titled Art	2.33	0.67	.74	-							
3. Untitled Art	2.30	0.65	.68	.86	-						
4. BS Titles	3.49	0.88	.65	.51	.47	-					
5. Mundane Titles	1.77	0.64	.36	.59	.61	.37	-				
6. BSR	3.16	0.82	.52	.45	.44	.67	.47	-			
7. Motivational Quotations	3.64	0.77	.30	.23	.16	.40	.15	.41	-		
8. Mundane Statements	1.83	0.99	.01	.19	.19	-.03	.49	.21	.21	-	
9. BS Sensitivity (Var7 – Var6)	0.48	0.87	-.23	-.22	-.28	-.27	-.31	-.59	.50	-.02	-

Note. Pearson correlations (Study 1; $N = 218$). "BS Titled Art" refers to participants' profundity ratings given to abstract art images accompanied by a pseudo-profound bullshit title. "Mundane Titled Art" refers to participants' profundity ratings given to abstract art images accompanied by mundane titles. "Untitled Art" refers to participants' profundity ratings given to untitled abstract art images. "BS Titles" refers to participants' profoundness

ratings of pseudo-profound bullshit titles unaccompanied by art. “Mundane Titles” refers to participants’ profoundness ratings of mundane titles unaccompanied by art. *BSR* = Bullshit Receptivity scale. *BS Sensitivity* = Participants’ mean motivational quotation profundity ratings minus their mean BSR profundity ratings. Coefficients of .14 or greater are significant at the $p < .05$ level, coefficients of .19 or greater are significant at the $p < .01$, coefficients of .24 or greater are significant at the $p < .001$ level.

Study 2

While the results of the previous study suggest that pseudo-profound bullshit can enhance the perception of profoundness in abstract art, a limitation of this study is that all abstract art images were computer-generated. Therefore, one may wonder whether pairing pseudo-profound bullshit titles with artist-created art, which may be of higher quality compared to our computer-generated images, would have the same profundity enhancing effect. In Study 2 we assess this possibility by including artist-created abstract art images. We hypothesize that for both artist-created and computer-generated abstract art, participants would judge art accompanied by a pseudo-profound bullshit title as more profound compared to art accompanied by a mundane title, or no title. Crucially, we predict no interaction. That is, we expect the effect of pseudo-profound bullshit titles to be the same among both artist-created and computer-generated art.

Method

Participants

A sample of 200 University of Waterloo undergraduates volunteered to complete a study in exchange for course credit.

Measures & Materials

The measures administered in Study 2 were identical to those administered in Study 1. Similarly, all materials used in Study 2 were identical to those used in Study 1, with the only difference being the addition of artist-created abstract art.

Artist-Created Abstract Art. In order to investigate the influence of randomly-generated bullshit titles on real artist-created art, we gathered 80 artist-created abstract art images from the Museum of Modern Art's website (https://www.moma.org). All 80 images were collected by a research assistant blind to both the purpose and hypotheses of Study 2. We eliminated nine of these abstract art images from Study 2 due to their likeness to concrete forms (e.g., humans, animals, and household objects). This left us with 71 artist-created abstract art images which were included in Study 3.

Procedure

As in Study 1, participants were presented with 142 abstract art images and asked to judge the profundity of each image. In Study 2, the set of 142 abstract art images consisted of 71 computer-generated images (randomly selected from our set of 142 computer-generated images used in Study 1) and 71 real-world artist-created images. Each image had an equal chance of being accompanied by a pseudo-profound bullshit title, a mundane title, or no title. The remaining procedure was identical to that of Study 1, with participants judging the profundity of all 142 titles unaccompanied by an abstract art image. Additionally, participants provided profundity ratings for 50 statements consisting of pseudo-profound bullshit statements, motivational quotations, and mundane statements (mixed in a random order) and completed the Wordsum[1] verbal ability task (Malhotra et al., 2007).

[1] The inclusion of the Wordsum Verbal Ability Task was peripheral to the main goals of this study and are not discussed here.

Results

A 3 (title type: pseudo-profound bullshit title, mundane title, untitled) X 2 (art type: computer-generated, artist-created) repeated measures factorial ANOVA revealed a main effect of title type on profundity ratings of abstract art images, $F(2, 398) = 67.00$, $p < .001$, $\eta_p^2 = .252$. Furthermore, a main effect of art type was also observed, $F(1, 199) = 238.69$, $p < .001$, $\eta_p^2 = .545$, indicating that artist-created art was judged to be more profound compared to computer-generated art. Notably, no interaction was detected, $F(2, 398) = 2.13$, $p = .12$, $\eta_p^2 = .011$, suggesting that the effect of title type did not differ between computer-generated and artist-created art. Thus, whether art was computer-generated or artist-created, pairing the art image with a pseudo-profound bullshit title enhanced the perceived profoundness of the art image to the same extent, compared to when the art image was accompanied by a mundane title or no title.

Follow-up paired samples *t*-test examining the main effect of title type revealed significant differences between profundity ratings given to pseudo-profound bullshit titled and mundane titled computer-generated art [$t(199) = 8.74$, $p < .001$], as well as between pseudo-profound bullshit titled and untitled computer-generated art [$t(199) = 8.17$, $p < .001$]. No significant differences were observed between profundity ratings given to computer-generated mundane titled and untitled art [$t(199) = 0.25$, $p = .802$]. Importantly, examining the effect of title type for artist-created art produced an identical pattern of results, with pseudo-profound bullshit titled art being judged as more profound compared to both mundane titled art [$t(199) = 8.26$, $p < .001$], and untitled art [$t(199) = 6.67$, $p < .001$], and mundane titled and untitled art being judged as similarly profound [$t(199) = 1.88$, $p = .061$]. Therefore, the results of Study 2 demonstrate how pseudo-profound bullshit can be utilized to enhance the profundity of both computer-generated and artist-created abstract art

images. Additionally, this profundity enhancing effect appears to be unique to pseudo-profound bullshit as including mundane titles to either computer-generated or artist-created abstract art did not result in an increase in participants' perceptions of profundity for these art images.

Finally, we report the results of a set of correlational analyses exploring the relation between several key variables of interest (see Table 2). Most notably, we once again observe a positive relation between participants' profundity ratings of pseudo-profound bullshit statements (i.e., *bullshit receptivity*) and computer-generated [BS Title: $r(198) = .46$, $p < .001$; Mundane Title: $r(198) = .39$, $p < .001$; No Title: $r(198) = .34$, $p < .001$] and artist-created abstract art across all title types [BS Title: $r(198) = .45$, $p < .001$; Mundane Title: $r(198) = .41$, $p < .001$; No Title: $r(198) = .34$, $p < .001$]. Similarly, we observe negative relations between *bullshit sensitivity* and profundity ratings of computer-generated [BS Title: $r(198) = -.27$, $p < .001$; Mundane Title: $r(198) = -.23$, $p = .001$; No Title: $r(198) = -.20$, $p = .005$] and artist-created abstract art [BS Title: $r(198) = -.18$, $p = .009$; Mundane Title: $r(198) = -.20$, $p = .004$] across all title types, with the exception of untitled artist-created abstract art [No Title: $r(198) = -.10$, $p = .149$]. On the whole, these associations once again demonstrate that participants who fail to distinguish between pseudo-profound bullshit and motivational quotations are more likely to judge both computer-generated and artist-created abstract art as profound.

Table 2

Study 2 Correlations

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. BS Titled AC Art	2.99	0.75	-											
2. BS Titled CG Art	2.34	0.73	.58	-										
3. Mundane Titled AC Art	2.70	0.70	.77	.50	-									
4. Mundane Titled CG Art	2.06	0.67	.46	.79	.61	-								
5. Untitled AC Art	2.76	0.74	.78	.45	.83	.49	-							
6. Untitled CG Art	2.05	0.69	.40	.76	.54	.89	.50	-						
7. BS Titles	3.58	0.67	.59	.42	.49	.33	.45	.28	-					
8. Mundane Titles	1.77	0.65	.37	.51	.56	.70	.45	.63	.22	-				
9. BSR	3.17	0.77	.45	.46	.41	.39	.34	.34	.58	.34	-			
10. Motivational Quotations	3.75	0.65	.31	.22	.24	.18	.28	.16	.35	.22	.41	-		
11. Mundane statements	1.86	0.96	.00	.24	.20	.38	.15	.40	-.17	.53	.16	.16	-	
12. BS Sensitivity (Var10 – Var9)	0.57	0.78	-.18	-.27	-.20	-.23	-.10	-.20	-.28	-.14	-.64	.44	-.03	-

Note. Pearson correlations (Study 2; $N = 200$). *AC* = Artist-Created. *CG* = Computer-Generated. "BS Titled Art" refers to participants' profundity ratings given to abstract art images accompanied by a pseudo-profound bullshit title. "Mundane Titled Art" refers to participants' profundity ratings given to abstract art images accompanied by mundane titles. "Untitled Art" refers to participants' profundity ratings given to untitled abstract art images. "BS Titles" refers to participants' profoundness ratings of pseudo-profound bullshit titles unaccompanied by art. "Mundane Titles" refers to participants' profoundness ratings of mundane titles unaccompanied by art. *BSR* = Bullshit Receptivity scale. *BS Sensitivity* = Participants' mean motivational quotation profundity ratings minus their mean BSR profundity ratings. Coefficients of .14 or greater are significant at the $p < .05$ level, coefficients of .19 or greater are significant at the $p < .01$, coefficients of .24 or greater are significant at the $p < .001$ level.

Study 3

Studies 1 and 2 demonstrate the enhancing effect of pseudo-profound bullshit on abstract art. However, the types of bullshit used in these studies have been generated by computers. So, although we have demonstrated that pseudo-profound bullshit can be employed successfully to enhance the perceived profundity of abstract art in a lab context, it remains to be demonstrated that the type of language actually used by artists is perceived to be distinguishable from bullshit. While both International Art English and pseudo-profound bullshit appear to share various surface features (e.g., the morphing of adjectives into nouns), the degree to which people process both modes of communication similarly has yet to be investigated. In Study 3 we assess the similarity between International Art English and pseudo-profound bullshit by having participants judge the profundity of a variety of International Art English and pseudo-profound bullshit statements. We hypothesize that profundity ratings for pseudo-profound bullshit and International Art English will be strongly associated.

Method

Participants

A sample of 200 University of Waterloo undergraduates volunteered to complete a study in exchange for course credit.

Measures & Materials

Study 3 no longer included computer-generated or artist-created art. Instead, participants judged the profundity of the same pseudo-profound bullshit, motivational

quotations, and mundane statements used in Studies 1 and 2. Furthermore, Study 3 included the addition of 30 real-world International Art English statements and 7 CRT items.

International Art English. International Art English (IAE) refers to a language used by many artists and artistic scholars to discuss art (Rule & Levine, 2012). Its key features include converting verbs and adjectives into nouns (e.g., *potential* to *potentiality*), the pairing of like terms (e.g., *internal psychology* and *external reality*), and hard-to-picture spatial metaphors (e.g., *culmination of many small acts achieves mythic proportions*). For the purpose of this study, we had a hypothesis-blind research assistant gather 30 statements from various sources (e.g., art exhibition descriptions, essays by art historians, etc.) that adhered to at least one of the key features of IAE. Participants rated the profundity of each IAE statement on a 5-point scale which ranged from 1 (Not at all profound) to 5 (Very profound). For each participant, an IAE profundity score detailing how profound an individual found IAE statements was calculated by averaging the profundity ratings provided to each statement.

Procedure

Participants primary task in Study 3 was to judge the profundity of 80 statements (presented in a random order) consisting of 30 pseudo-profound bullshit statements, 10 motivational quotations, 10 mundane statements, and 30 IAE statements. Participants judged each statement using the same 5-point scale described above. Following the profundity judgment task, participants completed the Wordsum (Malhotra et al., 2007) and CRT[2] (Frederick, 2005) to conclude Study 3.

[2] The Inclusion of the Cognitive Reflection Task and Wordsum were peripheral to the main goals of the study and is not discussed here.

Results

The results of Study 3 can be viewed in Table 3. As predicted, profundity ratings given to International Art English and pseudo-profound bullshit statements shared a strong positive association, $r(198) = .69$, $p < .001$, suggesting that International Art English and pseudo-profound bullshit were perceived similarly by participants. In contrast, it was observed that profundity ratings for International Art English were not associated with profundity ratings for either motivational [$r(198) = .03$, $p = .672$] or mundane statements [$r(198) = -.03$, $p = .651$]. Providing further support for the pseudo-profound bullshit and International Art English overlap, International Art English profundity judgments were strongly correlated with *bullshit sensitivity* [$r(198) = -.59$, $p < .001$], indicating that people who failed to distinguish between pseudo-profound bullshit and motivational quotations were especially likely to endorse International Art English as profound.

Table 3

Study 3 Correlations

	M	*SD*	1	2	3	4	5
1. IAE	2.81	0.69	-				
2. BSR	3.07	0.69	.69	-			
3. Motivational quotations	3.71	0.81	.03	.48	-		
4. Mundane statements	1.50	0.78	-.03	.18	.19	-	
5. BS Sensitivity (Var3 – Var2)	0.64	0.77	-.59	-.40	.62	.04	-

Note. Pearson correlations (Study 3; $N = 200$). *BSR* = Bullshit Receptivity scale; *IAE* = International Art English; *BS Sensitivity* = Participants' mean motivational quotation profundity ratings minus their mean BSR profundity ratings. Coefficients of .14 or greater are

significant at the $p < .05$ level, coefficients of .19 or greater are significant at the $p < .01$, coefficients of .24 or greater are significant at the $p < .001$ level.

Discussion

The current study demonstrates the potential for pseudo-profound bullshit to enhance the perceived profundity of abstract art. Specifically, over the course of three studies, we find that simply including a randomly-generated pseudo-profound bullshit title alongside an abstract art image increases the perceived profundity of the art image. Furthermore, we show that it is pseudo-profound bullshit titles specifically that enhance the profundity of abstract art, as opposed to any and all titles. Additionally, we demonstrate that bullshit titles produce the same profundity enhancing effect for both computer-generated and artist-created abstract art. Finally, in Study 3 we demonstrate that pseudo-profound bullshit and International Art English are perceived to be similar (or the same) rhetorical phenomena by our participants.

Bullshit as a Low-Cost Strategy: Art and Beyond

In most domains success is determined, at least partially, based on the ability to impress others. In any instance where humans are making decisions about the quality of output of others there is room for subjective impressions to influence outcomes. As a highly social species, it may be the case that instances where performance is entirely objective are rarer than those influenced by the subjective opinions of others. We theorize that bullshit can be used effectively as a low-cost strategy to impress others and gain prestige in every domain except where performance is clearly and strictly objective. Maximizing one's skills and competence in a domain is typically a long and arduous process. However, being able to produce satisfying bullshit that can impress others by presenting one's self and one's work as impressive and meaningful may allow an individual to obtain success in a way that

requires much less time and effort. The results of the current study exemplify these claims, as we demonstrate how attaching randomly-generated pseudo-profound bullshit titles to abstract art images improves the perceived profundity of these images. Critically, this is true even though images and titles were paired completely randomly with no effort expended in matching the title to the content. Thus, we demonstrate how pseudo-profound bullshit can be employed in the domain of abstract art to effortlessly and expediently increase the profundity of an individual's art.

Previous work has demonstrated that people bullshit more (i.e., make claims less concerned with the truth) when they believe they will not have to justify their claims (Petrocelli, 2018). To the extent that some abstract artists embrace the radically subjective view that there is no objective standard for beauty or meaning, the domain of abstract art may be especially likely to be permissive of bullshit. That is, the agreed upon notion that no objective beauty exists and that all experiences are equally valid may serve to protect the individual using bullshit from skeptical claims. Therefore, paired with the fact that the domain of abstract art heavily rewards impressing others, as opposed to objective demonstrations of technical skill, bullshit may not only be effective in this domain (as demonstrated) but also tolerated. On this basis, one may expect the presence of bullshit to be widespread in the abstract art world. In Study 3, we provide some evidence for this claim, as we find that International Art English, above sharing various surface features with meaningless pseudo-profound bullshit, is judged indistinguishably from pseudo-profound bullshit by our participants. Thus, it may be the case that artists have independently stumbled upon the potential for bullshit to increase the profundity of abstract art.

Although here we demonstrate that bullshit may be deployed to enhance the perceived profoundness of abstract art, of greater theoretical interest is the possibility for

good bullshitting to afford a competitive advantage in many domains of human production. Any system where individuals are rewarded some level of prestige, attention, or social status for impressing others offers a chance for energetically less expensive strategies to be employed as competitive short cuts. Bullshit, with its emphasis on impressiveness as opposed to meaningfulness and truth, may assist individuals in impressing others, and consequently, in successfully navigating various social systems. This is likely to be especially true for social systems which do not place a high value on detecting and punishing the fakery characteristic of bullshit, as in such cases the potential rewards of bullshitting may far outweigh the potential costs. For example, bullshit may be especially effective as a low-cost strategy for gaining prestige in social systems in which prestige is rewarded by unknowledgeable or like-minded individuals, as such individuals may be less likely to detect and punish the use of bullshit. Overall, the extent to which bullshit can be effectively deployed by individuals looking to gain social advantages is an interesting question which the current study begins to address.

Limitations & Future Directions

One limitation of the current study is that it exclusively tests the influence of pseudo-profound bullshit titles in the domain of abstract art. However, the theoretical account that we propose here leads us to predict that bullshit can be applied in a wide-variety domains in which competence is not objectively judged using strict and specific criteria, success is determined by impressing others, and the fakery characteristic of bullshit is not strictly monitored and punished. For example, our proposed account predicts that attaching pseudo-profound bullshit titles to representational art would also increase the profundity of such art images, albeit to a lesser degree, as representational art lends itself to more objective assessments of quality and meaning (e.g., the accuracy of portrayal) compared to

abstract art which welcomes more subjective interpretations. Future studies should be undertaken to investigate the domains in which bullshit may be deployed to gain a competitive advantage.

Second, another limitation of the current study is that participants were exclusively judging various artworks for their *profoundness*. There are many other dimensions on which people can form an impression of a piece of art (e.g., liking, monetary value, significance and overall quality) and these may or may not be enhanced by pseudo-profound bullshit. Future studies should investigate whether pseudo-profound bullshit titles can enhance peoples' judgments on these other dimensions (e.g., willingness-to-pay for abstract art) or even whether judgements about the qualities of the individual artist themselves (e.g., intelligence, talent, insight) may be affected by associating bullshit with a piece.

Finally, given the pattern of results observed by Eriksson (2012) whereby experts in mathematics did not judge nonsense-math containing abstracts to be indicative of higher quality science, it remains an open question whether art experts would demonstrate the effects observed here. If it is the case that art experts themselves endorse a radically subjective view of art, then they should behave similarly to non-experts, such that bullshit should also enhance their perception of an artwork's profoundness. However, it is also possible that, similar to experts in mathematics, the acquired expertise for artists would allow them to distinguish between descriptions of art that are honest and insightful as opposed to those consisting purely of randomly generated pseudo-profound bullshit. If art expertise does allow one to spot the fakery characteristic of bullshit, at least in the domain of art, then one would expect that art experts, unlike non-experts, would not have their judgements of a piece of art affected by the presence of bullshit.

C**onclusion**

Across many domains, people compete for status and prestige by attempting to impress others. In these cases, despite its fakery, the impressiveness of pseudo-profound bullshit may offer individuals a low-cost strategy for impressing others and gaining prestige. While past work has demonstrated how people are receptive to pseudo-profound bullshit, the current study demonstrates a way in which peoples' susceptibilities to bullshit can be taken advantage of in a social domain. Specifically, we demonstrate how randomly-generating various pseudo-profound bullshit titles and indiscriminately attaching them to either computer-generated or artist-created abstract art images increases the perceived profoundness of abstract art.

Chapter 3
Broad Correlates of Bullshit Receptivity

An increasingly important skill in today's information age is the ability to distinguish accurate information from that which is false or misleading. While many individuals naturally feel confident in their ability to recognize and ignore false or pseudo-informative claims, a growing body of research demonstrates peoples' receptiveness to meaningless pseudo-profound statements (i.e., pseudo-profound bullshit; Nilsson et al., 2019; Pennycook et al., 2015; Walker et al., 2019). While ascribing meaning to pseudo-profound bullshit has been linked with various epistemically suspect beliefs, such as religious beliefs, paranormal beliefs, and belief in the effectiveness of complementary and alternative medicines (Čavojová et al., 2019; Pennycook et al., 2015; Majima et al., 2022), less is known about how bullshit receptivity relates to real-world behaviors and outcomes (Iacobucci & De Cicco, 2022). In the present study, we assess how individuals' endorsement of profundity in computer-generated pseudo-profound bullshit is associated with their engagement in consequential real-world behaviors (e.g., risky financial behaviors) and experienced harms (e.g., gambling-related harms).

Pseudo-Profound Bullshit

Research investigating peoples' receptivity to bullshit, specifically pseudo-profound bullshit, has often relied on Frankfurt's (2005) definition of bullshit as communication featuring an absence of concern for truth and meaning. According to this view, bullshit is not characterized by its falsity but rather its fakery. Bullshit may be true, false, or meaningless, what makes a statement bullshit is an implied, yet artificial, attention to truth and meaning. Frankfurt's conception of bullshit has provided the theoretical backbone for a number of studies examining peoples' receptiveness to bullshit. These studies have largely assessed

the degree to which people judge superficially impressive, yet ultimately vacuous statements (i.e., pseudo-profound bullshit statements) as profound. Pseudo-profound bullshit statements, originally introduced by Pennycook and colleagues (2015), are generated by a computer program which randomly arranges a set of profound-sounding words in a way that maintains proper syntactic structure (e.g., “Imagination is inside exponential space time events”). Therefore, while these statements may appear superficially impressive, their method of creation ensures that they lack any intention to communicate something true or meaningful.

Why do some people judge pseudo-profound bullshit as profound? Pennycook and colleagues (2015) proposed two mechanisms to explain this phenomenon. First, some individuals seemingly have a general tendency to view any and all statements as profound. For example, Pennycook and colleagues found that some participants judge even the most mundane of statements (e.g., “Most people enjoy some sort of music”) to be profound. Therefore, they proposed that a general “gullible” tendency to ascribe profoundness to any and all statements is one component of bullshit receptivity. Additionally, Pennycook and colleagues proposed that the ability to detect and resist pseudo-profound bullshit is aided by the engagement of more deliberative and analytic modes of thinking. Consistent with this view, they found that scoring highly on measures of cognitive reflection (e.g., the Cognitive Reflection Test) was associated with judging pseudo-profound bullshit statements to be less profound. Furthermore, more recent work suggests that receptivity to pseudo-profound bullshit may arise, at least in part, from an adaptive tendency to perceive patterns in our environments (Bainbridge et al., 2019; Walker et al., 2019). Supporting this claim, a tendency to perceive meaningful patterns in random stimuli (i.e., illusory pattern perception)

has been shown to be associated with greater receptiveness to pseudo-profound bullshit statements (Majima et al., 2022; Walker et al., 2019).

A good deal of research investigating peoples' receptivity to pseudo-profound bullshit has examined its correlates with other features of psychology. As such, this work has largely focused on the beliefs and traits possessed by those who endorse meaning in pseudo-profound bullshit. Here, research has shown that receptiveness to pseudo-profound bullshit is associated with poor performance on measures of analytic thinking, verbal intelligence, and numeracy (Nilsson et al., 2019; Pennycook et al., 2015; Walker et al., 2019). Furthermore, bullshit receptivity has been shown to be positively associated with religious beliefs, paranormal beliefs, and belief in the effectiveness of complementary and alternative medicines (Čavojová et al., 2019, 2020; Pennycook et al., 2015). Lastly, those most receptive to pseudo-profound bullshit have been found to be more likely to perceive illusory patterns (Walker et al., 2019; Majima et al., 2020), perceive fake news stories as accurate (Pennycook & Rand, 2020), exhibit confirmation bias (Nilsson et al., 2019), and be less likely to engage in prosocial behaviors (Erlandsson et al., 2018).

While much is known about the mental correlates of bullshit receptivity, specifically with regards to how bullshit receptivity relates to individual differences in thinking style or the endorsement of epistemology suspect beliefs, few studies have examined the association between bullshit receptivity and real-world outcomes. A plausible view is that judging pseudo-profound bullshit statements as profound is a sign that an individual is undiscerning and overly accepting of information they encounter (i.e., gullible). According to this view, we may expect an individual's degree of bullshit receptivity within a laboratory task to be predictive of their experience of various negative real-world outcomes, specifically in situations in which being gullible or undiscerning may lead to negative outcomes. However,

subjectively diagnosing profundity in meaningless computer-generated statements (e.g., “Wholeness quiets infinite phenomena”), particularly in a laboratory context, is of minimal risk or cost. Therefore, it is possible that some individuals may endorse pseudo-profound statements as profound within a laboratory task while also being skeptical of similar statements in consequential real-world scenarios (e.g., a salesman making vacuous claims to sell a low-quality product). Thus, to the extent that people may be especially gullible and undiscerning when making inconsequential decisions, we may wonder the extent to which being receptive to pseudo-profound bullshit statements within a laboratory task is predictive of falling prey to misleading or vacuous claims in consequential real-world environments.

While many beliefs associated with being receptive to pseudo-profound bullshit may be epistemically suspect (e.g., paranormal beliefs), these too may be unlikely to result in negative consequences for believers. Even other seemingly more consequential beliefs (e.g., belief in the effectiveness of complementary and alternative medicines), are only personally harmful when important and consequential decisions are made on the basis of these beliefs. For example, outside of the potential financial costs, a person who believes in the effectiveness of an ineffective treatment is likely to be harmed by this belief only to the extent that they avoid effective treatments for a curable illness. However, one can believe in the effectiveness of an ineffective alternative treatment while still seeking better validated treatments when notably ill, avoiding much of the consequences of their inaccurate belief. Therefore, the possession of an inaccurate belief may not necessarily imply dysfunctional behavior or the experience of real-world harm. In the present study, we seek to take the first steps in investigating the extent to which individuals’ receptiveness to pseudo-profound bullshit statements is associated with self-reported behaviors and outcomes.

The Present Study

The present study explores the association between bullshit receptivity and real-world negative outcomes within two unique samples consisting of either undergraduate students at a Canadian university or American residents on Amazon's Mechanical Turk. In doing so we attempt to assess whether endorsing meaningless computer-generated statements as profound in a laboratory context is associated with the experience of various real-world harms. If bullshit receptivity measures individuals' susceptibility to be overly accepting of questionable claims in consequential real-world scenarios, we may expect bullshit receptivity to be positively correlated with the experience of negative outcomes in scenarios for which being gullible or undiscerning is expected to lead to such outcomes. For example, we may expect greater receptiveness to pseudo-profound bullshit to be associated with more frequent use of alternative medical treatments of questionable effectiveness (e.g., distance healing) and a greater willingness-to-pay for products advertised with dubious claims (e.g., wearable stickers that assist with transformation and miracles). Additionally, one may wonder whether individuals more receptive to pseudo-profound bullshit more frequently engage in imprudent financial behaviors, gamble more frequently on negative expected value games (and experience more gambling-related harms), or self-report worse health outcomes, educational achievements, and less life satisfaction. Furthermore, we assess whether such associations can be largely explained by individual differences in cognitive style or if there is something unique about being receptive to pseudo-profound bullshit that predicts these real-world behaviors and outcomes. Lastly, we assess whether individuals more receptive to pseudo-profound bullshit also demonstrate a greater susceptibility to fraud (as measured by three Susceptibility to Fraud Scale items; Dove, 2018) and evaluate previously investigated associations between bullshit receptivity and

cognitive reflection, verbal intelligence, religiosity, and political ideology within our two distinct samples.

Study 4

Method

Participants

A sample of 196 University of Waterloo undergraduates volunteered to complete Study 4 in exchange for course credit. We excluded data from 15 participants who reported responding randomly at some point during Study 4, leaving data from 181 participants (81% Female; M_{age} = 21.38, SD_{age} = 5.62) to be analyzed. A complete breakdown of the demographic characteristics of this sample can be viewed in Appendix B. We collected our full sample prior to data analyses and report all data exclusions, all manipulations, and all measures used.

Measures

A full list of items for all measures used in the current study can be found in Appendix B.

Profundity Ratings

We assessed participants' receptivity and sensitivity to pseudo-profound bullshit by having them judge the profundity of 30 statements taken 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 two websites (http://wisdomofchopra.com and http://sebpearce.com/bullshit/) which generate 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 by such methods that they lack an *intended* meaning. Contrasting meaningless pseudo-profound statements were motivational quotations and mundane statements. Motivational quotations were designed to capture an earnest 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, as done in past work (Pennycook et al., 2015a; Turpin et al., 2019, Chapter 2 of this thesis; Walker et al., 2019), we calculated a bullshit sensitivity score (BSS) for each participant as a measure of their ability to distinguish between meaningless pseudo-profound bullshit statements and meaningful motivational quotations. This score was computed by subtracting participants' mean profundity ratings given to pseudo-profound bullshit statements from their mean profundity ratings given to motivational quotations. Higher scores indicated greater sensitivity in detecting bullshit.

Problem Gambling Severity Index

The Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) is a subset of the Canadian Problem Gambling Index and provides a reliable and valid measure of problem gambling symptomatology. Participants completed nine items addressing gambling-related harms on a scale from 0 (*Never*) to 3 (*Almost Always*). Responses to individual items were summed to create an overall PGSI score for each participant. Scores of 0 on the PGSI indicate non-problem gambling, scores between 1 and 4 indicate low-risk gambling, scores

between 5 and 7 indicate moderate-risk gambling, and scores of 8 and above are indicative of problem gambling (Currie et al., 2013).

Substance Use Harm

We administered 13 items, adapted from the Short Inventory of Problems – Alcohol and Drugs (Blanchard et al., 2003), designed to assess the degree of negative consequences experienced as a result of alcohol and drug use. All 13 items presented a statement (e.g., “I have felt guilty or ashamed because of my drinking or drug use”) for which participants responded with either a “Yes” or “No” response. The number of “Yes” responses was summed for each participant, providing a substance use score that ranged from 0 to 13, where a score of 0 represented no harm from alcohol or drug use and a score of 13 represented maximal harm.

Financial Behavior

We administered five items, taken from the adult outcome questionnaire of Toplak and colleagues (2017), designed to assess real-world financial behaviors (e.g., frequency of having a check bounce or debit account overdrawn). Participants responded to four questions about their real-world financial behaviors (e.g., “How many times have you intentionally signed up for recurring payments that you later regretted?”) by selecting one of five response options (Never; Once; 2-3 times; 4-5 times; More than 5 times). Additionally, participants responded to a question asking them to report how they budget their income by selecting one of three response options indicating whether they spent the income they have available each month or more/less than this amount. Participants responses to all five items were used to create a financial behavior score with higher scores indicating riskier financial behaviors.

Complementary and Alternative Medicine

We assessed participants' use of complementary and alternative medicine (CAM) using eight items adapted from Lindeman (2011). Participants were presented with seven different forms of CAM (e.g., homeopathy) and were asked to indicate how often they had used each treatment in the past 12 months using a 6-point scale that ranged from 1 (*Never*) to 6 (*Daily*). Additionally, we asked participants to indicate how often they used any of the presented treatments or other treatments which may be classified as complementary and alternative medicine during the last year. Participants responded to this final item using the aforementioned 6-point scale. We calculated a CAM score for each participant by calculating their mean response to our eight CAM items. Higher scores indicated more frequent use of complementary and alternative medicines.

Susceptibility to Fraud

Three items were administered from the Susceptibility to Fraud Scale (STFS; Dove, 2018). For each item, participants indicated their agreement with a statement (e.g., "When something seems too good to be true, it usually is.") using a 5-point scale that ranged from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). A STFS score was calculated for each participant by computing their mean response to STFS items. Higher scores were indicative of a greater propensity to be wary of others' motives and cross check given information.

Satisfaction with Life Scale

Participants completed the Satisfaction with Life Scale (SLS; Diener et al., 1985), a five-item scale assessing global life satisfaction. For each item, participants rated their agreement with a statement (e.g., "The conditions of my life are excellent") on a 7-point scale that ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). We calculated a SLS

score for each participant by calculating their mean response to our five SLS items. Higher scores represented greater life satisfaction.

Questionable Claim Products (QCP)

Participants were presented with three products (i.e., wearable smart stickers, art [a blank canvas], and performance enhancing hologram wristbands), each of which included dubious claims in their product descriptions (e.g., that the wearable sticker can assist with transformation and miracles). For each product, participants indicated how much they would be willing to pay for the product by providing a dollar amount within a free-entry text box. In order to reduce the impact of outliers we categorized participants' responses into one of four categories (1 [Not willing to pay]; 2 [Willing to pay between $1 and $49]; 3 [Willing to pay between $50 and $100]; 4 [Willing to pay over $100]), with higher scores representing a willingness to pay more for a questionable claim product.

Cognitive Reflection Test

The Cognitive Reflection Test (CRT; Frederick, 2005) was designed to evaluate individuals' ability to suppress an intuitive incorrect response in favor of a deliberative correct answer. Participants were presented with four CRT items taken from Toplak and colleagues (2014) and Primi and colleagues (2016). The number of correct responses was summed for each participant, giving each participant a CRT score that ranged from zero to four.

Wordsum

The Wordsum 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 was to pick the small print word that is the best synonym for the provided large print target word. The number of correct responses was summed for each participant, giving each participant a Wordsum score that ranged from zero to ten.

Procedure

Participants began Study 4 by judging the profundity of thirty statements (10 pseudo-profound bullshit statements, 10 motivational quotations, and 10 mundane statements) presented in a randomized order. Following this profundity rating task participants completed the other nine measures described above (i.e., PGSI, Substance Use Harm, Financial Behavior, CAM, STFS, SLS, QCP, CRT, and Wordsum) in a randomized order. Following the presentation and completion of these measures, participants responded to demographic questions assessing their age, sex, ethnicity, education level, household income, political ideology, health, and religiosity. Finally, to help ensure data quality, Study 4 concluded with the following item: "Is there any reason that we shouldn't use your data (e.g., did you randomly select responses at any point during the survey)?" Participants who responded "Yes" to this item (n = 15) were removed from all analyses.

Results

Real World Behaviors and Outcomes

We observed a moderate[3] positive correlation between bullshit receptivity and PGSI score, $r(179) = .20$, $p = .006$. That is, the tendency to endorse pseudo-profound bullshit

[3] In the present manuscript, we interpret all correlation coefficients less than .20 as "small," all coefficients between .20 and .30 as "moderate," and all coefficients greater than .30 as "large." This convention is suggested in Hemphill (2003) and is based on an empirical assessment of correlation coefficients observed in psychological research.

statements as profound was associated with the experience of real-world gambling-related harms. Similarly, we observed a small negative correlation between bullshit sensitivity and PGSI score, $r(179) = -.17$, $p = .023$, such that participants better able to distinguish between meaningless pseudo-profound statements and meaningful motivational quotations reported experiencing less gambling-related harms. Notably, these correlations were largely unaffected by the inclusion of participant's CRT scores as a covariate, $r(174) = .18$, $p = .015$ and $r(174) = -.15$, $p = .048$ respectively, suggesting that individual differences in CRT performance did not account for these associations. Bullshit receptivity was also found to share a moderate positive correlation with participants' self-reported use of complementary and alternative medicines (e.g., distance healing), $r(179) = .20$, $p = .008$. However, this association was considerably weakened by the inclusion of CRT performance as a covariate, $r(174) = .07$, $p = .370$, suggesting that the relation between bullshit receptivity and use of alternative medicines is driven by each behavior being independently predicted by the tendency to engage in cognitive reflection. Additionally, we observed a small negative association between bullshit sensitivity and the use of complementary and alternative medicines, however this correlation did not reach statistical significance, $r(179) = -.14$, $p = .065$. Lastly, participants' receptivity to pseudo-profound bullshit was found to be unrelated with their self-reported engagement in risky and regretful financial behaviors, as well as with harm experienced from the use of drugs or alcohol (see Table 4). Bullshit receptivity was also unrelated to participants' self-reported life satisfaction and overall health.

Table 4

Study 4 Correlations: Self-Reported Real-World Behaviors and Outcomes

	M	*SD*	1	2	3	4	5	6	7	8
1. BSR	2.63	0.86	(.90)							
2. BSS	0.73	0.79	-.62**	-						
3. PGSI	0.35	0.92	.20**	-.17*	(.58)					
4. Substance Use Harm	1.33	2.57	-.03	.00	.24**	(.90)				
5. Financial Behavior	1.08	1.21	.10	-.09	.29**	.28**	(.60)			
6. SLS	4.41	1.24	.03	.11	-.05	-.01	-.14	(.86)		
7. CAM	1.39	0.59	.20**	-.14	.36**	.21**	.34**	.02	(.79)	
8. Health	3.87	0.87	.10	.03	-.05	-.21**	-.20**	.34**	.00	-

Note. Pearson correlations (Study 4; *N* = 181). *BSR* = Bullshit Receptivity scale; *BSS* = Participants' mean motivational quotation profundity ratings minus their mean pseudo-profound bullshit statement profundity ratings. *PGSI* = Problem Gambling Severity Index; *SLS* = Satisfaction with Life scale; *CAM* = Complementary and Alternative Medicine; Cronbach's alphas reported in brackets. ** $p < .01$. * $p < .05$

Susceptibility to Trickery

We observed a moderate positive association between bullshit receptivity and willingness-to-pay for questionable claim products, $r(179) = .27$, $p < .001$. That is, as participants judged pseudo-profound bullshit statements to be more profound, they also tended to indicate being willing to pay more for products "marketed" using dubious claims. Similarly, a small negative association was observed between bullshit sensitivity and willingness-to-pay for questionable claim products, $r(179) = -.19$, $p = .012$, with participants better able to distinguish between pseudo-profound bullshit and motivational quotations tending to be less willing to pay for these questionable products. Notably, these associations

were largely unaffected when adding CRT scores as a covariate, $r(174) = .23$, $p = .003$ and $r(174) = -.16$, $p = .039$ respectively. Finally, participants' bullshit receptivity and bullshit sensitivity scores were observed to be unrelated to their responses to items designed to assess peoples' susceptibility to fraud (i.e., STSF items; see Table 5).

Table 5

Study 4 Correlations: Belief, Thinking Disposition, and Demographic Measures

	M	*SD*	1	2	3	4	5	6	7	8	9
1. BSR	2.63	0.86	(.90)								
2. BSS	0.73	0.79	-.62**	-							
Belief-Based Measures											
3. STSF	3.55	0.63	.03	-.01	(.50)						
4. QCP	2.18	0.75	.27**	-.19*	-.13	(.72)					
Thinking Dispositions											
5. CRT	1.95	1.32	-.32**	.25**	.03	-.18*	(.58)				
6. Wordsum	6.28	1.66	-.27**	.27**	.20**	-.18*	.38**	(.60)			
Demographic Measures											
7. Political Ideology	2.27	0.78	.08	-.19*	-.05	-.03	.03	.02	-		
8. Religiosity	2.81	1.65	.13	-.03	-.07	.14	-.29**	-.17*	.07	-	
9. Household Income	4.03	1.94	.00	.00	.07	-.05	-.01	.08	.02	-.17*	-

Note. Pearson correlations (Study 4; $N = 181$). *BSR* = Bullshit Receptivity scale; *BSS* = Participants' mean motivational quotation profundity ratings minus their mean pseudo-profound bullshit statement profundity ratings. *STSF* = Susceptibility to Fraud scale; *QCP* = Willingness-to-pay for questionable claim products. Free-entry text responses were sorted

into one of four categories with higher scores representing greater willingness-to-pay; *CRT* = Cognitive Reflection Test; Cronbach's alphas reported in brackets. ** $p < .01$. * $p < .05$

Thinking Dispositions

Consistent with past work (Pennycook et al., 2015; Pennycook & Rand, 2020; Walker et al., 2019), we observed negative correlations between bullshit receptivity and performance on the CRT, $r(175) = -.32$, $p < .001$, and Wordsum, $r(179) = -.27$, $p < .001$, tasks. Thus, individuals most receptive to pseudo-profound bullshit tended to score lower on measures of cognitive reflection (CRT) and verbal intelligence (Wordsum). Similarly, we observed moderate positive correlations between bullshit sensitivity and performance on these measures (CRT: $r(175) = .25$, $p = .001$ and Wordsum: $r(179) = .27$, $p < .001$). Therefore, an ability to distinguish between meaningless pseudo-profound bullshit and meaningful motivational quotations was associated with a proclivity for engaging in more deliberative thinking and greater verbal intelligence.

Demographic Items

We observed a small correlation between bullshit sensitivity and political ideology, $r(177) = -.19$, $p = .012$, with more liberal participants tending to be better at distinguishing between pseudo-profound bullshit and motivational quotations. This association was largely unaffected by the inclusion of CRT score as a covariate, $r(172) = -.21$, $p = .006$. Political ideology was not associated with participants' judgments of pseudo-profound bullshit as profound (i.e., bullshit receptivity), $r(177) = .08$, $p = .261$. Furthermore, we observed a small positive association between bullshit receptivity and religiosity, however this correlation did not reach statistical significance, $r(178) = .13$, $p = .086$. Relatedly, individual's bullshit sensitivity was found to be unrelated to their religiosity, $r(178) = -.03$, $p = .732$. Likewise, we

observed no association between either participants' bullshit receptivity or bullshit sensitivity and their self-reported household income (see Table 5).

Study 5

Study 5 serves as a direct replication of Study 4 using American adults (age 18 years or older) from the online crowdsourcing platform Amazon Mechanical Turk rather than university students. This study allowed us to assess the same correlates of bullshit receptivity investigated in Study 4 within a distinct non-university sample that featured greater variability with regards to participants' age, sex, level of education, and political ideology. Therefore, Study 5 allowed us to assess the generalizability of our findings by investigating the correlates of bullshit receptivity in a more diverse (with regards to education and political ideology) and older sample with more lived experience.

Method

Participants

Two hundred one participants were recruited from Amazon Mechanical Turk. Participants received $1.75 upon completion of an 18-minute online questionnaire for which they were required to be residents of the United States and possess a Mechanical Turk HIT approval rate greater than or equal to 99%. As in Study 4, we excluded data from one participant who reported responding randomly at some point during the online questionnaire, leaving data from 200 participants (45% Female; M_{age} = 41.55, SD_{age} = 12.88) to be analyzed. A complete breakdown of the demographic characteristics of this sample can be viewed in Appendix B.

Measures and Procedure

Study 5 used the same measures and procedures as described in Study 4.

Results

Real World Behaviors and Outcomes

Consistent with findings from our undergraduate sample (Study 4), we observed a moderate positive correlation between bullshit receptivity and participants' self-reported use of complementary and alternative medicines, $r(198) = .27$, $p < .001$. Similarly, we observed a small negative correlation between bullshit sensitivity and participants' use of complementary and alternative medicines, $r(198) = -.18$, $p = .010$. Therefore, individuals endorsing pseudo-profound bullshit as profound, as well as those failing to distinguish between meaningless pseudo-profound bullshit and meaningful motivational quotations, were more likely to report using complementary and alternative medicines frequently. Notably, unlike in Study 4, both associations were largely unaffected by the inclusion of CRT scores as a covariate, $r(197) = .26$, $p < .001$ and $r(197) = -.16$, $p = .022$ respectively. Furthermore, as in Study 4, participants' bullshit receptivity and bullshit sensitivity scores were unassociated with their self-reported engagement in risky and regrettable financial behaviors, harm experienced from the use of drugs or alcohol, and overall self-reported health (see Table 6). Similarly, participants' bullshit receptivity and bullshit sensitivity scores did not predict participants' experience of gambling-related harm (i.e., PGSI scores). Nevertheless, we did observe a moderate positive correlation between bullshit receptivity and scores on the satisfaction with life scale, $r(198) = .24$, $p = .001$, such that individuals endorsing pseudo-profound bullshit as profound were more likely to provide responses indicating greater life satisfaction. This correlation was found to be largely unaffected by the inclusion of CRT score as a covariate, $r(197) = .25$, $p < .001$. No such association was observed between bullshit sensitivity and life satisfaction, $r(198) = -.04$, $p = .607$.

Table 6

Study 5 Correlations: Self-Reported Real-World Behaviors and Outcomes

	M	*SD*	1	2	3	4	5	6	7	8
1. BSR	2.54	0.92	(.92)							
2. BSS	0.68	0.93	-.62**	-						
3. PGSI	0.75	2.30	.09	-.06	(.89)					
4. Substance Use Harm	0.86	2.16	.04	-.05	.16*	(.90)				
5. Financial Behavior	2.02	1.47	.10	-.04	.14*	.25**	(.66)			
6. SLS	4.17	1.54	.24**	-.04	.00	-.23**	-.04	(.92)		
7. CAM	1.37	0.65	.27**	-.18*	.12	.07	.23**	.14*	(.83)	
8. Health	3.85	0.88	.08	-.09	-.03	.04	-.20**	.39**	.10	-

Note. Pearson correlations (Study 5; $N = 200$). *BSR* = Bullshit Receptivity scale; *BSS* = Participants' mean motivational quotation profundity ratings minus their mean pseudo-profound bullshit statement profundity ratings. *PGSI* = Problem Gambling Severity Index; *SLS* = Satisfaction with Life scale; *CAM* = Complementary and Alternative Medicine; Cronbach's alphas reported in brackets. ** $p < .01$. * $p < .05$

Belief-based Measures

As in Study 4, we observed a moderate positive correlation between receptiveness to pseudo-profound bullshit and willingness-to-pay for questionable claim products, $r(198) = .27$, $p < .001$. That is, individuals who judged pseudo-profound bullshit statements as more profound also tended to be willing to pay more for products with dubious claims (e.g., performance enhancing hologram wristbands). Notably, this association was largely unaffected by including CRT scores as a covariate, $r(197) = .25$, $p < .001$. While we once again observed a small negative correlation between bullshit sensitivity and willingness-to-pay for questionable claim products, this correlation did not reach statistical significance in

Study 5, $r(198) = -.11$, $p = .127$. Similarly, we observed a small positive correlation between bullshit sensitivity and participants' responses to susceptibility to fraud (STSF) items that did not reach statistical significance, $r(198) = .13$, $p = .060$. We also observed a small negative correlation between bullshit receptivity and participants' STSF score, $r(198) = -.15$, $p = .037$. That is, participants less receptive to pseudo-profound bullshit were more likely to possess higher STSF scores indicating a greater propensity to be wary of others' motives and cross check information. This correlation was found to be largely unaffected by the inclusion of CRT performance as a covariate, $r(197) = -.15$, $p = .041$.

Thinking Dispositions

As in Study 4, we observed a moderate negative correlation between participants' bullshit receptivity and performance on the Wordsum, $r(198) = -.28$, $p < .001$, as well as a moderate positive correlation between bullshit sensitivity and performance on the Wordsum, $r(198) = .21$, $p = .003$. Therefore, judging pseudo-profound bullshit statements as profound, along with failing to distinguish between pseudo-profound bullshit statements and motivational quotations, was associated with worse performance on the Wordsum, a measure of verbal intelligence. Unlike Study 4, we did not observe significant correlations between bullshit receptivity and CRT performance ($r(198) = -.12$, $p = .096$), nor between bullshit sensitivity and CRT performance ($r(198) = .12$, $p = .094$). Nevertheless, these non-significant correlations were in the same direction as observed in Study 4.

Demographic Items

Perhaps reflecting the seemingly complex association between bullshit receptivity and political ideology (Nilsson et al., 2019), we did not replicate the negative association between bullshit sensitivity and political ideology in our American online sample, $r(197) = .03$, $p = .712$. Similarly, we once again failed to observe an association between participants'

bullshit receptivity and political ideology, $r(197) = -.03$, $p = .728$. Likewise, participants' self-reported level of education[4] was uncorrelated with their receptiveness to bullshit or their ability to distinguish between pseudo-profound bullshit and motivational quotations (see Table 7). We did observe a large positive association between bullshit receptivity and religiosity, $r(198) = .35$, $p < .001$, with individuals endorsing pseudo-profound bullshit as more profound also being more likely to indicate that religion is an important part of their daily life. Relatedly, we observed a small negative association between bullshit sensitivity and religiosity, $r(198) = -.15$, $p = .040$, such that those less able to distinguish between pseudo-profound bullshit and motivational quotations were more likely to state that religion is an important part of their daily life. While this effect was modest in the current sample, similar findings connecting bullshit receptivity/sensitivity to religiosity have been described by others (Pennycook et al., 2015; Cavojova et al., 2018). Notably, these correlations were largely unaffected by the inclusion of participant's CRT scores as a covariate, $r(197) = .34$, $p < .001$ and $r(197) = -.13$, $p = .068$[5]. Lastly, we observed a moderate positive correlation between bullshit receptivity and household income, $r(198) = .25$, $p < .001$, with higher profundity ratings of pseudo-profound bullshit associated with greater self-reported household income. Similarly, we observed a small negative correlation between bullshit sensitivity and household income, $r(198) = -.14$, $p = .047$, such that participants less able to distinguish between pseudo-profound bullshit and motivational quotations were more likely to report greater levels of household income. Once again, these correlations were found to

[4] We chose not to examine any correlations with participants' self-reported level of education in Study 1 due to the homogeneity of this variable within our undergraduate student sample.

[5] While the correlation between bullshit sensitivity and religiosity was no longer significant after the inclusion of CRT score as a covariate, it should be noted that the magnitude of this correlation was largely unaffected (decreasing from r = -.15 to r = -.13). A similar conclusion was drawn for the observed association between bullshit sensitivity and household income.

be largely unaffected by the inclusion of CRT score as a covariate, $r(197) = .25$, $p < .001$ and $r(197) = -.14$, $p = .053$.

Table 7

Study 5 Correlations: Belief, Thinking Disposition, and Demographic Measures

	M	*SD*	1	2	3	4	5	6	7	8	9	10
1. BSR	2.54	0.92	(.92)									
2. BSS	0.68	0.93	-.62**	-								
Belief-Based Measures												
3. STSF	3.78	0.71	-.15*	.13	(.63)							
4. QCP	2.01	0.69	.27**	-.11	-.08	(.76)						
Thinking Dispositions												
5. CRT	1.98	1.34	-.12	.12	.03	-.18*	(.59)					
6. Wordsum	7.48	1.51	-.28**	.21**	.14*	-.11	.20**	(.55)				
Demographic Measures												
7. Education	4.39	1.26	.01	-.01	-.14	-.08	.25**	.18*	-			
8. Political Ideology	2.69	1.17	-.03	.03	.05	.12	.04	-.04	-.17*	-		
9. Religiosity	2.83	1.77	.35**	-.15*	-.13	.35**	-.15*	-.17*	-.08	.35**	-	
10. Household Income	3.43	1.68	.25**	-.14*	-.14*	.14	-.03	-.10	.38**	.02	.11	-

Note. Pearson correlations (Study 5; *N* = 200). *BSR* = Bullshit Receptivity scale; *BSS* = Participants' mean motivational quotation profundity ratings minus their mean pseudo-profound bullshit statement profundity ratings. *STSF* = Susceptibility to Fraud scale; *QCP* = Willingness-to-pay for questionable claim products. Free-entry text responses were sorted into one of four categories with higher scores representing greater willingness-to-pay; *CRT* = Cognitive Reflection Test; Cronbach's alphas reported in brackets. ** $p < .01$. * $p < .05$

Discussion

The current study assessed several previously unexamined real-world correlates of bullshit receptivity across two unique samples (i.e., a Canadian undergraduate sample and an American online sample). While recent work demonstrates how receptivity to pseudo-profound bullshit is positively associated with certain beliefs, such as religious belief, belief in the paranormal, and belief in the effectiveness of complementary and alternative medicines (Čavojová et al., 2019; Pennycook et al., 2015), less work has examined the link between bullshit receptiveness and consequential real-world behaviors and outcomes (Iacobucci & De Cicco, 2021). To this end, we assessed whether being receptive to pseudo-profound bullshit (i.e., judging pseudo-profound bullshit statements as profound) was associated with problem gambling, harm from drugs and alcohol, engagement in imprudent financial behaviors, general life satisfaction, and the use of complementary and alternative medicines.

We find some evidence of individuals' receptiveness to pseudo-profound bullshit being associated with their self-reported behaviors and outcomes. First, consistent with past work linking belief in complementary and alternative medicines with receptivity to pseudo-profound bullshit (Čavojová et al., 2019; Pennycook et al., 2015), receptiveness to pseudo-profound bullshit was associated with reporting more frequent use of complementary and alternative medicines, both within our student and online Mechanical Turk samples. Second, within our student sample (Study 4), receptiveness to pseudo-profound bullshit was associated with the experience of gambling-related harms (i.e., problem gambling), a previously unexamined correlate of bullshit receptivity. No such association was observed within our Mechanical Turk sample. Interestingly, within our Mechanical Turk sample (Study 5), we observed an association between bullshit receptivity and scores on the satisfaction

with life scale such that receptiveness to pseudo-profound bullshit was associated with greater life satisfaction. Lastly, across both our student and Mechanical Turk samples, we found no relation between bullshit receptivity and engagement in imprudent financial behaviors or between bullshit receptivity and harm experienced from drugs or alcohol.

Why might receptivity to bullshit be associated with the use of complementary and alternative medicines, as well as with problem gambling behaviors leading to experienced gambling-related harms? According to Pennycook and colleagues (2015), receptivity to pseudo-profound bullshit can result from a general gullibility (i.e., to view any and all statements as profound). Therefore, to the extent that such gullibility may aid in the belief that one will benefit financially from frequently playing negative expected value gambles or that an epistemically suspect treatment (e.g., “distance healing”) will improve one’s health, receptivity to pseudo-profound bullshit may be predictive of one’s experience of gambling harms and use of alternative medicines. Furthermore, according to Pennycook and colleagues, receptivity to pseudo-profound bullshit can also be explained as a result of individual’s failing to engage in critical reflection when encountering pseudo-profound bullshit statements. Past work has demonstrated that performing poorly on measures of cognitive reflection (e.g., the CRT) is associated with individuals possessing greater belief in complementary and alternative medicines (Pennycook et al., 2015) as well as experiencing more gambling-related harms (Armstrong et al., 2020; Stange et al., 2018). Therefore, individual thinking styles, specifically the propensity to engage in critical reflection when appropriate, may in part explain the observed associations between participants’ ratings of pseudo-profound bullshit within an inconsequential laboratory task and self-reported real-world behaviors (i.e., use of complementary and alternative medicines) and outcomes (i.e., experienced gambling-related harms).

In support of the role of cognitive reflection in moderating the relation between bullshit receptivity and use of complementary and alternative medicines, this relation was considerably weakened by the inclusion of CRT performance as a covariate in Study 4. Nevertheless, this was not the case in Study 5, in which cognitive reflection did not appear to moderate this association. Furthermore, the strength of the association between bullshit receptivity and problem gambling was also largely unaffected when controlling for individual differences in cognitive reflection. Therefore, the present study provides mixed evidence regarding the extent to which associations between bullshit receptivity and real-world behaviors and outcomes can be explained by individual differences in cognitive style.

An interesting finding within our Mechanical Turk sample (Study 5) was that individuals more receptive to pseudo-profound bullshit also indicated greater life satisfaction. However, the ability to distinguish between meaningless pseudo-profound statements and meaningful motivational quotations (i.e., bullshit sensitivity) was not correlated with participants' life satisfaction. Therefore, the positive association between bullshit receptivity and life satisfaction that we observed in Study 5 may simply be a result of those perceiving pseudo-profound bullshit as profound being more likely to possess a more "optimistic" outlook. That is, failing to detect bullshit in our environment is unlikely to lead to greater life satisfaction, however, those with a low threshold for perceiving communication as meaningful or profound may be more easily impressed or satisfied, potentially leading to the novel positive correlation observed here.

Along with assessing novel associations between bullshit receptivity and various real-world behaviors and outcomes, we were also able to replicate previously demonstrated correlations between bullshit receptivity and a host of belief-based and thinking-based measures. For example, consistent with past work (Pennycook et al., 2015; Walker at al.,

2019), participants' scoring higher on measures of cognitive reflection (i.e., the CRT) and verbal intelligence (i.e., the Wordsum) were less likely to judge pseudo-profound bullshit statements as profound and were more likely to distinguish between pseudo-profound statements and motivational quotations. However, it should be noted that, in our Mechanical Turk sample (Study 5), associations between bullshit receptivity and CRT performance as well as between bullshit sensitivity and CRT performance were small and did not reach statistical significance. Additionally, we observed a positive correlation between bullshit receptivity and religiosity, with receptivity to pseudo-profound bullshit being associated with religion playing a more important role in individuals' lives, although this association was small and did not reach statistical significance within our student sample (Study 4) although this connection has been documented elsewhere in the literature (Pennycook et al., 2015; Cavojova et al., 2018). Nevertheless, the results of the present study are somewhat supportive of theoretical claims linking lower bullshit receptivity to greater cognitive reflection and better verbal intelligence (Pennycook et al., 2015; Walker at al., 2019) as well as empirical findings demonstrating positive associations between bullshit receptivity and religiosity (Pennycook et al., 2015; Cavojova et al., 2018).

Questionable Claim Products

Given many peoples' receptiveness to pseudo-profound bullshit, pseudo-profound statements may be used by individuals looking to impress others in a low-effort way. That is, pseudo-profound bullshit may appear impressive to some individuals while also being relatively easy to generate on account that it need not communicate anything true or meaningful. Consistent with this claim, past work demonstrates that indiscriminately adding computer-generated pseudo-profound bullshit titles to art makes art appear more profound, compared to scenarios in which a mundane title or no title is used (Turpin et al., 2019,

Chapter 2 of this thesis). Based on this finding, and from evidence on social perceptions of bullshitters (Turpin et al., 2021, Chapter 4 of this thesis), it has been argued that pseudo-profound bullshit can be used as a low-cost strategy to gain prestige in prestige-awarding domains. One common real-world scenario in which individuals may utilize pseudo-profound statements for their own benefit is when attempting to sell faulty or unimpressive products. Here a salesman may be able to utilize superficially impressive yet vacuous claims to convince some individuals that a mundane product (e.g., a wearable sticker) is of great value. In scenarios like this, bullshit is deployed strategically for the purposes of enriching oneself, independent of the true value of any given product. We interpret this as further informing a view of bullshit as a strategic behaviour leveraging an ability to obfuscate the truth in combination with being superficially impressive as a means of gaining advantage in competitive domains.

In the present study, we created three mundane products (e.g., a blank canvas) and attached product descriptions to these products that made impressive claims of seemingly questionable accuracy. As predicted, we observed a moderate positive correlation between participants' bullshit receptivity and their willingness-to-pay for questionable claim products within both our student and online samples. Additionally, we observed some evidence for a small negative association between participants' bullshit sensitivity and their willingness-to-pay for questionable claim products. Therefore, one possible real-world consequence of being receptive to pseudo-profound bullshit (even within a laboratory task) is that such individuals may be more likely to be persuaded into paying significant sums of money for products of limited value. While we did not assess real-world purchasing behaviors in the present study, instead assessing participants' willingness-to-pay for questionable products

within a hypothetical scenario, future studies may investigate the extent to which bullshit receptivity is associated with overpaying for products featuring dubious claims.

A commonality shared between the appeal of new-age medicines, the over-inflated and flowery nature of pseudo-profound bullshit statements, a promiscuous ascription of wonder and profoundness, religiosity, and the appeal of questionable but fantastical sounding products may be an aesthetic appreciation for the absurd or impossible. There is a casual association between new-age practitioners and the use of pseudo-profound bullshit with even the original pseudo-profound bullshit scale borrowing quotations from a prominent new-age guru (Pennycook et al., 2015). A relation between pseudo-profound bullshit and the inflated language characteristic of the “artspeak” commonly used among (especially post-modern or abstract) artists has also been established (Turpin et al., 2019, Chapter 2 Rule & Levine, 2012). This sets up multiple avenues for future work to further explore traits of those receptive to pseudo-profound bullshit: a greater tendency to fall for the “guru effect” (Sperber, 2010), a general preference for complex or fantastical explanations over simple ones for phenomena, higher dispositional optimism (Carver, & Scheier, 2014), and a greater tendency to experience “awe” (Keltner & Haidt, 2003). A complication for this view would be the natural prediction that personality characteristics such as trait Openness should predict receptivity to pseudo-profound bullshit, but so far, this relation has been found to be weak or nonexistent (Bainbridge et al., 2019; Čavojová et al., 2020).

Limitations

The present study was not without its limitations. First, all measures of real-world outcomes and behavior were self-reported and thus could have been skewed by a desirability bias or similar phenomena. While more objective measures of participants’ real-world behaviors and experienced outcomes would have been desirable, measuring real-

world outcomes using self-report measures is common as a result of the difficulty and ethical quandaries associated with having participants potentially engage in consequential behaviors and experience real-life harm (Bruine de Bruin et al., 2007; Butler, 2012; Butler et al., 2012; Toplak et al., 2017).

Conclusion

Since its recent introduction, research examining peoples' receptiveness to pseudo-profound bullshit has uncovered several beliefs and traits associated with the endorsement of pseudo-profound bullshit as profound. Nevertheless, considerably less is known with regards to the real-world behaviors and outcomes associated with individuals displaying a receptiveness to pseudo-profound bullshit. The present study takes an initial step towards exploring whether bullshit receptivity carries behavioral or material consequences outside of the laboratory. Here, we report novel associations between bullshit receptivity and real-world behaviors (e.g., use of complementary and alternative medicines) and outcomes (e.g., experience of gambling-related harms), while also observing a lack of association between bullshit receptivity and other consequential behaviors (e.g., financial behaviors) and outcomes (e.g., substance abuse harm). Overall, it is clear from the current work that the relation between the perception of profoundness in pseudo-profound bullshit and real-world outcomes may not be as simple as irrational beliefs or promiscuous ascriptions of meaning necessarily leading to negative life outcomes under all circumstances.

Chapter 4
Bullshit and Perceptions 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 fascination for 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). It remains a puzzle to explain why humans continue to support the steep investment of resources that come 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). Classically, intelligence has often been considered mostly—or sometimes solely—for its value in manipulating and understanding the physical world (Humphrey, 1976), the environment for an organism being a series of cognitive puzzles which intelligence assists them in completing. More recent developments have expanded on this classical understanding through acknowledging that the complexities of an organism's social life may place just as high of a demand on an organism's intelligence as the complexities of its physical life (if not more; Byrne, 1996; Byrne & Whiten, 1990; Whiten,

2018). Far removed from the relatively sterile cognitive puzzles with which we now test and study intelligence, there is reason to believe that the origin of intelligence is best understood for its social uses. It is this perspective that grounds the current work.

Several theories have been forwarded to explain the high level of intelligence observed in humans. Some of the most promising among these theories have examined intelligence for its value in assisting us in navigating the complex social systems that characterize our species. Intelligence in the social world is theorized to have been formed primarily in response to three pressures. The first is the need to accurately signal intelligence in order to demonstrate genetic quality and fitness to potential mates (McKeown, 2013; Miller, 2000; Miller & Todd, 1998). The second, is a pressure to manipulate, deceive, or influence others through the application of such social intelligence (Byrne, 1996; Byrne & Whiten, 1990; Handel, 1982; Sharma et al., 2013; Whiten, 2018). The third, is the pressure to accurately maintain and manipulate mental models of complex social networks and interactions, as well as being able to simulate the mental states of others (Bjorklund & Kipp, 2002; Mercier & Sperber, 2011; Roth & Dicke, 2005; Stone, 2006). A cartoonish description of the hypothetical person who exemplifies all these traits in the extreme would be one who shows off their intelligence whenever possible, tells lies when it is advantageous to do so, and is capable of keeping track of all the lies they have told.

Possessing a high level of intelligence allows humans to meet the intense demands placed on them by complex social systems. Beyond the Machiavellian value of social savvy, evidence suggests that large brains and their corresponding cognitive advantages may have been selected for as a result of their sexual appeal (Crow, 1993; McKeown, 2013; Miller, 2000; Miller & Todd, 1998; Schillaci, 2006). In line with signaling accounts, charisma in the form of humor and leadership abilities has been argued to function as an honest signal of

desirable qualities, including cognitive ability (Greengross & Miller, 2011; Grabo et al., 2017). 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; it looks dangerous, because it is. In contrast, a dishonest signal is an attempt to mislead another organism into believing that the signaler possesses a trait which it does not. For example, a harmless insect may possess the same coloration as a harmful wasp, falsely signaling that it is just as dangerous as a wasp in order to avoid predation; it looks dangerous, but it is not. In the context of sexual signaling in humans, a person of high intelligence who is able to communicate this to others is giving an honest signal that they possess this desirable trait. In this case, the “honesty” of a signal is independent of the truth content of the specific communication used to signal. For example, a smooth and intelligent liar may give the impression that they are intelligent even while saying nothing true.

The ability to produce satisfying bullshit, 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 both signaling one’s intelligence, and deceiving others to one’s advantage. 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, Chapter 2 of this thesis). 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. In this way, bullshit may serve as an honest signal of a person’s intelligence (and therefore their fitness), even though the specific content of the bullshit itself may be false.

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 the frequency of bullshit production (Littrell et al, 2020a; 2020b), 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, Chapter 2 of this thesis; 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 et al., 2020a). This type of bullshitting (i.e., evasive bullshitting) could be employed to avoid lying, while replacing the direct response with a less relevant truth (Carson, 2016; Littrell et al., 2020a). For example, a friend gifts you a sweater that you find hideous, but when asked how you like it, you respond with *"thank you, this is very thoughtful of you!"* Given the potential usefulness of bullshit as a method for navigating social systems, and with evidence that human intelligence may be set up largely for navigating the social world, an open question is whether bullshit 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 (e.g., 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 the role which bullshit ability plays in signaling 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., with 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 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 6

Method

Participants

A sample of 483 undergraduates from the University of Waterloo, located in Ontario, Canada, volunteered to complete Study 6 in exchange for course credit.

Materials and Measures

A full list of the materials and measures presented in Study 6 can be viewed in Appendix C.

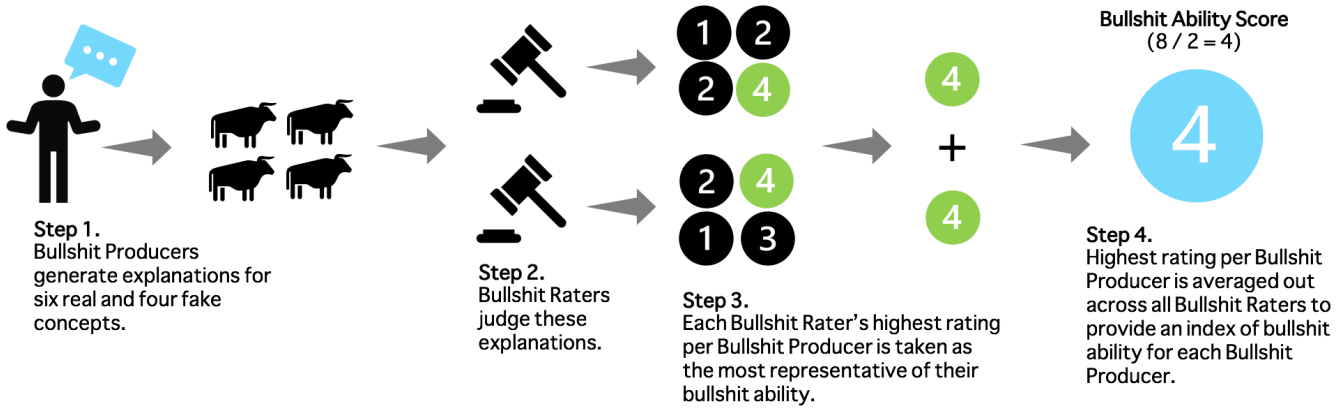
Bullshit Willingness and Generation Task. Inspired by Jerrim and colleagues (2019), we presented participants with ten concepts (e.g., cognitive dissonance) four of which were fake (i.e., subjunctive scaling, declarative fraction, genetic autonomy, neural acceptance). Participants' first task (bullshit 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—consistent with descriptions of bullshit as being characterized by a lack of concern for the truth (Frankfurt, 2009) —were 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." The verbatim instructions were as follows:

> *Your task is to try to* ***produce the most convincing and satisfying explanation*** *that you can for each term.*
>
> *For terms that you are* ***knowledgeable*** *about, we ask that you simply explain them as best you can (that is, in the most convincing and satisfying way).*
>
> *For terms that you are* ***unfamiliar*** *with, we ask that you* ***be creative and make up an explanation*** *that you think others will find convincing and satisfying.*
>
> ***Do not worry about the truth of your claims*** *when making up your explanations, rather, you may treat this as a creative writing exercise.*

Explanation Evaluations. We had a sample of participants (Bullshit Raters) judge the accuracy and satisfactoriness of 120 explanations of fictitious concepts produced by 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 that ranged from "*Not at all Satisfying*" to "*Very Satisfying*." This resulted in each Bullshit Producer having one "satisfyingness" and "accuracy" judgement for each of the bullshit statements that they generated. The highest scoring item out of these bullshit statements was selected to be the best indicator of their bullshit ability. The "accuracy" and "satisfyingness" ratings of this item was averaged to create a "Bullshit Ability" score which was then averaged across all Bullshit Raters who rated that Bullshit Producer's statements (see Figure 2). This method of calculating bullshit ability was adapted from Greengross and Miller (2011) who used a similar process to calculate participants' humour ability.

Figure 2



Note. Visual depiction of how bullshit ability was computed in the present study. This figure

is only a representation of the process and does not align to the total number of explanations generated by Bullshit Producers or the number of Bullshit Raters assigned to evaluate Bullshit Producers.

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. Additional information concerning how participants in these studies compared to typical performance can be found in Appendix C.

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 6. We calculated an RPM score for each participant by calculating the number of correct responses they provided. Additional information concerning how participants in these studies compared to typical performance can be found in Appendix C.

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.

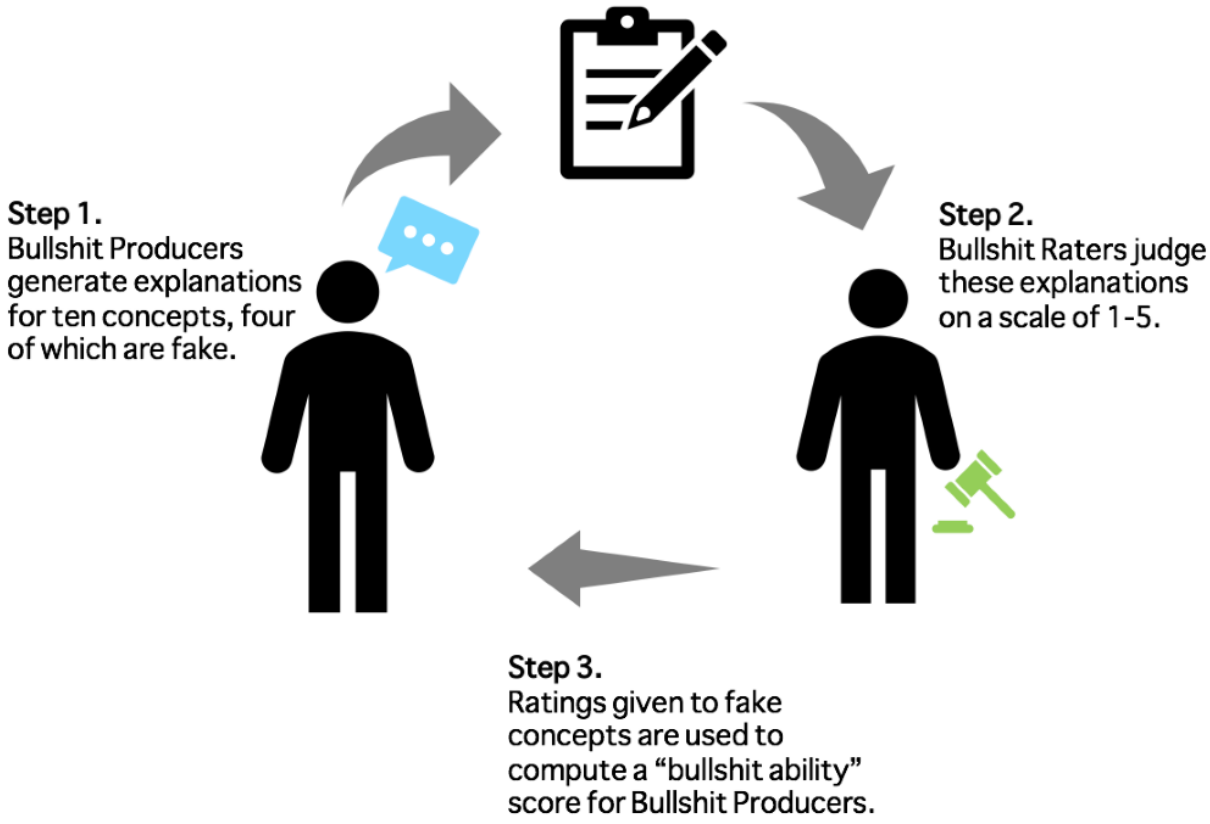
Design and Procedure

Study 6 was conducted in two phases (see Figure 3). First, we had 220 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 (10 pseudo-profound bullshit, 10 motivational quotations, and 10 mundane 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 random 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 3



Note. Visual depiction of the methodology used in the present research. Participants in our Bullshit Producers sample (n = 220) generated explanations of both real and fake concepts which were then judged by the Bullshit Raters sample of Study 6 (n = 263) and Study 7 (n = 534). These judgments were used to calculate a bullshit ability score for each Bullshit Producer.

Results

We conducted correlational analyses between our main variables of interest (see Table 8). 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 (although note that the bullshit ability of each participant in our Bullshit Producers sample was judged exclusively by our Bullshit Raters sample). All analyses focused on individual differences within our Bullshit Raters sample can be viewed in Appendix C. Of primary interest was to assess whether participants' ability to bullshit (i.e., produce seemingly satisfying and accurate explanations of fake concepts as indexed by the average of these two ratings) 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), $r(216) = -.09$, $p = .217$. 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 (i.e., rate pseudo-profound bullshit items higher on profoundness), $r(217) = .32$, $p < .001$, as well as were less likely to distinguish between meaningless pseudo-profound bullshit and meaningful motivational quotations (bullshit sensitivity: calculated as the difference between pseudo-profound bullshit ratings and ratings of motivational quotations for their profoundness), $r(217) = -.22$, $p = .002$. Thus, contrary to the common expression, it may indeed be possible to "bullshit a bullshitter."

Table 8

Study 6 Correlations

	M	*SD*	1	2	3	4	5	6
1. Bullshit Ability	2.72	0.65	-					
2. Bullshit Willingness	6.27	2.95	.04	-				
3. Bullshit Receptivity	2.59	0.90	-.09	.32**	-			
4. Bullshit Sensitivity	-0.79	0.77	.03	-.22**	-.66**	-		
5. Raven's Progressive Matrices	14.61	2.93	.15*	-.33**	-.32**	-.20**	-	
6. Wordsum	6.27	1.77	.23**	-.17*	-.36**	-.29**	.40**	-

Note. Pearson correlations (Study 6 Bullshit Producers; $N = 220$. In Study 6, Bullshit Ability was judged by our Study 6 Bullshit Raters sample ($N = 263$). ** $p < .001$, * $p < .05$.

Study 7

Study 6 provides 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 7, we assessed whether those able to generate convincing bullshit are viewed as more intelligent than those less able to generate convincing bullshit.

Method

Participants

A sample of 534 University of Waterloo undergraduates completed Study 7 in exchange for course credit. 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 credits. As a result, an additional 256 participants were collected. These additional participants were collected before any analyses were conducted.

Materials and Measures

The materials and measures used in Study 7 mirrored that of Study 6. The only difference was that in Study 7 participants also judged the intelligence of the producer of each explanation. Study 7 made use of the same fictitious explanations generated by the "Producer" sample in Study 6, and recruited a new sample of Bullshit Raters to rate those explanations.

Explanation Evaluations. As in Study 6, we had participants judge how accurate and satisfying they found explanations of various concepts. However, in Study 7 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 that ranged from "*Not at all Intelligent*" to "*Very Intelligent*." In the same fashion as Study 6, the highest rated bullshit explanation for each bullshit producer was taken to calculate a bullshit ability score (average of satisfyingness and accuracy ratings) as well as their perceived intelligence.

Design and Procedure

As in Study 6, participants began Study 7 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 6) and made judgments regarding the satisfactoriness and accuracy of each explanation and the intelligence of each explanation producer. 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 Raven's Progressive Matrices and Wordsum tasks.

Results

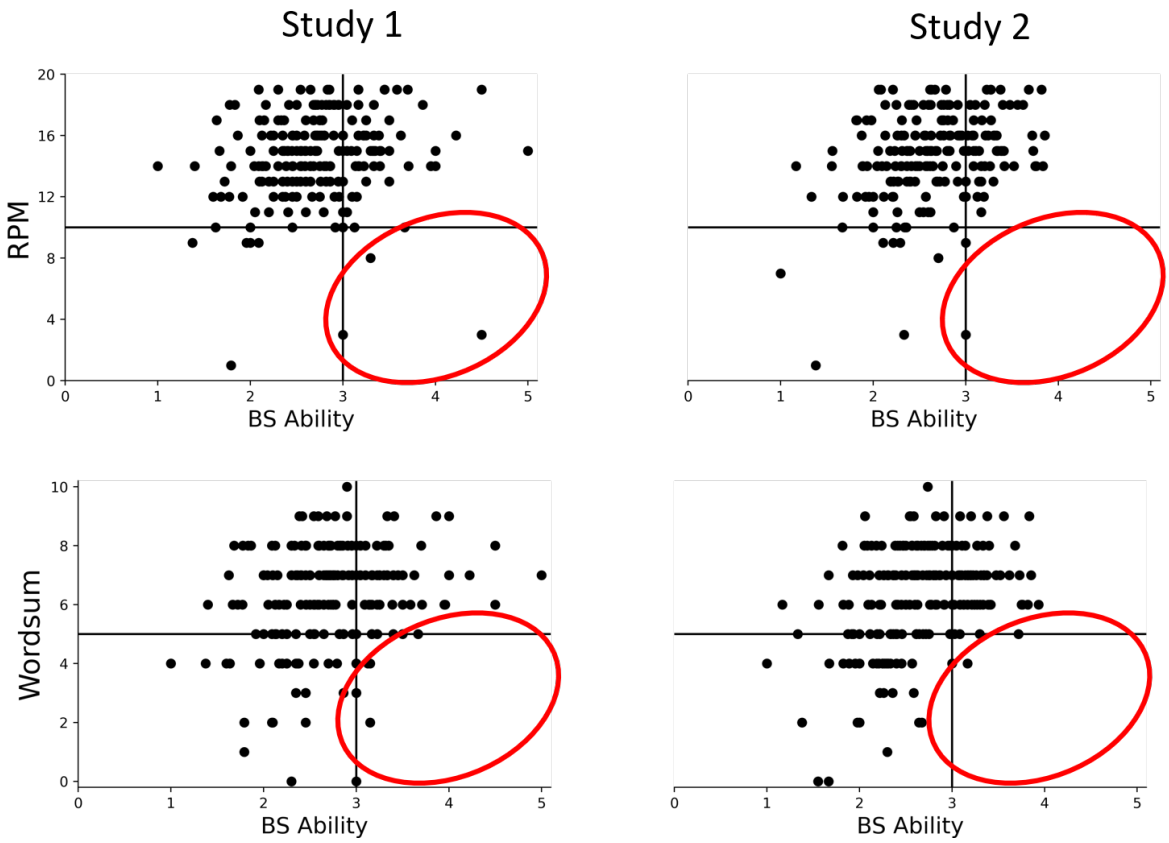
We conducted correlational analyses between our main variables of interest. As our focus remained on the characteristics (e.g., intelligence) of those producing bullshit, we once again focused exclusively on the associations within our Study 6 Bullshit Producers sample. Importantly, the results reported here feature judgments of Bullshit Producers' bullshit ability and perceived intelligence, as judged exclusively by our Study 7 sample. Analyses examining the associations between the bullshit willingness, bullshit receptivity, and cognitive ability of our Study 7 (i.e., Bullshit Rater) sample can be viewed in Appendix C.

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, $r(217) = .95$, $p < .001$. This association is consistent with the hypothesis that producing satisfying and seemingly accurate explanations of completely fictional concepts is perceived by individuals as a signal of intelligence. Interestingly, the perceived intelligence of Bullshit Producers was negatively

associated with their receptivity to pseudo-profound bullshit, $r(217) = -.20$, $p = .003$. 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 6, we observed no association between bullshit ability and bullshit willingness, $r(217) = -.05$, $p = .480$. Therefore, those able to produce 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.

A possible explanation for the observed modest associations between bullshit ability and cognitive ability is that while good bullshit producers may often 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 strength of the association between bullshit ability and 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 bullshit ability (circled regions in Figure 4). We interpret this as a demonstration that bullshit ability is a reliable indicator of when someone is intelligent, but that having low bullshitting ability does not necessarily mean that one is unintelligent.

Figure 4



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.

Discussion

The current work provides initial evidence for bullshit ability 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). Interestingly, we find that one's *ability* to produce satisfying bullshit is independent of one's *willingness to produce* bullshit. Indeed, the two were uncorrelated in our studies, and had opposite associations with measures of intelligence. Others have found similar negative associations with measures of intelligence. For example, Pennycook and Rand (2019) found that overclaiming (arguably a form of bullshitting very similar to our bullshit willingness measure) was negatively correlated with performance on the Cognitive Reflection Task. Additionally, in a study by Littrell and colleagues (2020b), intelligence (as indexed by Numeracy and Wordsum) was found to be negatively associated with persuasive bullshitting frequency.

It would seem logical that those who are better at bullshitting would opt to use it more frequently, however, we do not find this here. A possible explanation may be one which appeals to Theory of Mind models of intelligence. Of the three evolutionary pressures discussed in the introduction, the current set of studies has largely focused on a Machiavellian view, that intelligence affords us opportunities to deceive others to our advantage, as well as an IQ-signaling perspective, whereby bullshitting may be useful as an honest signal of a person's quality or fitness through signaling their intelligence. We may lean on the third pressure to explain why it is that despite their superior ability to create bullshit, intelligent people seem to display less willingness to spontaneously engage in bullshitting. Part of this explanation may be that increased intelligence also results in a more sophisticated ability to simulate the mental states of others. In casual language, this may be

described as “knowing your audience” and as such, they may possess a more sophisticated understanding of when and where bullshitting will work if attempted. Further, if highly intelligent people tend to associate with similarly intelligent people due to factors related to assortative mating, for example, intelligent people preferring intelligent mates or, “like pairs with like” (Thiessen & Gregg, 1980) or general homophily (McPherson, Smith-Lovin, & Cook 2001) they may often find themselves around people who are likely to detect attempts at bullshitting, lowering its appeal as a first-order social strategy. As previous research has argued, a determiner of whether people will make an attempt to bullshit someone is whether they believe it will go undetected (Petrocelli, 2018). If smarter people are better able to know the contents of other people’s thoughts, they may be more carefully calibrated to the conditions under which an attempt at bullshitting will be unsuccessful. Of note, “bullshit ability,” as measured in our studies, involved the production of explanations for fake concepts, while “bullshit willingness” only required that the participant be willing to rate their knowledge of such fake concepts higher than “none.” Therefore, the lack of association we observed could be due to the specific methods selected to measure these two constructs. Future work should further dissociate the processes underlying one’s ability and willingness to produce bullshit.

While work has begun examining the degree to which personality may predict receptivity to bullshit (Bainbridge et al., 2019; Čavojová et al., 2020), it has yet to be explored how personality influences the tendency or ability to bullshit. It could be the case that different personality traits (e.g., openness, honesty-humility, agreeableness; Lee & Ashton, 2004), moderate one’s willingness to engage in bullshitting. For example, a person who scores high in honesty-humility, a personality dimension which captures traits like sincerity, fairness, or modesty, may be less willing to bullshit, given that bullshitting is

characterized by the desire to impress others without regard for the truth. The reverse may be true for those who are low in agreeableness, they may, especially when confronted with a disagreement, be more likely to deemphasize the importance of truth in favor of self-advancement through the use of bullshit. The numerous ways that common personality factors may interact in predicting the tendency and ability to bullshit makes for a promising topic of future exploration.

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. In addition, as Bullshit Raters rated bullshit ability and perceived intelligence using similar 5-point scales, the strength of this association may be inflated due to unthoughtful responding by some participants (i.e., some participants may be inclined to simply select the same values on the scales).

Overall, we interpret these results as initial evidence that the ability to bullshit well provides an honest signal of 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 individual's goals (such as acquiring status or impressing mates). That is, a person can engage in the arduous process of acquiring expert skills in domains that they could then leverage to accomplish certain goals, or can use bullshit as a strategy that potentially produces the same benefits at a much smaller cost (Turpin et al., 2019, Chapter 2 of this thesis). 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, advertising, politics, life coaching, journalism, humanities).

Limitations

An obvious limitation of the current work is its correlational nature, meaning that we cannot conclude that being more intelligent *causes* a person to be a better bullshitter. The current study merely provides preliminary evidence consistent with one plausible causal model. Future work should seek to explicitly probe the causal relation between intelligence and bullshit ability if any such relation exists. In addition, as noted above, the association between perceived intelligence and bullshit ability is likely overestimated in our sample due to the limited information available to the raters and the means of assessment. With respect to the latter, future research should include alternative metrics to assess perceived intelligence (e.g., estimating the actual IQ of bullshit producers using a number rather than a rating scale) to limit the possibility of unthoughtful responding contributing to the association. The use of the WordSum and Raven's Progressive Matrices made the conduct of the study possible given constraints on time. Independently, they predict IQ fairly well with correlations

ranging between r =.55 and r = .66 between scores on the Wechsler Adult Intelligence Scale and Raven's Matrices, and a correlation between Wordsum performance and IQ of r = .88. (Burke, 1985; McLaurin et al., 1973; Malhotra et al., 2007). However, more sophisticated measures for IQ would improve the accuracy of any cognitive ability measurement and therefore provide a more exact picture of the true relation between bullshit ability and cognitive ability. Relatedly, more opportunities to assess bullshit ability through either increasing the number of fake concepts participants were to bullshit about, or even better, using multiple different tasks which meet the criteria for "bullshitting" would improve our ability to draw conclusions about "bullshitting" behavior generally.

The bullshit generation task required participants to produce bullshit by explicitly directing them to ignore the truth. This is, under a Frankfurtian definition, "bullshit", but this task is merely a substitute for the truly interesting question of how bullshit ability and cognitive ability relate in naturalistic settings, where bullshitting happens spontaneously. This artificial task is sufficient for establishing some initial evidence of the link between bullshit ability and cognitive ability, but more work is required to identify the nature of this relation.

Conclusion

The current work provides initial evidence for bullshit ability as an honest signal of intelligence. While much research has focused on the cognitive shortcomings of those receptive to bullshit (Čavojová et al., 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.

Chapter 5
Exploring an Aesthetics-focused Mechanism for Bullshit Receptivity

Much of the extant literature on bullshitting leans heavily on what can be described as the Frankfurtian view (Frankfurt, 1986, 2006), which as discussed previously, describes “bullshit” as a form of communication characterized by a lack of concern for truth. A bullshitter may say true things, or untrue things, but they are indifferent to the truth value of what they say, a bullshitter is interested in some effect (e.g., to impress people or to appear intelligent) other than earnest communication of truth. This view has provided a good starting point for research into bullshit in psychology, but several limitations are apparent, not the least of which is that it relies on the intentions of the bullshitter which are not easily accessible in an experimental environment. Without knowing completely “why” somebody said something, it is not easy using the Frankfurtian view to definitively conclude that it is “bullshit”. Additionally, the Frankfurtian view is a definition of bullshit that is centered on a description of the bullshitter and cannot be easily used to determine what about the bullshit itself lends it persuasive power. Once a message is beyond its original maker, what features determine whether it is persuasive or effective? This demands an alternative view that focuses on the properties of the bullshit itself and this view was provided by Gerry Cohen who proposed a definition of bullshit characterized by “unclarifiable unclarity” (Cohen, 2002). Unclarifiable unclarity is unclear communication which cannot be rendered clear by examination. Attempts to do so usually involve interpretation and reinterpretation of the message until it is in a form that does not remotely resemble the original statement. This view carries the advantage that it is focused on the features of the specific instance of bullshit as an item, rather than inaccessible intentions of the speaker.

If bullshit is “unclarifiably unclear” such that attempts to interpret it will not result in receiving a clear unambiguous message, people must be relying on some other feature than the content of the message when either evaluating it in the lab or (when encountering bullshit in everyday life) accepting it as a suitable substitute for actual clear argument. In the psychology of persuasion there is a model known as the “Elaboration Likelihood Model” (Petty & Briñol, 2011; Petty & Cacioppo, 2015) which posits two main routes of evaluating persuasive messaging. The *central route* involves the careful consideration of the logic and truth value of a message (i.e., quality of presented evidence, logical validity, etc.). In contrast, the *peripheral route* involves responding to general positive or negative cues about the message (i.e., source attractiveness, reputation of a messenger, tone of the message, etc.). Whether a message will be thought about carefully (or “elaborated on”) is determined by factors including the individual person’s motivation to elaborate, as well their ability to elaborate. For example, a person who is occupied with a cognitive task when presented with a message will be limited in their ability to think deeply about the message. In the strongest interpretation of “unclarifiable unclarity” bullshit, by its obfuscatory nature, is impossible to process at a high level of elaboration (e.g., it is not possible to think and truly examine bullshit as it is unclarifiable). In this case, the central route of persuasion may be especially unlikely to engage, and as such, the processing of bullshit may be strictly relegated to the peripheral route. This does not mean that all bullshit is necessarily persuasive, some other factor targeting the peripheral route in combination with its unclarity must combine to lend it persuasive power.

Aesthetics and judgment

The effect of a stimulus’ aesthetic qualities on how it may be processed or perceived has been documented in a variety of studies and research areas. In social psychology, it

has been consistently shown that more physically attractive people tend to be judged to possess other positive traits in what is known as the “what is beautiful is good” effect (Dion, Berscheid, & Walster, 1972; though not universally for all traits, see Eagly et al., 1991 for a review). In the processing of written statements and aphorisms, it has been demonstrated that rhyming improves perceptions of a statement’s truthfulness (McGlone & Tofighbakhsh, 1999; 2000), statements which contain antimetabole (symmetrical repetition of words across a statement e.g., “one for all, all for one”) are perceived to be more accurate than those without (Kara-Yakoubian et al., 2022), actions described euphemistically rather than with harsh language are judged more favorably (Walker et al., 2021), and so on. Whether something is perceived to be aesthetically pleasing or beautiful seems to affect how it is assessed for other qualities. It has even been demonstrated that the aesthetic appreciation of abstract ideas and mathematical concepts may be universal and underpinned by the same evaluative systems used to judge aesthetics in art (Johnson & Steinerberger, 2019). Bullshit, with its tendency to include inflated language and unusual phrasing plausibly carries a certain aesthetic style, if not necessarily substance that may influence the impressions formed by the target of the bullshit. In Chapter 2, I described how bullshit overlaps in important ways with the kinds of language used in the art world (Rule & Levine, 2012; Turpin et al., 2019), suggesting that certain qualities (such as turning verbs to nouns, impossible to picture visual metaphors, etc.) may contribute to how an accompanying artwork is appreciated. It is unlikely that these stylistic norms emerged by accident, instead, whether by common consent, innocent appreciation of an inflated style of language, or by observing the potential enhancing effects when such language is used, this style of language came to be prominent as a means for communicating about art. This led to the

notion that it may be the aesthetic qualities of bullshit itself which may drive much of its appreciation, and the receptivity to it.

The current work combines the notions of Elaboration Likelihood, “unclarifiable unclarity” and the potential beauty in bullshit to form an aesthetic-account of bullshit receptivity. Understanding what features of bullshit cause it to be compelling is important for understanding bullshit as a strategy for gaining advantage in competitive domains. It is not enough to merely demonstrate that bullshit *can* be effective for impressing others, there must be a plausible mechanism for *why* it can be effective. Bullshit may be effective because in addition to being impossible or difficult to interpret or elaborate on via the central route of persuasion, bullshit which makes use of inflated language, complicated vocabulary, impossible metaphors, etc., may carry an aesthetic quality that cues an interpreter positively toward the message. The first initial test of this account, and the purpose of this investigation will be to demonstrate that perceptions of beauty in bullshit predict receptivity to bullshit.

Study 8

Methods

Participants

Two hundred one participants (M_{age} = 42.7 years, 58.2% Male) were recruited from Amazon Mechanical Turk. Participants received $1.50 upon completion of a 10-minute online questionnaire for which they were required to be residents of the United States or Canada and possess a Mechanical Turk HIT approval rate greater than or equal to 95%.

Measures

Bullshit Receptivity Scale[6]. The *Bullshit Receptivity* (BSR) scale, taken from Pennycook and colleagues (2015), was administered in Study 8. This scale consists of thirty pseudo-profound bullshit statements originally retrieved from two websites (http://wisdomofchopra.com and http://sebpearce.com/bullshit/), both of which 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, are not specifically interpretable. That is, due to their method of generation, they do not have a specific intended meaning. Participants rated the profundity of each pseudo-profound bullshit statement on a 7-point scale which ranged from 1 (Not at all profound) to 7 (Very profound). A *bullshit receptivity* score was calculated for each participant by averaging the profundity ratings provided to each of the thirty pseudo-profound bullshit statements.

Motivational Quotation Scale. To contrast the meaningless pseudo-profound statements featured in the BSR, we included ten motivational quotations, also originating from Pennycook and colleagues (2015). These statements were designed to capture a true attempt at communicating something meaningful and profound (e.g., "A wet man does not fear the rain"). Participants rated the profundity of each motivational statement using the same 7-point scale as the BSR. Similarly, participants' profundity ratings to all ten motivational quotations were averaged to create a *motivational quotation* scale score for each participant.

Mundane Statements. Ten mundane statements were included in Study 8 (Pennycook et al., 2015). These statements, while technically true and specifically

[6] Information on the Bullshit Receptivity Scale is reproduced from Chapter 2, Study 1.

interpretable, did not contain truth of a grand or profound nature (e.g., “Newborn babies require constant attention”). Once again, participants rated each of these ten mundane statements using the same 7-point scale as the BSR and motivational quotations. A profundity score for *mundane statements* was calculated for each participant by averaging the profundity ratings provided to mundane statements.

In addition to the profoundness ratings, participants also rated each statement for its truth (1-Untrue to 7-True) chosen as it is a central philosophical theme in the study of bullshitting, with the bullshitter assumed to be indifferent to truth, clarity (1-Unclear to 7-Clear) chosen as a gauge of how aware participants are of bullshit’s potential unclarifiable unclarity, beauty (1-Ugly, 7-Beautiful) chosen as a natural index of overall aesthetic reaction, and meaningfulness (1-Meaningless, 7-Meaningful) chosen with the expectation that it would be a simpler gauge on a sense of meaning in contrast to “profoundness” which is potentially a broader term.

Procedure

To be eligible, potential participants first answered two data quality control questions intended to prevent bots from participating in the study, these questions can be found in Appendix D. Following the data quality control questions, participants were shown the instructions for the item rating task as follows:

> *“You will be shown a series of statements and will be asked to rate them on a variety of features. There are no right or wrong answers, we simply want to understand your honest interpretation of the statements, respond with whatever first comes to mind.”*

Participants were then presented each item from the Bullshit Receptivity Scale in a randomized order and provided a rating on a 1-7 scale for each item's beauty, truth, clarity, meaningfulness and profoundness. They then completed general demographics questions (Appendix D).

Results

In planning for this study, it was expected that participants would distinguish between the dimensions of "profoundness" and "meaningfulness" for each set of items. Upon analysis, it became clear that for bullshit statements and motivational quotations, ratings of profoundness and meaningfulness were highly correlated (Bullshit: Pearson's $r(199) = .88$, $p < .001$, Motivational quotes: Pearson's $r(199) = .85$, $p < .001$). This complicated the decision as to which regression model to use for comparing the relative contribution of each dimension on participants' perceptions of profoundness. The ultimate decision was to combine the dimensions of profoundness and meaningfulness into a composite variable by averaging the ratings of the two together (Tables 9 and 10). For the purposes of discussion, we will still refer to this new composite variable as "profoundness" as this is the variable of interest in much of the literature. An alternative decision could have been to simply remove the dimension of meaningfulness from the models. For the sake of transparency and robustness, these alternative models are presented in Appendix D. While the magnitudes of the effect estimates vary, the overall pattern between the variables remains the same. For mundane statements however, ratings of profoundness and meaningfulness were only moderately correlated (Pearson's $r(199) = .58$, $p < .001$) and as such, meaningfulness is treated as a separate dimension from profoundness. Results for mundane statements are presented in Appendix D.

The main question of interest for this study is the degree to which profoundness ratings for bullshit items are predicted by ratings of perceived truth, clarity, and beauty as well as a comparison of the relative magnitudes of each dimension's predictive power. While ratings of motivational quotes are not the focus, they may, as they have been in the bullshit literature previously (Pennycook et al., 2015; Turpin et al., 2019, Chapter 2 of this thesis; Walker et al., 2019), be used as a contrast to inform interpretation of the bullshit results.

A multiple regression was conducted (Table 9) to test whether perceptions of a bullshit item's beauty, truth, and clarity predicted ratings of its profoundness. The overall model was significant $F(3,195) = 188$, $p < .001$, $R^2 = .743$ indicating that approximately 74% of the variability in profoundness ratings for bullshit can be explained by variability in perceptions of truth, beauty, and clarity.

Table 9. Regression of Judgements of Truth, Clarity and Beauty on Profoundness-Meaningfulness Composite (Bullshit)

R^2	.743				
Effect	Estimate	SE	t	p	β
Intercept	-1.117	0.243	-4.58	<.001	-
BS Truth	0.333	0.088	3.79	<.001	0.257
BS Clarity	0.268	0.056	4.50	<.001	0.264
BS Beauty	0.623	0.083	7.50	<.001	0.429

Perceived truth (β = 0.27, p = < .001) and clarity (β = 0.26, p = < .001) of a bullshit item were found to significantly predict ratings of profoundness. Perception of a bullshit item's beauty was also found to significantly predict ratings of profoundness (β = 0.429, p = < .001). While each dimension contributed to perceptions of profoundness, the effect of beauty was approximately twice as large as either clarity or truth.

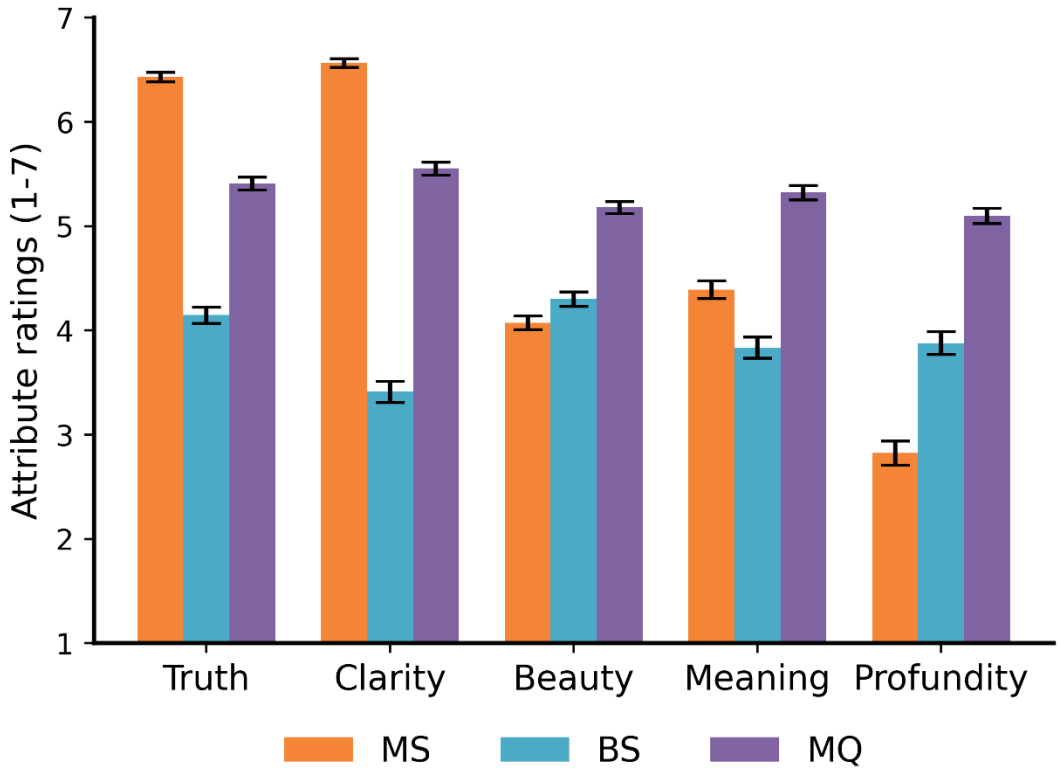
A similar multiple regression (Table 10) was conducted predicting profoundness (profoundness-meaningfulness composite) ratings of motivational quotes with ratings of each item's truth, beauty, and clarity. The overall model was significant $F(3,197) = 153$, $p <$ .001, $R^2 = .700$ indicating that approximately 70% of the variability in profoundness ratings for motivational quotations can be explained by variability in perceptions of truth, beauty, and clarity. Perceived truth of a motivational quotation was found to significantly predict ratings of profoundness (β = 0.34, p = < .001). In contrast to bullshit items, clarity did not significantly predict ratings of profoundness for motivational quotes (β = 0.05, p = .326). Mean ratings for all rating categories are presented in Figure 5.

Table 10. Regression of Judgements of Truth, Clarity and Beauty on Profoundness-Meaningfulness composite. (Motivational Quotes)

R^2	.700				
Effect	Estimate	SE	t	P	β
Intercept	-0.373	0.281	-1.33	.185	-
MQ Truth	0.376	0.068	5.52	<.001	0.341
MQ Clarity	0.060	0.061	0.99	0.326	0.053
MQ Beauty	0.621	0.065	9.62	<.001	0.527

This may be explainable by motivational quotes being originally selected as stimuli for their clarity and as such, there may not be enough disagreement among participants as to the clarity of an item to lend it discriminative value. Similar to bullshit, beauty was also significantly predictive of profoundness ratings for motivational quotations ($\beta = 0.53$, $p < .001$).

Figure 5. Mean ratings for each item type and rating dimension. Study 8



Study 9

Study 9 sought to replicate and expand upon the finding that beauty is a significant predictor of perceptions of profoundness in bullshit through the inclusion of an expanded and novel item set. If the finding that beauty significantly predicts perceptions of profoundness in bullshit is robust, it should still hold for any set of novel randomly generated pseudo-profound items.

Participants

Two hundred participants (M_{age} = 49.9 years, 51.3% Male) were recruited from Amazon Mechanical Turk. Participants received $1.50 upon completion of a 10-minute

online questionnaire for which they were required to be residents of the United States or Canada and possess a Mechanical Turk HIT approval rate greater than or equal to 95%.

Measures

Study 9 made use of the same rating scale as Study 8 as well as the same dimensions of profoundness, truth, clarity, and beauty. Due to the finding that participants did not distinguish between the dimensions of meaningfulness and profoundness for bullshit items in Study 8, meaningfulness was dropped for Study 9. In addition, to narrow down on the dynamics of bullshit specifically, mundane statements and motivational quotes were dropped from Study 9, leaving only a novel set of 30 bullshit items.

Thirty new items were generated randomly from two different random sentence generating websites. These were the Nonsense Generator (https://nonsense.x2d.org/) and the New Age Bullshit Generator (https://sebpearce.com/bullshit/). These generators randomly string together words from a bank to form sentences which retain grammatical structure, with no human-intended specific meaning. All statements can be found in Appendix D.

Procedure

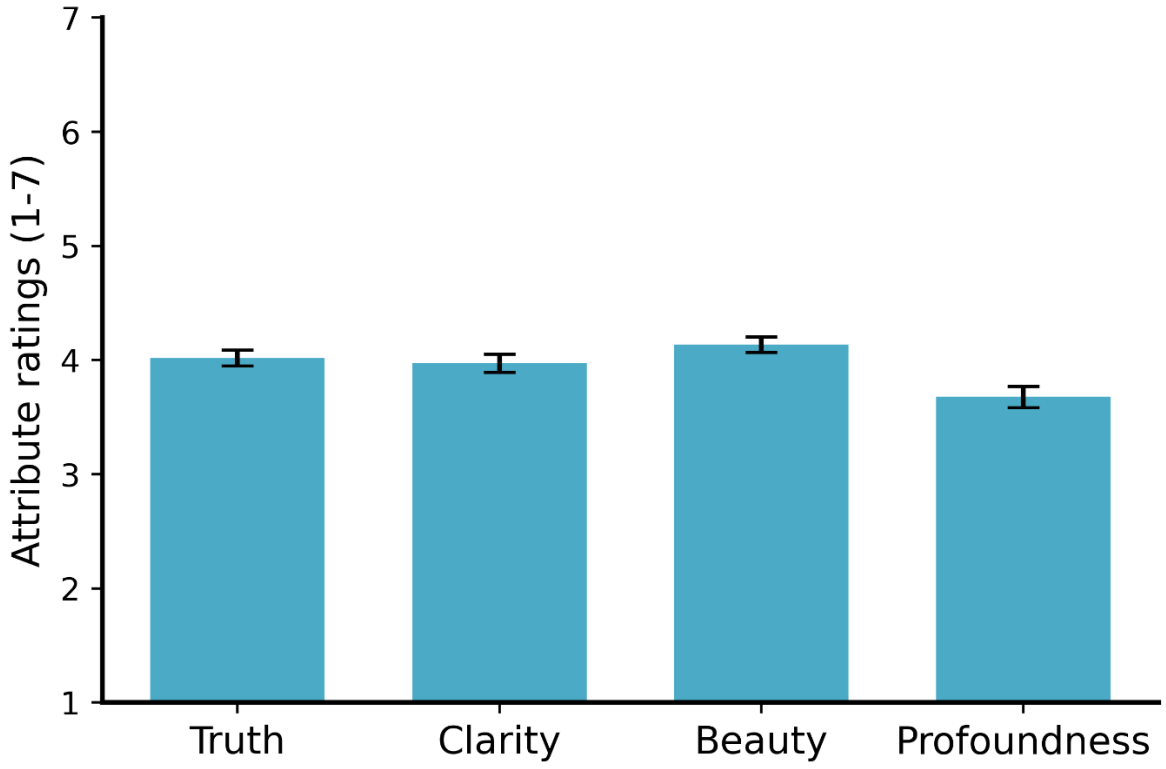
The procedure was identical to Study 8. In addition, the same bot screening process described in Study 8 was also used for Study 9. As in Study 8, participants were presented 30 bullshit items (newly generated) and provided ratings on a 1-7 scale for each item's truth, clarity, beauty, and profoundness.

Results

Although the purpose of generating the new set of items for Study 9 was not to validate a new scale, reliability analyses were conducted on each dimension to confirm that

it was reasonable to treat the items as a single set, despite the items having been created using two different generators. Across all dimensions, the set of items displayed high internal consistency (Truth: Cronbach's α = .934, Clarity: Cronbach's α = .935, Beauty: Cronbach's α = .945, Profoundness: Cronbach's α = .965). Mean values for each rating dimension are depicted in (Figure 6)

Figure 6. Mean ratings for each item type and rating dimension. Study 9



A multiple regression was conducted (Table 11) to test whether perceptions of a bullshit item's beauty, truth, and clarity predicted ratings of its profoundness. The overall model was significant $F(3,194) = 235$, $p < .001$, $R^2 = .784$ indicating that approximately 78% of the variability in profoundness ratings for bullshit can be explained by variability in perceptions of truth, beauty, and clarity.

Table 11. Regression of Judgements of Truth, Clarity and Beauty on Profoundness for Bullshit items.

R^2	.784				
Effect	Estimate	SE	t	P	β
Intercept	-1.363	0.210	-7.16	<.001	-
BS Truth	0.284	0.078	3.57	<.001	0.212
BS Clarity	0.243	0.074	3.07	.002	0.202
BS Beauty	0.734	0.086	8.18	<.001	0.526

Both truth (β = 0.180, $p = .002$) and clarity (β = 0.205, $p = .001$) significantly predicted ratings of profoundness for bullshit items. Beauty also significantly predicted ratings of profoundness (β = 0.559, $p < .001$) and as in Study 8, the effect of beauty was at least twice as large as either truth or clarity, although, ratings of Clarity and Truth each did contribute unique predictive power for profoundness ratings.

Discussion

The effect of perceived clarity on ratings of bullshit profoundness may reflect an idiosyncratic tendency among some participants to readily perceive patterns in random stimuli. This is consistent with our previous work (Walker et al., 2019). This may hold true for ratings of truth as well, though ratings of the truth of motivational quotations displayed a predictive effect on profoundness of similar magnitude to that of bullshit. Ultimately, the perceived beauty of a bullshit item was the strongest predictor of its perceived profoundness.

This is consistent with an aesthetics-focused account of bullshit receptivity. By virtue of its method of generation, bullshit has no creator-intended meaning inherent in its messaging, meaning if it says something “true” it is likely more related to idiosyncratic features of the rater than the bullshit itself carrying some “true” meaning (i.e., promiscuous pattern recognition as discussed in Walker et al., 2019). Further, borrowing from the notion of bullshit as unclarifiable unclarity (Cohen, 2002), bullshit as a type of communication is by nature obfuscatory. Unclarifiable unclarity refers to communication, which is not only obscure, but which cannot truly be rendered unobscured by examination. Although we treated unclarifiable unclarity as an assumed theoretical property of bullshit for these studies, the results of Study 8 may hint that unclarifiable unclarity is observable. In Figure 5, mean ratings of each item type and rating category are displayed. For Mundane statements and Motivational statements, participants appropriately used the extremes of the rating scales in line with a priori expectations. That is, mundane statements are “obviously” true, and clear, but not particularly profound. While motivational quotations are perceived to be clear, profound, and true. For bullshit, almost all ratings on average remain near the mid-point of the scale. Is an item maximally unclear if it is simple to rate as a 1- “Very unclear”, or

is it maximally unclear if it is difficult to clearly denote it as “Very unclear” or “Very clear” and instead to settle for midway between the two? It is not possible to tell conclusively based on the current data, but the possibility exists that as an expression of the unclarifiable nature of bullshit, it may be difficult to rate at all. Future work wishing to target unclarifiable unclarity empirically could include unambiguously nonsense foils for bullshitting items as a comparison.

With the ability to examine bullshit for its specific content effectively diminished by the property of unclarifiable unclarity, aesthetics is a remaining salient feature that may influence receptivity through the peripheral route. However, this finding is specific to when the bullshit is being evaluated by itself. In that case, aesthetics may be the dominant peripheral cue, but other work has shown that when other salient peripheral cues are available such as the reputability of the source of the bullshit (Baptista et al., 2022; Ilić and Damnjanović 2021; Littrell et al., 2022; Petrocelli, 2021) receptivity to bullshit is affected. Likely, in a natural context, when encountering bullshit and bullshitters in everyday life many such effects which target peripheral evaluations of bullshit’s quality conspire to lend it persuasive power. However, a particular strength of the current approach is that it focuses solely on the stimuli as presented, without needing to introduce other external information. The result that beauty is the strongest predictor among the selected set of dimensions, and that the models capture a large portion of variance in profoundness ratings provides evidence toward an aesthetic-focused account of bullshit receptivity. This understanding of bullshit complements existing work on the effects of aesthetics on judgment of the written word. Rhyming has been shown to enhance to perception of truthfulness of written statements (McGlone & Tofighbakhsh, 1999; 2000), as well as statements which contain antimetabole structure (Kara-Yakoubian et al., 2022) despite these stylistic qualities having

nothing to do with the truth value of a given statement. These aesthetic effects are innocuous on their own, if something is true and happens to rhyme, no deception has necessarily taken place. However, when combined with the potentially deceptive intentions of the bullshitter, the unclarifiable nature of bullshit which prevents thorough elaboration, and bullshit's vacuous but stylish presentation, these aesthetic impressions make for more effective bullshit much to the frustration of those who earnestly seek to maximize truth in all communication. The bullshitter who wishes to leverage an ability to bullshit well in order to benefit from impressing or tricking others may cultivate a particular ability to produce beautiful bullshit. As discussed in Chapter 2 when describing the potential for bullshit titles and descriptions associated with artworks to be considered another form of art by themselves, and as discussed in Chapter 4 when describing that cognitive ability is a prerequisite to producing good bullshit: bullshitting might be best thought of as a talent. A talent which, if nurtured allows an individual to leverage their ability to confuse and impress to strategically gain advantage in any domain where subjective evaluations of output at least partially determines success.

Chapter 6
Summary and Conclusion

It is perhaps not surprising that bullshitting has generated interest as a topic of research given that the bullshitter's flippant treatment of truth in communication runs contrary to the motivations of science. Although, as intensely social animals with much to be gained from charming, impressing, and tricking others, it is perhaps similarly not surprising that it is a common or even ubiquitous human behaviour. The earnest communication of truth may be valued for its own sake and is necessary for sharing accurate information and directing knowledge towards productive ends. However, individual actors can take advantage of a breakdown in this chain and accrue benefits simply by not participating in or even outright flouting norms of honesty and truthfulness. It is important for those interested in truth to be aware of this behaviour, how it works, where it works, and why it works. To this end, I conducted multiple lines of work probing bullshit for its effects on behaviour, the characteristics of those with the ability to bullshit and those who fall for bullshit, as well as potential mechanisms of action. The goal of this work was the development of a perspective on bullshit as a strategic behaviour wherein one leverages an ability to confuse and impress to gain advantages in competitive domains.

In Chapter 2, I demonstrated the potential strategic usefulness of bullshit in an experimental context focused on abstract art. Having a pseudo-profound bullshit title

enhanced the perceived profoundness of both computer generated and real artist-created abstract art. Further, Chapter 2 served as a plausible demonstration of real-world “bullshit” in “artspeak”. This connection was necessary in that it laid the groundwork for an analysis of the particular qualities of bullshit that lend it its appeal. Even better, it allowed for comparison to statements made in a real-world competitive domain where producing the most aesthetically pleasing items is the presumable goal. Impressive or even beautiful bullshitting in this area affords a person a real advantage in improving the reception to their work overall. The results are positioned as contributing to our understanding of bullshitting as a low-cost strategy for gaining advantage in competitive domains.

In Chapter 3, I examined a series of maladaptive behaviors that are predicted by bullshit receptivity. Of particular interest was the demonstration that including bullshit descriptions alongside questionable products may increase self-reported willingness to pay for such products, demonstrating the potential strategic value of bullshitting in marketing, and in understanding the characteristics of those who are prone to being must influenceable by a potential bullshitter.

In Chapter 4, I examined how the ability to produce convincing and satisfying bullshit may accurately reflect cognitive ability in a person. Further, convincing bullshitters are judged by others to be more intelligent which demonstrates potential social advantages to being a convincing bullshitter, especially as it relates to stereotypical depictions of bullshitters as charmers and social climbers. This further informs an understanding of bullshit as a strategic behaviour useful for those able to leverage a talent for bullshitting toward enhancing their reputation or perceptions of their character.

Finally, in Chapter 5 I proposed an explanation for why bullshit may have persuasive power. That is, bullshitting (especially the kind most studied in the literature) may carry a

certain aesthetic value which, when combined with an understanding of its unclarifiable nature, positions it as a potential linguistic or conversational form of “smoke and mirrors”, obfuscating through paralysis of the “direct route” of persuasion while impressing through the “peripheral route”. As in any talent, a talent for producing beautiful bullshit, if cultivated, allows an agent to gain advantage over others by leveraging an impressive verbal capacity in lieu of, or even as a supplement to actual competence in domains of competition.

Although the work contained in this thesis has provided many novel and significant contributions to the field, there are some general limitations. First, while I was able to investigate many interesting effects related to bullshit within both Canadian undergraduate samples and American online (Mechanical Turk) samples, these samples fail to represent various populations of interest (e.g., non-North American adults), leaving the generalizability of our findings to other unexamined populations unknown. While research has begun to assess individual’s receptivity to pseudo-profound bullshit and the correlates of bullshit receptivity in non-American samples (Čavojová et al., 2019; 2020; Nilsson et al., 2019; Majima et al., 2020), future studies examining effects of bullshit receptivity can benefit from investigating previously unexamined populations. Additionally, while experimental methods were used in various studies in this thesis, many of the main results rely on correlational data. By applying the powers of reason, much sense can be made of the world through such methods, however, many of the discussed effects would be lent confidence with direct experimental manipulation.

An aesthetic account of bullshit may inform how we discuss both receptivity to bullshit as well as potential protections against it. Studies discussed in this thesis (Pennycook et al., 2015; Walker et al., 2019) have demonstrated a negative relation between cognitive reflection and bullshit receptivity such that those scoring higher on tasks

like the Cognitive Reflection Test tend to be less receptive to bullshit. This result even appears in the data presented in this thesis. While this finding might seem to suggest that the key to resisting bullshit is to “reflect more” or “think more”, an alternative view might be that the unclarifiable unclarity present in bullshit makes such reflection difficult or even impossible. Reflecting more on a bullshit statement may even give opportunities for pattern-seeking systems to eventually find some connection (however spurious) between what the statement appears to be saying and something in the real world. Instead, it may be the case that whether bullshit is convincing or not is determined by whether a person finds it reflexively aesthetically pleasing or displeasing. A plausible reinterpretation of the cognitive reflection and bullshit receptivity connection is that perhaps those who score higher in cognitive reflection may maintain different aesthetic preferences and values than those who tend to score lower. By analogy to the consumption of cultural products, there is a casual understanding of “high brow” art and media and “low brow” art and media. Those who enjoy or are able to participate in more complex mental activities may be moved by different aesthetic constructions than those less predisposed to such activities.

Bullshitting is a ubiquitous, complicated human behavior, and the nature of bullshit is hotly debated both in psychology and philosophy. For those interested in the earnest pursuit of truth, it can be fascinating and frustrating that there exists a form of potentially deceptive communication that is made seemingly without regard for the truth. Even more frustrating to truth seekers is that there appear to be demonstrable advantages to engaging in bullshitting. Understanding the nature of bullshitting, why it works, how and when it works, who it works on, and the plausible gains to be made by the bullshitter should be critical in understanding how to protect oneself against it. W.C. Fields said, “If you can't dazzle them with brilliance, baffle them with bullshit.” But as argued here, the most potent bullshit may be that which

manages to simultaneously baffle and dazzle. For those interested in the pursuit of truth above all else, caution should be taken in not underestimating bullshitters as the skill of bullshitting does not necessarily preclude brilliance.

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Appendix A
Chapter 2

Part A: Measures and Materials

Profundity Judgments (Studies 1, 2 and 3)
Pennycook, Cheyne, Barr, Koehler, and Fugelsang (2015)

Instructions: We are interested in how people experience the profound. Below are a series of statements taken from relevant websites. Please read each statement and take a moment to think about what it might mean. Then please rate how "profound" you think it is. Profound means "of deep meaning; of great and broadly inclusive significance."

Response Options:

1 (not at all profound);

2 (somewhat profound);

3 (fairly profound);

4 (definitely profound);

5 (very profound)

1. Hidden meaning transforms unparalleled abstract beauty.
2. Good health imparts reality to subtle creativity.
3. Wholeness quiets infinite phenomena.
4. The future explains irrational facts.
5. Imagination is inside exponential space time events.
6. Your consciousness gives rise to a jumble of neural networks.
7. Your movement transforms universal observations.

8. Perceptual reality transcends subtle truth.

9. The invisible is beyond new timelessness.

10. The unexplainable undertakes intrinsic experiences.

11. We are in the midst of a self-aware blossoming of being that will align us with the nexus itself.

12. Consciousness consists of frequencies of quantum energy. “Quantum” means an unveiling of the unrestricted.

13. Consciousness is the growth of coherence, and of us.

14. We are in the midst of a high-frequency blossoming of interconnectedness that will give us access to the quantum soup itself.

15. Today, science tells us that the essence of nature is joy.

16. As you self-actualize, you will enter into infinite empathy that transcends understanding.

17. The infinite is calling to us via superpositions of possibilities.

18. We are being called to explore the totality itself as an interface between serenity and intuition.

19. Throughout history, humans have been interacting with the dreamscape via bio-electricity.

20. The future will be an astral unveiling of inseparability.

21. Attention and intention are the mechanics of manifestation.

22. Our minds extend across space and time as waves in the ocean of the one mind.

23. Nature is a self-regulating ecosystem of awareness.

24. We are non-local beings that localize as a dot then inflate to become non-local again. The universe is mirrored in us.

25. Mechanics of Manifestation: Intention, detachment, centered in being allowing juxtaposition of possibilities to unfold.

26. Mind and matter are subtle and dense vibrations of consciousness (spirit).

27. We are not an emergent property of a mechanical universe but the seasonal activity of a living cosmos.

28. Every material particle is a relationship of probability waves in a field of infinite possibilities. You are that.

29. As beings of light we are local and non-local, time bound and timeless actuality and possibility.

30. Matter is the experience in consciousness of a deeper non-material reality.

31. Your teacher can open the door, but you must enter by yourself

32. The creative adult is the child who survived.

33. A river cuts through a rock, not because of its power but its persistence.

34. All endings are also beginnings. We just don't know it at the time.

35. Art and love are the same thing: It’s the process of seeing yourself in things that are not you.

36. At the center of your being you have the answer; you know who you are and you know what you want.

37. A wet person does not fear the rain.

38. Forgiveness means letting go of the hope for a better past.

39. Only those who will risk going too far can possibly find out how far one can go.

40. I wonder how many people I’ve looked at all my life and never seen.

41. Newborn babies require constant attention.

42. Most people enjoy some sort of music.

43. Lazy people usually don’t succeed in life.

44. A balanced diet is important for maintaining good health

45. Human cultures often differ from each other quite a bit.

46. People often have very bizarre dreams.

47. Higher rates of unemployment typically follow economic downturns.

48. Some things have very distinct smells.

49. Some people have poor taste in clothing.

50. Children sometimes look a lot like their parents.

**Statements 1-30 belong to the Bullshit Receptivity (BSR) scale; statements 31-40 belong to the Motivational Quotation Scale; statements 41-50 are mundane statements.*

Cognitive Reflection Test Items

Frederick (2005); Thomson and Oppenheimer (2016); Toplak, West, and Stanovich (2014)

1. If John can drink one barrel of water in 6 days, and Mary can drink one barrel of water in 12 days, how long would it take them to drink one barrel of water together?

2. Jerry received both the 15th highest and the 15th lowest mark in the class. How many students are in the class?

3. A man buys a pig for $60, sells it for $70, buys it back for $80, and sells it finally for $90. How much has he made?

4. Simon decided to invest $8,000 in the stock market one day early in 2008. Six months after he invested, on July 17, the stocks he had purchased were down 50%. Fortunately for Simon, from July 17 to October 17, the stocks he had purchased went up 75%. At this point, Simon (circle your answer):

a) has broken even in the stock market

b) is ahead of where he began

c) has lost money

5. If you're running a race and you pass the person in second place, what place are you in?

6. A farmer had 15 sheep and all but 8 died. How many are left?

7. Emily's father has three daughters. The first two are named April and May. What is the third daughter's name?

8. How many cubic feet of dirt are there in a hole that is 3' deep x 3' wide x 3' long?

9. A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?

10. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

11. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

**For all items, except item 4, participants provided their answers in a free-entry text box.*

***Items 1-4 taken from Toplak et al. (2014); Items 5-8 taken from Thomson & Oppenheimer (2016); Items 9-11 taken from Frederick (2005).*

Wordsum Task
Malhotra, Krosnick, and Haertel (2007)

Large print words with small print words in parentheses:

1. SPACE (school; noon; captain; room; board; don't know)

2. BROADEN (efface; make level; elapse; embroider; widen; don't know)

3. EMANATE (populate; free; prominent; rival; come; don't know)

4. EDIBLE (auspicious; eligible; fit to eat; sagacious; able to speak; don't know)

5. ANIMOSITY (hatred; animation; disobedience; diversity; friendship; don't know)

6. PACT (puissance; remonstrance; agreement; skillet; pressure; don't know)

7. CLOISTERED (miniature; bunched; arched; malady; secluded; don't know)

8. CAPRICE (value; a star; grimace; whim; inducement; don't know)

9. ACCUSTOM (disappoint; customary; encounter; get used to; business; don't know)

10. ALLUSION (reference; dream; eulogy; illusion; aria; don't know)

Pseudo-Profound Bullshit Titles

Pseudo-Profound Bullshit Titles were generated using the website http://noemata.net/pa/titlegen/

1. Apparition of Designated Path
2. Appendix of Life
3. Articulated Response of Life
4. Decomposing the Canvas
5. Deeper Substance
6. Departure of Dreams
7. Deserting Innocence
8. Dimension of Sorrow in Development
9. Evolving Air
10. Evolving Model of Dreams
11. Extracts from Rising Purity
12. Extracts from Sadness
13. Falling Impression of Tender Perception
14. False Ghost
15. Faust of Lust in Retrospect
16. Fragment of Masked Dimensionality
17. Glowing Present in the Distance
18. Glowing Self of Pain
19. Hallucinogenic Exclusion
20. Indestructible Continuation
21. Indestructible Purity
22. Information of Fear
23. Inverse Lover
24. Juxtaposed Scar

25. Kinetic Emotion
26. Knowledge of Sorrow Decomposed
27. Literature of Death
28. Literature of Innocence (& Water)
29. Lonely Action
30. Lost Dot of Love
31. Manifesto of Dying Season
32. Manufactured Shape of Dreams
33. Matter of God
34. Meditative Future
35. Metaphysical Metamorphosis
36. Nothing of Fear
37. Pain in Development
38. Preconceived Idealism
39. Pure Action
40. Reincarnated Echo
41. Rising Future
42. Sacred Dimensionality of Fear
43. Sadness of Innocence
44. Screaming Illumination
45. Soft Impression of High Idealism
46. Still Life with Shimmering Absence
47. Summation of Life
48. Surface of Lust
49. The Beaten Angel
50. The Beaten Image
51. The Blue Reality
52. The Cosmic Metamorphosis
53. The Crippled Spirit

54. The Deaf Echo
55. The Dimension of Pain
56. The Knowledge of God
57. The Knowledge of Innocence
58. The Morphism of Love
59. The Painted Boundary
60. The Pathological Interior
61. The Sadness of Innocence
62. The Space of Hate
63. The Tender Lair
64. The Undefined Elegance
65. The Uplifting Path
66. Trapped
67. Virgin Desire
68. Vision of Hallucinogenic Abstraction
69. Undefined Singularity of Pain
70. Apparitionality of Falling Self
71. Incoherent Continuity
72. Act Including Speculative Sequence
73. Alphanumeric Sentiment
74. Analysis of Lust Part II
75. Apparition of Burning Square
76. Articulated Aviator
77. Autumnal Act with Reincarnated Dimension
78. Babble of Peace
79. Birth and Shape
80. Commercial Sphere
81. Conversation with Hedonic Muse
82. Conversation with Juxtaposed Departure

83. Deciphering the Left
84. Decreasing Nature
85. Demagogic Fire Constructed
86. Demoralized Appendix
87. Describing Nature
88. Desecrating a Bureaucracy
89. Ephemeral Stain in 3 Stages
90. Extracts from Modest Thing
91. Fugue with Glowing Investigation
92. Geopolitical Interior
93. Greener Image Rearranged
94. Illumination or Point
95. Impression of Happy Stick
96. Impression of Rising Concept
97. Impression of Transfigured Analysis
98. Incidental Dance in Retrospect
99. Incidental Still Life with Manufactured Song
100. Indestructible Blob
101. Information with Sky
102. Instant Eye under Construction
103. Instant Vision of Smaller Babble
104. Inverse Image under Construction
105. Joint Feeling
106. Joint Manifesto of Intuitive Aphrodite
107. Kinetic Self-Portrait with Secret Dimension
108. Landscape with Falling Investigation
109. Landscape with Reincarnated Idealism
110. Mind-Bending Piece
111. Modern Material

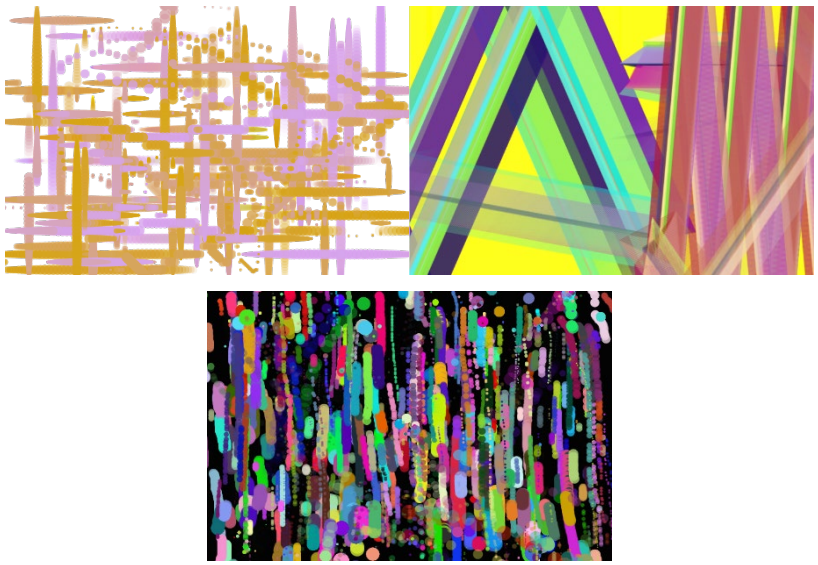
112. Mystic Information
113. Mystic Redhead of Death
114. Painted Formation
115. Pathological Redhead Rearranged
116. Reality with Formation
117. Reappearance of Falling Variation
118. Reflecting Shape
119. Reflecting Wheel (& Water)
120. Rejected Biscuit of Sorrow
121. Secret Machine in Development
122. Shape or Literature
123. Sketch of Ephemeral Information
124. Sphere & Plan
125. Sphere in Venus
126. Still Life with Conceptual Dimension
127. Study for Geometric Summation
128. Superior Architectonic Poetry
129. Supposed Situation
130. The Celluloid Cannibalism
131. The Meditative Song
132. The Paranoiac-Critical Song
133. The Remixed Space
134. The Rotating Babble
135. The Superimposed Mechanism
136. Theme from Explained Approach
137. Transfigured Present in Retrospect
138. Unfolding Context
139. Useless Summation
140. Vision of Jumping Compilation

141. Vision of Material

142. Volume and Gentleman.

Computer-Generated Abstract Art Images

Computer-Generated Abstract Art images were generated using the websites: http://bomomo.com and http://windowseat.ca/viscosity/create.php



**Three examples of computer-generated abstract art used in Studies 1, 2, and 3. All computer-generated abstract art images used in the current study are available for download at the following link https://osf.io/vkfn6/*

Mundane Titles

1. Shades (2012)

2. Composition 3: Mixed

3. Split Design #7
4. Abstract II - Digital
5. Line Segments and Shapes (145)
6. Light Hues
7. Pattern Aspect #21 - Colour
8. Mixed Media 11
9. New Media XVI
10. Medium Bright
11. Composition
12. Concept Three
13. Structures
14. Exploring Abstract
15. Concept Art - Geomix
16. Tones of Colour #7
17. Concept Lines - ver. 34
18. Colouration
19. Form and Light
20. Tinted Abstraction
21. Big Swirl
22. Tinted 27650
23. Version 3: Abstract Elements
24. Sharp Shades c. 2011
25. Contrasting Lineations
26. Horizontal Design
27. Version 4: Abstract Elements
28. Colour Mixing
29. Asymmetry in Art (2001)
30. Variations of Lines
31. Colour Study 5/7

32. Moderate Colouration
33. Study Piece 4: Depth
34. Computerized Medium 2.0
35. Plain Hues
36. Even Colour
37. Edges in Digital
38. Complex Colour
39. Digital Design
40. Streak VII
41. Linear Study: A4
42. Colourful Range
43. Tonal Hues - 1999 (XXI)
44. Brushed Edges
45. Digital Medium (1 of 6)
46. Patterns in Space
47. Colour in Line 3.5
48. General Geometry (1998)
49. Figure Overlay
50. Untitled 2016
51. Concept Study VIII
52. Abstract Piece XI
53. Mixing Palette
54. Filtered Shades
55. Poster Art (2 of 10)
56. Abstract Concepts - Remastered (2009)
57. Digital Illustration 14b (2000)
58. Style Colouration
59. Paper and Graphics 1.0
60. Medium in Colour 6.5

61. Abstract Qualities
62. Number Eight - 1994
63. Simple Shapes (on canvas)
64. Objects in Tint
65. Project: Colour 467
66. Tints in Style B
67. Abstraction #5
68. Untitled 4/5 (vibrance)
69. Cropped Print Number Seven
70. Converging Shapes II
71. Shapes in Tandem

Artist-Created Abstract Art Images

**Three examples of artist-created abstract art used in Study 2. All artist-created abstract art images used in the current study are available for download at the following link https://osf.io/vkfn6/*

International Art English Statements

Response Options:

1 (not at all profound);

2 (somewhat profound);

3 (fairly profound);

4 (definitely profound);

5 (very profound)

1. The idealization of aesthetic form; the integration of architecture, sculpture, and furniture; and the poetic evocation of spiritual thought.

2. Urban environments that address the politics of public space to large-scale communal participation where the culmination of many small acts achieves mythic proportions.

3. Testing the diminishing boundaries between our bodies and a world in which virtuality is ubiquitous and surreality is increasingly normalized.

4. Physicalized, transcribed into sounds, symbols, pictures or patterns, scrambled, or negated, language is freed from the page as well as from its received meanings, received forms, and, in some cases, the duties of communication altogether.

5. By casting his own masculinity into question, by performing its absence, Acconci problematizes the dictum that the male (or female) subject is a coherent being.

6. Aesthetic Error is a group of sculptural works that aims at a void that signifies precisely the non-being of what it represents. Because nothing so testifies to an artist's lack of genius as resorting to allegory.

7. Inspired by the un-inked page, the blank screen, the untouched canvas, the white 'readiness' of the seemingly un-pixelated infinity of a page without text.

8. When everything disappears by excess of reality, when, thanks to the deployment of a limitless technology, both mental and material, human beings are capable of fulfilling all their potentialities.

9. The catoptric box and the cabinet of curiosities come together in Soane's house as a means of creating a fully internalized world, from the wondrous universe in microcosm of the cabinet.

10. The fugacity of rainbows or the delicacy of mist – which initially appear redolent of the spiritual and emotional sensibilities of Romanticism.

11. This simulacrum of inversion or involution of poles, this clever subterfuge which is the secret of the whole discourse of manipulation and hence, today, in every domain, the secret of all those new powers sweeping clean the stage of power.

12. Deliberate ambivalence is inherent to the approach, yielding qualities where things convulse and stutter in emerging vitality.

13. Each mirror imaginatively propels its viewer forward into the seemingly infinite progression of possible reproductions that the artist's practice engenders.

14. Faldbakken’s practice holds in perpetual tension the forces of proposition and cancellation, vandalism and erasure, aesthetic generosity and conceptual restraint, the possibility of language and its abstraction into illegibility.

15. Still lifes, domestic interiors and landscapes of her native Australia are imbued with a sense of profound serenity and a sensibility that invokes the significance of time, reflection and the intimacy of a private world.

16. Sculptures too, and drawings continue this investigation of the macabre, the carnivalesque and the abject, as well as apparently abstract painting compositions from which the familiar physiognomies of Condo’s players emerge and retreat.

17. The banality of this gesture is disconcerting, and in their strangeness, the works convey a future created in the past.

18. Their invisibility heightens the mystery and artifice of the scene but also removes the most recognizable aspect of figuration from works.

19. Close inspection reveals that any trace of materiality or depth to the painted mark is conspicuously absent.

20. In SIRENS, we tend to a fire that mediates between all vanishing and appearing forms; we take a bite from the paradise, party pizza, assert to energize and eat our words.

21. The materialization of not-making—as in all the activities that surround or are instrumental to artistic production, but not production itself—is a business of false vacancies. There is no absence in not-making.

22. The condition of appearing out of time, or beyond time, implies a claim that the work already belongs to posterity - that is, it is an assurance of good investment.

23. The eternity suggested in our exhibition spaces is ostensibly that of artistic posterity, of undying beauty, of the masterpiece. But in fact it is a specific sensibility, with specific limitations and conditionings, that is so glorified.

24. The white cube represents the blank ultimate face of light from which, in the Platonic myth, these elements unspeakably evolve.

25. In such types of thought, primary shapes and geometric abstractions are regarded as alive - in fact, as more intensely alive than anything with a specific content.

26. They acknowledge that our identity is itself a fiction, and they give us the illusion we are present through a double-edged self-consciousness.

27. We objectify and consume art, then, to nourish our nonexistent selves or to maintain some esthetic starveling called "formalist man."

28. I am against the unity of the self and a fixed identity. I am talking about hybrid, schizophrenic identity, and one which is lost in Inter-textuality.

29. By suggesting eternal ratification of a certain sensibility, the white cube suggests the eternal ratification of the claims of the caste or group sharing that sensibility.

30. Works that probe the dialectic between innovations that seem to have been forgotten, the ruinous present state of projects once created amid great euphoria.

Appendix B

Chapter 3 Broad Correlates of Bullshit Receptivity

Part A: Sample Characteristics

Table AB1

Demographic Characteristics of Studies 4 and 5

Measure	**Study 1 (Undergraduate Sample)**	**Study 2 (MTurk Sample)**
Age [mean (*SD*)]	21.38 (5.62)	41.55 (12.88)
Sex [% female]	81%	45%
Education [% with college degree]	27%	72%
Household Income [*n* (%)]		
Less than $20,000	20 (12%)	22 (11%)
$20,000 to $59,999	56 (32%)	94 (47%)
$60,000 to $99,999	47 (27%)	51 (25%)
More than $100,000	51 (29%)	33 (17%)
Ethnicity [*n* (%)]		
White	58 (32%)	161 (80%)
Black or African American	10 (6%)	13 (7%)
American Indian or Alaska Native	0 (0%)	2 (1%)
Asian	86 (48%)	21 (11%)
Other	26 (14%)	3 (2%)

Political Ideology [*n* (%)]		
Liberal	115 (64%)	109 (55%)
Moderate	57 (32%)	34 (17%)
Conservative	7 (4%)	56 (28%)
Religiosity [mean (*SD*)]	2.81 (1.65)	2.83 (1.77)
Health [mean (*SD*)]	3.87 (0.87)	3.85 (0.88)

Note. Study 1 (*N* = 181). Study 2 (*N* = 200). Some response options have been combined for the purposes of concision. Higher values for our Religiosity (6-point scale) and Health (5-point scale) measures represent greater religiosity and better self-reported health respectively.

Part B: Measures

Profundity Judgments

Pennycook, Cheyne, Barr, Koehler, and Fugelsang (2015)

Instructions: We are interested in how people experience the profound. Below are a series of statements taken from relevant websites. Please read each statement and take a moment to think about what it might mean. Then please rate how "profound" you think it is. Profound means "of deep meaning; of great and broadly inclusive significance."

Response Options: 1 (not at all profound); 2 (somewhat profound); 3 (fairly profound); 4 (definitely profound); 5 (very profound)

1. Hidden meaning transforms unparalleled abstract beauty.
2. Good health imparts reality to subtle creativity.
3. Wholeness quiets infinite phenomena.
4. The future explains irrational facts.
5. Imagination is inside exponential space time events.
6. We are in the midst of a self-aware blossoming of being that will align us with the nexus

itself.

7. Consciousness consists of frequencies of quantum energy. “Quantum” means an unveiling of the unrestricted.

8. Consciousness is the growth of coherence, and of us.

9. We are in the midst of a high-frequency blossoming of interconnectedness that will give us access to the quantum soup itself.

10. Today, science tells us that the essence of nature is joy.

11. Your teacher can open the door, but you must enter by yourself

12. The creative adult is the child who survived.

13. A river cuts through a rock, not because of its power but its persistence.

14. All endings are also beginnings. We just don't know it at the time.

15. Art and love are the same thing: It’s the process of seeing yourself in things that are not you. 16. At the center of your being you have the answer; you know who you are and you know what you want.

17. A wet person does not fear the rain.

18. Forgiveness means letting go of the hope for a better past.

19. Only those who will risk going too far can possibly find out how far one can go.

20. I wonder how many people I’ve looked at all my life and never seen.

21. Newborn babies require constant attention.

22. Most people enjoy some sort of music.

23. Lazy people usually don’t succeed in life.

24. A balanced diet is important for maintaining good health

25. Human cultures often differ from each other quite a bit.

26. People often have very bizarre dreams.

27. Higher rates of unemployment typically follow economic downturns.

28. Some things have very distinct smells.

29. Some people have poor taste in clothing.

30. Children sometimes look a lot like their parents.

**Statements 1-10 belong to the Bullshit Receptivity (BSR) scale; statements 11-20 belong to the Motivational Quotation Scale; statements 21-30 are mundane statements.*

Problem Gambling Severity Index

Ferris and Wynne (2001)

Instructions: Some of the next questions may not apply to you, but please try to be as accurate as possible. THINKING ABOUT THE LAST 12 MONTHS…

Response Options (Items 1-9): Never; Sometimes; Most of the time; Almost always

Response Options (Item 10): 0 times in the past 12 months; 1-10 times in the past 12 months; 11-20 times in the past 12 months; 21-30 times in the past 12 months; 31 or more times in the past 12 months; I have never gambled; I prefer not to say

1. Have you bet more than you could really afford to lose? Would you say never, sometimes, most of the time, or almost always?
2. Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?
3. When you gambled, did you go back another day to try to win back the money you lost?
4. Have you borrowed money or sold anything to get money to gamble?
5. Have you felt that you might have a problem with gambling?
6. Has gambling caused you any health problems, including stress or anxiety?
7. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
8. Has your gambling caused any financial problems for you or your household?

9. Have you felt guilty about the way you gamble or what happens when you gamble?

10. In the past 12 months, how many times have you gambled (e.g., bought lottery tickets, bet on sports, played slot machines, etc.)?

Substance Use Harm

Adapted from Blanchard, Morgenstern, Morgan, Labouvie, and Bux (2003)

Instructions: The following set of questions will ask about your personal experiences with substance use. Be assured that no responses will be linked with your identity.

Response Options: Yes; No

1. I have missed days of work or school because of my drinking or drug use.

2. The quality of my work has suffered because of my drinking or drug use.

3. I have been unhappy because of my drinking or drug use.

4. I have felt guilty or ashamed because of my drinking or drug use.

5. When drinking or using drugs, I have done impulsive things that I regretted later.

6. My physical health has been harmed by my drinking or drug use.

7. I have had money problems because of my drinking or drug use.

8. My marriage or love relationship has been harmed by my drinking or drug use.

9. I have gotten into trouble because of drinking or drug use.

10. My spiritual or moral life has been harmed by my drinking or drug use.

11. Because of my drinking or drug use, I have not had the kind of life that I want.

12. My drinking or drug use has damaged my social life, popularity, or reputation.

13. I have been suspended/fired from or left a job or school because of my drinking or drug use.

Financial Behavior

Adapted from Toplak, West, and Stanovich (2017)

Response Options (Items 1-4): Never; Once; 2-5 times; 6-10 times; More than 10 times

Response Options (Item 5): I spend under the amount of disposable income I have available each month; I spend income I have available each month; I spend more than the amount of disposable income I have available each month

1. Have you ever had a check bounce or overdrawn your debit account?

2. How often have you used a line of credit to cover household expenses, such as purchasing items for your home, vacations, or going out for dinner?

3. Have you ever taken out a very short-term (i.e., payday) loan?

4. How many times have you intentionally signed up for recurring payments that you later regretted?

5. I budget my income as follows:

Complementary and Alternative Medicine

Adapted from Lindeman (2011)

Instructions: Thinking about the past 12 months, please indicate how often you have used each of the following treatments.

Response Options: 1 (Never); 2 (Once); 3 (A few times); 4 (Monthly); 5 (Weekly); 6 (Daily)

1. Homeopathy

2. Energy healing (treatments of blockages within the energy channels or meridians in the body, such as Shiatsu)

3. Megadose vitamin and micronutrient therapy

4. Aromatherapy (use of ethereal oils from plants)

5. Life force and spiritual energy healing, such as Reiki

6. Spiritual healing

7. Distance healing

8. In general, how often have you used the above-mentioned treatments, or other treatments which may be classified as complementary and alternative medicine, during the last year?

Susceptibility to Fraud

Adapted from Dove (2018)

Instructions: Please state the extent to which you agree or disagree with the following statements.

Response Options: Strongly Disagree; Disagree; Neither Agree nor Disagree; Agree; Strongly Agree

1. I am always suspicious of people who ask me to make quick decisions.

2. I often double-check what other people tell me.

3. When something seems too good to be true, it usually is.

Satisfaction with Life Scale

Diener, Emmons, Larsen, and Griffin (1985)

Instructions: Below are five statements that you may agree or disagree with. Using the 1-7 scale below, indicate your agreement with each item. Please be open and honest in your responding.

Response Options: Strongly Disagree; Disagree; Slightly Disagree; Neither Agree nor Disagree; Slightly Agree; Agree; Strongly Agree

1. In most ways my life is close to my ideal

2. The conditions of my life are excellent

3. I am satisfied with my life

4. So far I have gotten the important things I want in life

5. If I could live my life over, I would change almost nothing

Questionable Claim Products

Instructions: On the following pages you will be described three consumer products individually and asked to indicate the amount you would be willing to pay for each product presented.

Please enter a dollar amount in each provided free-entry text box.

Response Option: Free Entry Text Box

1. **Product:** Smart Stickers with Frequency Altering Technology

This product features 30 wearable smart stickers. All smart stickers come with different frequencies stored within the sticker. When applied to your skin, each sticker will begin broadcasting its stored frequencies, influencing the cells in your body to promote various positive outcomes!

This pack of smart stickers features three different types of smart stickers (10 stickers each):

The Visionary Smart Sticker: This smart sticker has been programmed with natural frequencies said to heighten artistic expression, increase focus, and inspire mastery.

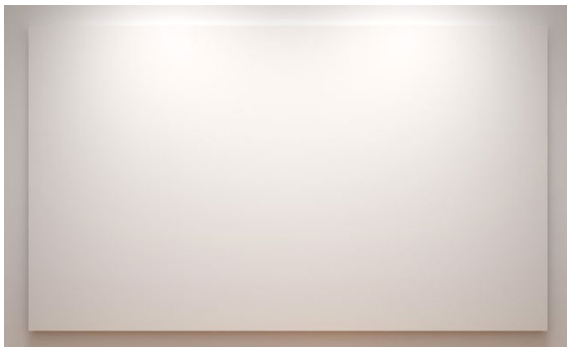
The Connector Smart Sticker: This smart sticker has been programmed with natural frequencies said to harmonize relationships, heal conflict, and connect us to others.

The Transformer Smart Sticker: This smart sticker has been programmed with natural frequencies said to assist with transformation, miracles, and spread love and peace.

Please enter the amount you would be willing to pay (in Canadian dollars[7]) for this product in the free-entry text box below.

2. **Product:** Glowing Present in the Distance (Artwork)

[7] This was changed to read "in American dollars" for our American sample (Study 2).



The greatest painting the world has ever seen is a painting the world has never seen, a painting that is visible yet lacks existence. Its perfect counterpart being a painting visibly dripping with invisibility. An oppressive, heavy pit of tar as pictured in unblemished clear white where every inch captures the viewer's gaze, seemingly sucking them in and only allowing them to slowly crawl over the painting's entire field waist deep in a translucent sludge. The artist demands that the viewer make this crawl, leaving infinite invisible streaks on the canvas from the eye gazes of previous viewers' own journey through the work.

Please enter the amount you would be willing to pay (in Canadian dollars) for this product in the free-entry text box below.

3. **Product:** Performance Enhancing Hologram Wristbands

This wristband uses holographic technology to resonate with and respond to the natural energy field of the body, improving your balance, flexibility, and strength!

Please enter the amount you would be willing to pay (in Canadian dollars) for this product in the free-entry text box below.

Modified Cognitive Reflection Test

Primi, Morsanyi, Chiesi, Donati, and Hamilton (2016); Toplak, West, and Stanovich (2014)

Instructions: For the following set of questions please provide a response in the free-entry text box presented below each question.

Response Option: Free Entry Text Box

1. Ellen and Kim are running around a track. They run equally fast but Ellen started later. When Ellen has run 5 laps, Kim has run 15 laps. When Ellen has run 30 laps, how many has Kim run? 2. In his class, Jerry was both the 15th tallest and 15th shortest student. How many students are in the class?

3. In an athletics team, tall members are three times more likely to win a medal than short members. This year the team has won 60 medals so far. How many of those have been won by short athletes?
4. A man buys a pig for $60, sells it for $70, buys it back for $80, and sells it finally for $90. How much has he made?

**Items 1-3 taken from Primi et al. (2016); Item 4 taken from Toplak et al. (2014)*

Wordsum

Malhotra, Krosnick, and Haertel (2007)

Instructions: For this next part, you will be shown a large word at the top of the screen with 5 smaller words appearing below it on a scale, as well as a "don't know" option.

Your task will be to pick the small word that is a synonym (i.e., that “means the same thing") for the word in large print. If you do not know, you instead should choose the "don't know" option. The first word will be shown when you hit next.

Response Options in parentheses

1. SPACE (School; Noon; Captain; Room; Board; Don’t know)
2. BROADEN (Efface; Make level; Elapse; Embroider; Widen; Don’t know)
3. EMANATE (Populate; Free; Prominent; Rival; Come; Don’t know)
4. EDIBLE (Auspicious; Eligible; Fit to eat; Sagacious; Able to speak; Don’t know)
5. ANIMOSITY (Hatred; Animation; Disobedience; Diversity; Friendship; Don’t know)
6. PACT (Puissance; Remonstrance; Agreement; Skillet; Pressure; Don’t know)
7. CLOISTERED (Miniature; Bunched; Arched; Malady; Secluded; Don’t know)
8. CAPRICE (Value; A star; Grimace; Whim; Inducement; Don’t know)
9. ACCUSTOM (Disappoint; Customary; Encounter; Get used to; Business; Don’t know)
10. ALLUSION (Reference; Dream; Eulogy; Illusion; Aria; Don’t know)

Demographic Questions

Age: What is your age in years?

Response Options: Free-entry text box

Sex: What is your biological sex?

Response Options: Male; Female

Education: What is your highest level of education?

Response Options: No formal education; High School Degree/GED; Some College; Associate Degree; Bachelor Degree; Graduate Degree

Household Income: What is your approximate annual household income?

Response Options: Less than $20,000; $20,000 - $39,999; $40,000 - $59,999; $60,000 - $79,999; $80,000 - $99,999; $100,000 - $149,000; More than $150,000

Political Ideology: What is your political ideology?

Response Options: Very Liberal; Liberal; Moderate; Conservative; Very Conservative

Health: How would you describe your health?

Response Options: 1 (Very Poor); 2; 3; 4; 5 (Very Good)

Ethnicity: What is your ethnicity?

Response Options: White; Black or African American; Asian; American Indian or Alaska Native; Other

Religion: What best describes your religious affiliation?

Response Options: Atheist; Agnostic; Buddhist; Christian; Christian (specifically Catholic); Christian (specifically Protestant); Hindu: Muslim; Sikh; No Religion; Other/Not listed

Religiosity: How important is religion in your daily life?

Response Options: Highest Importance; Very Important; Important; Unimportant; Very Unimportant; Irrelevant

Appendix C

Chapter 4 Bullshit and Perceptions of Intelligence

Part A: Full Item List

Bullshit Willingness Task

How knowledgeable are you of the following concepts?

Response Options: 1 (Never heard of it); 2; 3 (Some understanding of the concept); 4; 5 (Know it well, understand the concept)

1. Sexual Selection Theory
2. General Relativity
3. Probability
4. Cognitive Dissonance
5. Subjunctive Scaling
6. Declarative Fraction
7. Genetic Autonomy
8. Cultural Relativism
9. Minimalism
10. Neural Acceptance

**Concepts 5, 6, 7, and 10 were fictional*

Bullshit Generation Task (Bullshit Producers Sample Only)

Instructions: Please read these instructions very carefully.

On the following pages you will be presented with each of the terms that you saw previously. Your task is to try to **produce the most convincing and satisfying explanation** that you can for each term.

For terms that you are **knowledgeable** about, we ask that you simply explain them as best you can (that is, in the most convincing and satisfying way).

For terms that you are **unfamiliar** with, we ask that you **be creative and make up an explanation** that you think others will find convincing and satisfying.

Do not worry about the truth of your claims when making up your explanations, rather, you may treat this as a creative writing exercise.

**Following these instructions, participants generated an explanation for each of the ten concepts included in the bullshit willingness task within a free-entry text box.*

Explanation Evaluations (Bullshit Raters Sample Only)

Instructions: For your next task you will be asked to judge various explanations attempting to explain various concepts. On each trial, you will be presented with the name of a concept in big bold letters at the top of the page accompanied by an attempt to explain that concept below. Your task will be to judge each explanation for how satisfying and accurate it is. If you are unfamiliar with the concept being explained simply do your best to judge how satisfying and accurate you believe an explanation is.

**Following these instructions, participants were presented with and judged 120 explanations generated by participants in our Bullshit Producers sample on the measures listed below.*

How accurate is this explanation?

Response Options: Not at all Accurate; Somewhat Accurate; Fairly Accurate; Definitely Accurate; Very Accurate

How satisfying is this explanation?

Response Options: Not at all Satisfying; Somewhat Satisfying; Fairly Satisfying; Definitely Satisfying; Very Satisfying

How intelligent is the person who provided this explanation? (Study 2 only)

Response Options: Not at all Intelligent; Somewhat Intelligent; Fairly Intelligent; Definitely Intelligent; Very Intelligent

Wordsum Task
Malhotra, Krosnick, and Haertel (2007)

Instructions: For this next part, you will be shown a large word at the top of the screen with 5 smaller words appearing below it on a scale, as well as a "don't know" option.

Your task will be to pick the small word that is a synonym (i.e., that “means the same thing") for the word in large print. If you do not know, you instead should choose the "don't know" option. The first word will be shown when you hit next.

Large print words with small print words (response options) in parentheses:

1. SPACE (school; noon; captain; room; board; don’t know)
2. BROADEN (efface; make level; elapse; embroider; widen; don’t know)
3. EMANATE (populate; free; prominent; rival; come; don’t know)
4. EDIBLE (auspicious; eligible; fit to eat; sagacious; able to speak; don’t know)
5. ANIMOSITY (hatred; animation; disobedience; diversity; friendship; don’t know)
6. PACT (puissance; remonstrance; agreement; skillet; pressure; don’t know)
7. CLOISTERED (miniature; bunched; arched; malady; secluded; don’t know)
8. CAPRICE (value; a star; grimace; whim; inducement; don’t know)
9. ACCUSTOM (disappoint; customary; encounter; get used to; business; don’t know)
10. ALLUSION (reference; dream; eulogy; illusion; aria; don’t know)

Profundity Judgments

Pennycook, Cheyne, Barr, Koehler, and Fugelsang (2015)

Instructions: We are interested in how people experience the profound. Below are a series of statements taken from relevant websites. Please read each statement and take a moment to think about what it might mean. Then please rate how "profound" you think it is. Profound means "of deep meaning; of great and broadly inclusive significance."

Response Options:

1 (not at all profound);

2 (somewhat profound);

3 (fairly profound);

4 (definitely profound);

5 (very profound)

1. Hidden meaning transforms unparalleled abstract beauty.

2. Good health imparts reality to subtle creativity.

3. Wholeness quiets infinite phenomena.

4. The future explains irrational facts.

5. Imagination is inside exponential space time events.

6. We are in the midst of a self-aware blossoming of being that will align us with the nexus itself. 7. Consciousness consists of frequencies of quantum energy. “Quantum” means an unveiling of the unrestricted.

8. Consciousness is the growth of coherence, and of us.

9. We are in the midst of a high-frequency blossoming of interconnectedness that will give us access to the quantum soup itself.

10. Today, science tells us that the essence of nature is joy.

11. Your teacher can open the door, but you must enter by yourself.

12. The creative adult is the child who survived.

13. A river cuts through a rock, not because of its power but its persistence.

14. All endings are also beginnings. We just don't know it at the time.

15. Art and love art the same thing: It's the process of seeing yourself in things that are not you. 16. At the centre of your being you have the answer; you know who you are and you know what you want.

17. A wet person does not fear the rain.

18. Forgiveness means letting go of the hope for a better past.

19. Only those who will risk going too far can possibly find out how far one can go.

20. I wonder how many people I've looked at all my life and never seen.

21. Newborn babies require constant attention.

22. Most people enjoy some sort of music.

23. Lazy people usually don't succeed in life.

24. A balanced diet is important for maintaining good health

25. Human cultures often differ from each other quite a bit.

26. People often have very bizarre dreams.

27. Higher rates of unemployment typically follow economic downturns.

28. Some things have very distinct smells.

29. Some people have poor taste in clothing.

30. Children sometimes look a lot like their parents.

**Statements 1-10 belong to the Bullshit Receptivity (BSR) scale; statements 11-20 belong to the Motivational Quotation Scale; statements 21-30 are mundane statements.*

Raven's Matrices and Wordsum performance

In terms of the IQ norming our sample is typical. No participants scored higher than 19 out of a possible 20 on the Raven's matrices, and they cluster around 75% correct which is congruent with normal performance on progressive matrices where questions progressively increase in difficulty (Burke, 1985; McLaurin et al., 1973).

In terms of the WordSum vocabulary test, our sample was a little worse than a general American sample.

Average performance per Malhotra et al., (2007) ranges between 66% and 68% correct while our sample reached 63% correct on average.

Part B: Correlational Analyses within Bullshit Rater Samples

Study 6

We conducted correlational analyses featuring variables of interest for our Bullshit Rater sample. The results of these analyses can be viewed in Table AC1.

Table AC1

Study 6 Bullshit Rater Sample Correlations

	M	*SD*	1	2	3	4	5
1. Bullshit Willingness	6.35	2.67	-				
2. Bullshit Receptivity	2.76	0.81	.20**	-			
3. Bullshit Sensitivity	-0.62	0.73	.19**	.57**	-		
4. Raven's Progressive Matrices	14.13	3.05	-.18**	-.17**	-.20**	-	
5. Wordsum	5.76	1.85	-.18**	-.23**	-.24**	.41**	-

Note. Pearson correlations (Study 1 Bullshit Raters; $N = 263$). ** $p < .001$, * $p < .05$.

Study 7

As in Study 6, we conducted correlational analyses featuring variables of interest within our Bullshit Rater sample. The results of these analyses can be viewed in Table AC2.

Table AC2

Study 7 Bullshit Rater Correlations

	M	*SD*	1	2	3	4	5
1. Bullshit Willingness	6.92	3.16	-				
2. Bullshit Receptivity	2.76	0.90	.27**	-			
3. Bullshit Sensitivity	-0.63	0.75	.27**	.65**	-		
4. Raven's Progressive Matrices	14.19	3.04	-.26**	-.24**	-.30**	-	
5. Wordsum	5.77	2.03	-.23**	-.26**	-.30**	.47**	-

Note. Pearson correlations (Study 2 Bullshit Raters; $N = 534$). ** $p < .001$, * $p < .05$.

Appendix D

Chapter 5 Proposing an Aesthetic Account of Bullshit Receptivity

Materials

Instructions: You will be shown a series of statements and will be asked to rate them on a variety of features. There are no right or wrong answers, we simply want to understand your honest interpretation of the statements, respond with whatever first comes to mind.

Instructions for ratings

You will be asked to rate a series of statements on five dimensions. These are:

Whether they are True or Untrue.
Whether they are Clear or Unclear.
Whether they are Beautiful or Ugly.
Whether they are Meaningful or Meaningless.
Whether they are Profound or Not profound.

By Truth we mean whether the message of the statement as you understand it matches fact or reality.

By Clear, we mean whether it is easy or difficult to understand what it is the statement is saying.

By Beautiful, we mean whether the statement is nicely written, whether you appreciate it aesthetically or stylistically.

By Meaningful we mean whether you think the statement is communicating something, whether it is directly communicated or implies a meaning.

By Profound we mean whether you think the statement communicates something of deep meaning; of great and broadly inclusive significance.

Rating Categories and individual items: (7-point scale anchored between two denoted ends)

True/Untrue.

Clear/Unclear.

Beautiful/Ugly.

Meaningful/Meaningless.

Target for original scale.

Very profound/Not at all profound

Study 8 Items:

1. Hidden meaning transforms unparalleled abstract beauty.

2. Good health imparts reality to subtle creativity.

3. Wholeness quiets infinite phenomena.

4. The future explains irrational facts.

5. Imagination is inside exponential space time events.

6. We are in the midst of a self-aware blossoming of being that will align us with the nexus itself. 7. Consciousness consists of frequencies of quantum energy. “Quantum” means an unveiling of the unrestricted.

8. Consciousness is the growth of coherence, and of us.

9. We are in the midst of a high-frequency blossoming of interconnectedness that will give us access to the quantum soup itself.

10. Today, science tells us that the essence of nature is joy.

11. Your teacher can open the door, but you must enter by yourself.

12. The creative adult is the child who survived.

13. A river cuts through a rock, not because of its power but its persistence.

14. All endings are also beginnings. We just don’t know it at the time.

15. Art and love art the same thing: It's the process of seeing yourself in things that are not you. 16. At the centre of your being you have the answer; you know who you are and you know what you want.

17. A wet person does not fear the rain.

18. Forgiveness means letting go of the hope for a better past.

19. Only those who will risk going too far can possibly find out how far one can go.

20. I wonder how many people I've looked at all my life and never seen.

21. Newborn babies require constant attention.

22. Most people enjoy some sort of music.

23. Lazy people usually don't succeed in life.

24. A balanced diet is important for maintaining good health

25. Human cultures often differ from each other quite a bit.

26. People often have very bizarre dreams.

27. Higher rates of unemployment typically follow economic downturns.

28. Some things have very distinct smells.

29. Some people have poor taste in clothing.

30. Children sometimes look a lot like their parents.

**Statements 1-10 belong to the Bullshit Receptivity (BSR) scale; statements 11-20 belong to the Motivational Quotation Scale; statements 21-30 are mundane statements.*

Study 9 Items:

1. The goal of electrical impulses is to plant the seeds of will rather than bondage.
2. Complexity requires exploration.
3. You and I are beings of the cosmos.
4. Soon there will be a maturing of will the likes of which the stratosphere has never seen.
5. Fulfillment is the nature of karma, and of us.
6. Throughout history, humans have been interacting with the totality via atomic ionization.
7. Our conversations with other seekers have led to a summoning of ultra-intergalactic consciousness.
8. We exist as a resonance cascade.
9. Desire is born in the gap where science has been excluded.

10. Eons from now, we adventurers will self-actualize like never before as we are reborn by the world.
11. The complexity of the present time seems to demand an invocation of our lives if we are going to survive.
12. We must learn how to lead ethereal lives in the face of desire.
13. Intention is a constant.
14. To navigate the quest is to become one with it.
15. Although you may not realize it, you are non-dual.
16. Wondrous awe shot the sheriff.
17. A cranky old lady lay down on the riverbed.
18. The legend of the raven's roar slips on a banana peel.
19. An idea wants to set things right.
20. Camouflage paint ever stuns the onlooker.
21. An idea set a treehouse on fire.
22. A token of gratitude is a storyteller without equal.
23. A sickingly prodigous profile would scare any linguist away.
24. An old apple will take you to places you never expected not to visit!
25. A wave loudly clashing against a long shoreline is always a pleasure.
26. Organizational culture rains heavily.
27. The body of mind gambles with lives, happiness, and even destiny itself!
28. A great silence is often one floor above you.
29. A caring mother tests the thesis that your theorem would unleash.
30. Trickery loves to love.

Demographics:

What is your ethnicity?

Caucasian

Asian

Black/African

Hispanic/Latino

Other

`

What is your age (in-years)?

18-24

25-34

35-44

45-54

55-64

65-74

75-84

85 or older

What is the highest level of education you have completed?

Less than high school

High school graduate

Some college

2-year degree

4-year degree

Professional degree

Graduate degree

What is your household income?

Les than $10,000

$10,000 - $19,999

$20,000 - $29,999

$30,000 - $39,999

$40,000 - $49,999

$50,000 - $59,999

$60,000 - $69,999

$70,000 - $79,999

$80,000 - $89,999

$90,000 - $99,999

$100,000 - $149,999

$150,000

What is your biological sex?

Male

Female

Other

Data Quality Questions:

Botcha 1

If you were to arrange the following vegetables into alphabetical order, which vegetable would come second?

a. Sweet potato

b. Peas

c. Carrot

d. Kale
e. Mushrooms

Botcha 2

Please read the statement below and then type it in the box in reverse order. Please include any capitalizations in the words that have capital letters. Do not include any punctuation (e.g. periods, quotation marks, etc.).

For example, if the statement said “fun are trucks Red”, you would type “Red trucks are fun”

- “Bot a not am I”

- Validation passed if participants enters: I am not a bot

Table AD1. Regression of Judgements of Truth, Clarity, and Beauty on Profoundness (Bullshit Items)

R^2	.635				
Effect	Estimate	SE	t	p	β
Intercept	-1.191	0.309	-3.85	<.001	-
BS Truth	0.295	0.112	2.65	0.009	0.214
BS Clarity	0.190	0.076	2.51	0.013	0.175
BS Beauty	0.744	0.105	7.06	<.001	0.481

Table AD2. Regression of Judgements of Truth, Clarity, and Beauty on Profoundness.

(Motivational Quotes)

R^2	.637				
Effect	Estimate	SE	t	p	β
Intercept	-0.471	0.331	-1.42	-1.42	-
MQ Truth	0.319	0.080	3.97	<.001	0.270
MQ Clarity	0.002	0.072	0.03	0.97	0.002
MQ Beauty	0.740	0.076	9.73	<.001	0.586

Table AD3. Regression of Judgements of Truth, Clarity and Beauty on Profoundness. (Mundane Statements)

R^2	.609				
Effect	Estimate	SE	t	p	β
Intercept	1.966	0.997	1.97	.050	-
MS Truth	-0.084	0.211	-0.40	.691	-0.032
MS Clarity	-0.570	0.224	-2.54	.012	-0.208
MS Beauty	0.906	0.105	8.67	<.001	0.511
MS Meaningfulness	0.334	0.078	4.26	<.001	0.244