Hidden wisdom or pseudo-profound bullshit? The effect of speaker admirability

Mane Kara-Yakoubian^{1*}, Ethan A. Meyers^{2*}, Konstantyn Sharpinskiy², Anna Dorfman³, Igor
Grossmann²

Draft version November 12, 2021. This manuscript has not yet been peer reviewed.

¹ Department of Psychology, Ryerson University, 350 Victoria St, Toronto, Ontario, Canada
M5B 2K3

² Department of Psychology, University of Waterloo, 200 University Avenue West, Waterloo,
Ontario, Canada N2L 3G1

³ Department of Psychology, Bar Ilan University, Ramat Gan, 5290002, Israel

Author Note

* Notes equal contribution from authors

Corresponding authors: Mane Kara-Yakoubian, e-mail: mkarayakoubian@ryerson.ca or Igor
Grossmann, e-mail: igrossma@uwaterloo.ca

Abstract

How do people reason in response to ambiguous messages shared by admirable individuals? Using behavioral markers and self-report questionnaires, in two experiments ($N = 571$) we examined the influence of speakers' admirability on meaning-seeking and wise reasoning in response to pseudo-profound bullshit. In both studies, statements that sounded superficially impressive but lacked intent to communicate meaning generated meaning-seeking, but only when delivered by high admirability speakers (e.g., the Dalai Lama) as compared to low admirability speakers (e.g., Kim Kardashian). The effect of speakers' admirability on meaning-seeking was unique to pseudo-profound bullshit statements and was absent for mundane (Study 1) and motivational (Study 2) statements. In Study 2, participants also engaged in wiser reasoning for pseudo-profound bullshit (vs. motivational) statements and did more so when speakers were high in admirability. These effects occurred independently of the amount of time spent on statements or the complexity of participants' reflections. It appears that pseudo-profound bullshit can promote epistemic reflection and certain aspects of wisdom, when associated with an admirable speaker.

Keywords: pseudo-profound bullshit, speaker admirability, meaning, wisdom

Hidden wisdom or pseudo-profound bullshit? The effect of speaker admirability

Sages across many cultures and time periods—medieval Europe, Sufi Middle East or Ancient Far East—have often spoken in riddles to express their insights. Consider philosopher and mathematician Thales of Miletus, one of the Seven Sages of Greece. Throughout his lifetime, he shared many simple and straightforward insights, such as “a multitude of words is no proof of a prudent mind” and “avoid doing what you would blame others for doing” (Laertius, 2019). The meaning of these phrases is fairly accessible; roughly, that speaking a lot does not signal one is wise, and to avoid being hypocritical in one’s actions. But Thales, like many other ancient wisemen, has also shared far more obscure thoughts, such as “we live not, in reality, on the summit of a solid earth but at the bottom of an ocean of air” (Hamblyn, 2002). Why would sages use vague or puzzling expressions if they had the capability of producing statements of greater clarity? Surely, as a paragon of wisdom, Thales would not use unnecessarily ambiguous language unless it afforded a certain benefit. But, perhaps, due to their plainness, meaningful yet simple statements did not appear to convey much wisdom and were dismissed as mundanities. And sages, who were expected to impart profound wisdom in public spheres and engage the minds of the populace, had to use linguistic strategies (such as needlessly confusing wordiness) to create an impression that their statements were meaningful, regardless of whether they truly were or not.

Though the narrative style of ancient sages is less prevalent in contemporary cultures, the notion that wise, admirable speakers can inspire deeper reflection through obscure statements may still hold true. In fact, a similar linguistic phenomenon termed pseudo-profound bullshit (PPBS) is used by contemporary “inspirational speakers” and public figures.

On pseudo-profound bullshit

Consider the following statement: “The grid is electrified with molecular structures. Consciousness is the nature of sharing, and of us.” This statement may seem profound at first, but it is a meaningless sentence comprised of buzzwords and cliché sentence patterns in a way that maintains proper syntactic structure without actual meaning; indeed, it was randomly generated on a “new age bullshit generator” website (sebpearce.com/bullshit). Such superficially impressive sounding language is characterized by its vagueness and lack of intent to communicate meaningful information (Frankfurt, 2005; Pennycook et al., 2015). Contrarily, genuinely profound statements use plain language (as opposed to ambiguous buzzwords) and have the intention of communicating a general truth. Though PPBS statements are meaningless, research examining reactions to these statements suggest that people do not necessarily reject them. People treat PPBS differently than they would colloquial language, often judging it as more profound than mundane expressions (Pennycook et al., 2015; Turpin et al., 2019). At the same time, people differ in their receptivity to such statements (Petrocelli, 2021; Walker et al., 2019). For example, those with a lower propensity to engage in analytic thinking (i.e., score lower on the Cognitive Reflection Test; Frederick, 2005) and those who score lower on various measures of cognitive ability (e.g., Advanced Progressive Matrices; Raven & Raven, 2003) more readily accept PPBS as true or meaningful (Pennycook et al., 2015).

One might think that complicated or ambiguous language (such as PPBS) would be well received given its superficial impressiveness. However, statements using obscure vocabulary are *less* likeable compared to straightforward language (Čavojová et al., 2019a). This is odd, given that historically, sages garnered large audiences through their riddled way of speaking, and current day “inspirational” public figures notorious for obscure pseudo-profound claims (e.g.,

Deepak Chopra) have impressive followings on social media. Why would obscure statements, that are not particularly likeable, seem profound if shared by admirable figures?

The effect of contextual factors

Contextual factors, such as the reputation of the speaker, can affect people's processing and judgements of the statements they encounter (Bråten et al., 2011). A long tradition of research on attitudes and persuasion has demonstrated that messages are interpreted more favourably when delivered by a prestigious or authoritative source (Lorge & Curtiss, 1936; Manis, 1961), and discounted when a source is deemed untrustworthy (Hovland & Weiss, 1951). Messages from highly credible sources are more persuasive than messages from low-credibility sources (e.g., Horai et al., 1974; Maddux & Rogers, 1980; Warren, 1969; see Pornpitakpan, 2004, for a review). Relatedly, people view poetry as being of greater quality when presented alongside a famous (vs. unknown) poet's name (Bar-Hillel et al., 2012).

These insights dovetail with results from studies exploring the effect of contextual factors on profundity judgements of PPBS statements. For example, PPBS statements presented alongside a famous author's name or as part of a story are judged as more profound than statements presented without any context (Gligorić & Vilotijević, 2019), suggesting that external cues contribute to people's profundity evaluations of a statement. Further, ascribing PPBS statements to credible authors enhances profundity judgements, while uncredible authors have no effect on perceived profundity (Ilić & Damnjanović, 2021). In short, profundity judgements are malleable, and to a degree, influenced by socio-contextual factors such as "who said it."

We suggest that PPBS statements that *appear* meaningful but are not readily interpretable induce a state of uncertainty for the recipient. This influence of PPBS statements might be especially jarring relative to encountering statements with a clear meaning, which is commonly

how experiments assessing PPBS present the stimuli (Pennycook et al., 2015; Turpin et al., 2019; Walker et al., 2019). Naturally, people will try to resolve their experienced uncertainty, and engaging in greater reflective processing might be one method of trying to do so. For example, people who score higher on the Cognitive Reflection Test are less susceptible to PPBS (Pennycook et al., 2015), and engaging in cognitive reflection can lead a person to recognize that PPBS statements are not as profound as they initially thought (Littrell et al., 2021). In addition to cognitive strategies, an individual could refer outward to their social environment for insight on how to generate meaning from seemingly meaningless statements. Attending to contextual information, such as the speaker, could prove a useful strategy for resolving the ambiguity associated with PPBS. For instance, imagine that you see a quote next to a portrait of the Dalai Lama stating: “As beings of light we are local and non-local, time bound and timeless, actuality and possibility.” This ambiguous statement could carry some meaning or be complete nonsense, but at first you might be uncertain about its interpretation. Knowing that the Dalai Lama shared it, would you take the time to ponder what he meant? Now consider the same statement appearing alongside a portrait of a celebrity star or influencer not known for their wise acumen. Would you reflect on it in the same way?

Much like the riddles and metaphors of the sages of the European Middle Ages and Ancient Far East, people may be more willing to make sense of obscure expressions shared by individuals they admire. We suggest that a high admirability speaker may serve as a cue in inspiring motivation to resolve the experienced uncertainty when encountering PPBS, beyond what would be expected if a low admirability individual were to have shared it. Specifically, encountering an ambiguous statement from an admirable speaker might prompt the epistemic process of meaning-seeking (Fry, 1998), along with an open-minded inquiry into one’s limits of

knowledge (Meyers et al., 2020) and willingness to consider the perspectives of others (Brienza et al., 2018) — i.e., characteristics philosophers and empirical scientists attribute to wisdom (Grossmann et al., 2020b). However, if a low admirability individual were to share a PPBS statement, there would likely be little interest in making sense of what was said, and the statement would simply be dismissed.

One plausible reason for this may be motivated reasoning (Kunda, 1990) – i.e., the tendency to evaluate evidence that confirms one’s pre-existing beliefs more favourably. People more readily accept information congruent with their prior beliefs and are more inclined to defend their pre-existing beliefs and attitudes when faced with arguments *inconsistent* with their views, as opposed to attitudinally congruent claims (Strickland, et al., 2011). Thus, one’s preconceived notions about a speaker (e.g., “they are wise”) might lead them to attempt to interpret the speaker’s ambiguous words in accordance with these ideas (e.g., “this statement must be profound”). Contrarily, a speaker who does not come across as particularly insightful sharing an obscure statement might simply lead to disengagement with what they shared (e.g., “this statement is nonsense”). Another reason might be people’s tendency to spend as little cognitive effort as possible (Stanovich, 2009; 2018), and instead employ mental shortcuts to arrive at various decisions. The source of a statement could be an informative cue, guiding whether cognitive effort is justifiable. If a low admirability speaker is less likely to produce meaningful statements, then speaker admirability may be used as justification to avoid spending cognitive effort in generating meaning out of something that is probably meaningless. Likewise, if a high admirability speaker is more likely to produce meaningful statements, then speaker admirability could be used as justification to spend cognitive effort in trying to make meaning out of something that is probably meaningful.

Measuring epistemic reflection and wise reasoning on pseudo-profound bullshit

How do people reason in response to PPBS, and what is the role of contextual factors to such reasoning? In the present research we examined whether PPBS can promote epistemic reflection and related metacognitive processes when delivered by highly admirable speakers. Epistemic reflection is concerned with knowledge and knowing, and the process of meaning-seeking has implications for what one comes to “know.” Meaning-seeking is a key aspect of epistemic reflection, as it motivates the interpretations and applications of information (Krauss, 2005). More broadly, epistemic reflection is a metacognitive process – i.e., thinking about/regulating one’s thought processes, cognitions, emotions and motives (Dunlosky & Metcalfe, 2008). It allows individuals to step back from a given task to be able to assess, evaluate, and adapt their approach in resolving it (e.g., *is there additional information I’m missing?*; Grossmann et al., 2020a). In the current work, we assess epistemic reflection and related metacognitions through the lens of wise reasoning, which includes intellectual humility, consideration of diverse perspectives, open mindedness to change, and the search for compromise (Grossmann, 2017).

There are various ways to assess wise reasoning, including the use of self-report and performance-based measures (Grossmann et al., 2020b; Staudinger & Gluck, 2011). However, these different approaches do not necessarily capture the same aspects of the construct (Glück, 2018; Grossmann et al., 2020b). For instance, recent research shows that self-report and performance-based measures of metacognitive aspects of wisdom are only weakly correlated (Dang et al., 2020; Murphy & Lilienfeld, 2019), such that researchers should be wary of using the two methods of measurement interchangeably. Indeed, while self-report measures of wisdom are efficient and easy to use, they are limited in that they require honest and accurate self-

appraisal and resistance to biased responding on behalf of participants (Grossmann et al., 2020a). Conversely, performance-based measures of wisdom are less susceptible to such problems, but are constrained by participants' verbal abilities and articulation of their thoughts. Thus, a multi-method approach employing both self-report and performance-based measurement provides a more robust account of psychological phenomena like wisdom and meaning-seeking.

Present research

In two pre-registered studies, we examined how speaker admirability influences reflection in response to PPBS statements, with a focus on two epistemic characteristics: meaning-seeking (Studies 1-2) and wise reasoning (Study 2). In a mixed 2 x 2 within-between design, participants either viewed high admirability or low admirability speakers paired with PPBS and control statements: mundane in Study 1 and motivational in Study 2. We hypothesized that participants would engage in more meaning-seeking and wiser reasoning when PPBS statements were associated with high admirability speakers (e.g., Dalai Lama), compared to low admirability speakers (e.g., Kim Kardashian). Furthermore, we expected this pattern to be more pronounced for PPBS than for meaningful control statements (mundane in Study 1 and motivational in Study 2). In addition to our preregistered analyses, we controlled for liking of statements (Studies 1 and 2; pre-registered for Study 2), engagement-related variables of overall task duration (Study 1), time spent on each statement (Study 2), word count (Study 2), and the complexity of participants' written responses (Study 2). All control analyses are reported in the Supplementary Materials.

These studies were approved by a [MASKED FOR REVIEW] Research Ethics Committee and pre-registered through Open Science Framework (OSF; see OSF project for

Study 1 and Study 2 preregistrations, and a full list of materials and further details for both studies). We report all data exclusions, manipulations, and measures used.

Study 1

Method

Participants

Based on a power analysis (conducted via G*Power; Erdfelder et al., 1996) we required 260 participants to detect a small effect $f = .20$, with 90% power and significance level of .05. Considering exclusion of responses due to low quality responses from Amazon's Mechanical Turk (mTurk; Chmielewski & Kucker, 2020), we recruited a sample of 362 U.S. mTurk participants from a HIT approval rate of 95% or greater; the study was conducted in November 2018. Participants received \$1.00 for their participation ($M_{\text{time}} = 17$ minutes, $Median_{\text{time}} = 16$ minutes). We excluded participants ($n = 72$) based on pre-registered criteria. Participants were excluded if they did not complete experimental trials ($n = 64$), provided nonsensical responses to open-ended reflection questions, e.g., "American" ($n = 2$) or indicated in their open-ended responses that at least 4/10 statements did not come from the speaker, e.g., "I don't think she said this. This is a nonsense statement" ($n = 6$). The final sample consisted of 290 participants (52% Male; $M_{\text{age}} = 37$, $SD_{\text{age}} = 11$, $Range = 18-71$; 76% White; 8% Black; 6% Latin American/Hispanic; 4% Asian; 6% other).

Procedure

We used a 2 (Speaker Admirability: high vs. low; between-subjects) x 2 (Statement Type: PPBS vs. mundane; within-subjects) mixed experimental design. Participants were randomly assigned to read statements from speakers either high or low in admirability. To create our pool of speakers, we conducted a pre-test in which mTurk participants rated the admirability of 26

public figures. Admirable speakers were chosen based on an annual survey conducted by YouGov, an international online market research and analytics corporation, excluding contemporary political leaders and historical figures (Smith, 2018). We used the most and least admired publicly known speakers from our pre-test, balancing the number of men and women for a total of ten admirable speakers and ten non-admirable speakers (see Table 1). Speakers' images were presented in monochrome and against a neutral background (see Supplemental Materials).

Table 1. Speakers from Studies 1 and 2

<i>Study</i>	<i>Admirable speakers</i>	<i>Non-admirable speakers</i>
1	Angelina Jolie	Bill Cosby
	Bill Gates	Charlie Sheen
	Bruce Lee	Chris Brown
	Dalai Lama	Harvey Weinstein
	Jackie Chan	Justin Bieber
	Michelle Obama	Kim Kardashian
	Nelson Mandela	Martin Shkreli
	Princess Diana	Nicki Minaj
	Oprah Winfrey	Paris Hilton
	Warren Buffet	Richard Nixon
2	Angelina Jolie	Charlie Sheen
	Bill Gates	Chris Brown
	Dalai Lama	Kim Kardashian
	Oprah Winfrey	Paris Hilton

Note: Study 2 speakers are a subset of Study 1 speakers.

We generated ten lists with randomly matched speaker-statement pairs and presented each participant with one randomly selected list. The images and names of speakers (either high or low in admirability, corresponding to the condition) were presented one at a time, accompanied with a statement (either PPBS or mundane). All participants viewed five PPBS (e.g., “*mind and matter are subtle and dense vibrations of consciousness*”) and five mundane (e.g., “*lazy people don't usually succeed in life*”) statements derived from Pennycook et al.

(2015). Statements were selected to be close in length, with approximately 12 words per PPBS statements and 10 words per control statement. Table 2 presents the complete list of statements used in Studies 1 and 2. Following each statement, participants reflected on it and described their stream-of-thoughts in a few sentences.

Table 2. Statements from Studies 1 and 2

<i>Study</i>	<i>Pseudo-Profound Bullshit</i>	<i>Control</i>
1	As beings of light we are local and non-local, time bound and timeless, actuality and possibility.	A balanced diet is important for maintaining good health.
	Mind and matter are subtle and dense vibrations of consciousness.	Children sometimes look a lot like their parents.
	Nature is a self-regulating ecosystem of awareness.	Newborn babies require constant attention.
	Consciousness is the growth of coherence and of us.	Lazy people don't usually succeed in life.
	Our minds extend across space and time as waves in the ocean of one mind.	Human cultures often differ from each other quite a bit.
2	We are being called to explore the totality itself as an interface between serenity and intuition.	Only those who will risk going too far can possibly find out how far one can go.
	Matter is the experience in consciousness of a deeper non-material reality.	A river cuts through a rock, not because of its power but its persistence.

Note. In Study 1 the control statements were mundane facts, in Study 2 the control statements were motivational quotes.

Sense of meaning. After seeing the ten speaker-statement pairs, participants rated their overall *sense* of meaning derived from statements, using three items adapted from Steger and colleagues (2006) to fit the context of the current study: understanding of the statements' meaning ("I feel like I understand the statements' meaning", "I have a good sense of what makes

these statements meaningful”) and purpose (“The statements have no clear purpose”) on a scale of 1 (*absolutely untrue*) to 7 (*absolutely true*).

Additional measures. At the end of the study, participants completed exploratory measures (e.g., attitudes toward the speaker, recognition of the speakers). See Supplementary Materials for a full description of each measure. Finally, participants responded to demographic questions (e.g., age, sex, ethnicity) and were fully debriefed.

Time/effort. We operationalized effort spent on the task via the amount of time spent in the study session (in seconds), automatically recorded by Qualtrics software. Given this variable was positively skewed, we applied a log10 transformation.

Meaning-seeking. We operationalized meaning-seeking via participants’ written reflections on the statements’ meaning or an attempt to find meaning, as well as the explicit mention that a statement has deep, insightful, or profound meaning. Two coders, unaware of the hypothesis and the experimental procedure, coded participants’ reflections about each statement for meaning-seeking on a scale of 1 (no mention of aspect), 2 (weak/implicit mention of aspect), and 3 (explicit mention of aspect). Inter-rater reliability for all 3 coders was good (Fleiss’ $\kappa = 0.56$). We resolved disagreements between coders for meaning-seeking (37% of all cases respectively) by using a third hypothesis-blind coder who received the same training.¹

¹ In Study 1, we expected to run analyses for two aspects of wise reasoning—consideration of others’ perspectives and recognition of limits of knowledge/intellectual humility. However, the variance in responses was very low (96% of responses coded as “no consideration of others’ perspectives,” 4% - coded as 1, < 1% - coded as 2; 96% of responses coded as “no recognition of limits of knowledge,” 3% - coded as 1, 1% coded as 2). Hence, we did not run analyses for coded wisdom (see Supplementary Materials for details).

Table 3. Descriptive statistics for Study 1

Measure	High Admirability		Low Admirability		<i>N</i> *	Reliability (α / κ)
	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	Range		
Judgment of speakers	5.26 (1.32)	1 – 7	3.42 (1.42)	1 – 7	2398	.96
Admiration	5.23 (1.36)	1 – 7	3.32 (1.47)	1 – 7	2398	–
Liking	5.31 (1.46)	1 – 7	3.35 (1.61)	1 – 7	2398	–
Feeling	5.24 (1.35)	1 – 7	3.59 (1.39)	1 – 7	2398	–
Sense of meaning	4.65 (1.13)	1.33 – 6.67	4.34 (1.21)	1.67 – 6.67	290	.79
Credibility	4.46 (1.39)	1 – 7	3.99 (1.46)	1 – 7	290	–
Meaning-seeking	0.73 (0.59)	0 – 2	0.62 (0.58)	0 – 2	2791	.35

Note. Unless specified, measures were single-item. **n* were not identical by condition for judgment of speakers (admirability_{high} = 1126, admirability_{low} = 1272), meaning-seeking dimensions (admirability_{high} = 1286, admirability_{low} = 1505), sense of meaning and credibility (admirability_{high} = 134, admirability_{low} = 156).

Results

Preliminary analyses, statement credibility, sense of meaning

We conducted several exploratory manipulation check analyses. We fit a Linear Mixed Effects Model (LME; *lme4* package in *R*; Bates et al., 2015) where participants' *judgment of speakers* was the dependent variable and their admirability (low vs. high admirability; dummy coded) was the sole predictor, with observations nested in participants. Judgment of speakers was more favorable towards speakers high (vs. low) in admirability, $B = 0.91$, 95% $CI_{\text{standardized}}$ [0.50 0.60], $t = 19.97$, $p < .001$, $Pseudo R^2 = .304$. Speakers high in admirability were more admired ($M = 5.23$, $SD = 1.36$) than speakers low in admirability ($M = 3.32$, $SD = 1.47$), $B = 0.94$, $SE = 0.05$, $t = 20.10$, $p < .001$, $R^2 = .306$. High admirability speakers were also more liked ($M = 5.31$, $SD = 1.46$) compared to those low in admirability ($M = 3.35$, $SD = 1.61$), $B = 0.97$, $SE = 0.05$, $t = 19.61$, $p < .001$, $R^2 = .282$. As well, participants felt more positively toward high admirability speakers ($M = 5.24$, $SD = 1.35$), compared to low admirability speakers ($M = 3.59$, $SD = 1.39$), $B = 0.82$, $SE = 0.05$, $t = 17.93$, $p < .001$, $R^2 = .261$.

Turning to *statement credibility*, statements made by high admirability speakers were rated as more credible ($M = 4.46$, $SD = 1.39$) than statements made by low admirability speakers ($M = 3.99$, $SD = 1.46$), $B = 0.48$, 95% $CI_{\text{standardized}}$ [0.10 0.56], $SE = 0.17$, $t(288) = 2.83$, $p = .005$, $R^2 = .027$. Participants recognized 94% of all speakers.

Finally, to examine *sense of meaning*, we fit an Ordinary Least Squares regression model with (dummy coded) Speaker Admirability as the sole predictor and sense of meaning as the dependent variable. Participants reported greater sense of meaning for high admirability speakers ($M = 4.65$, $SD = 1.13$) compared to low admirability speakers ($M = 4.34$, $SD = 1.21$), $B = 0.31$, $\beta = 0.26$, 95% $CI_{\text{standardized}}$ [0.03 0.49], $t(288) = 2.20$, $p = .029$, $R^2 = .017$. This final manipulation check analysis was pre-registered.

Meaning-seeking

Next, we analyzed reflective processing, based on content-analyses of participants' written reflections in response to each statement. We fit a generalized mixed effects model with Statement Type as a level-1 predictor, Speaker Admirability as a level-2 predictor, and responses nested in participants. We grand mean centered both predictors. As Figure 1 shows, participants were more likely to engage in meaning-seeking for PPBS rather than mundane statements, $B = 0.08$, $SE = 0.02$, $t = 4.78$, $p < .001$. They also engaged in more meaning-seeking for statements attributed to speakers high in admirability compared to low in admirability, $B = 0.06$, $SE = 0.02$, $t = 2.63$, $p = .009$. Importantly, these main effects were qualified by the hypothesized Statement Type x Speaker Admirability interaction, $B = 0.05$, $SE = 0.02$, $t = 2.65$, $p = .008$, $R^2 = .017$.² As Figure 1 shows, in the *high* Speaker Admirability condition, participants engaged in more meaning-seeking when reflecting on PPBS statements rather than mundane statements, $B = 0.13$,

² The interaction remained unaffected when controlling for overall task duration. See Supplementary Materials for all control analyses.

$SE = 0.03$, $t = 5.19$, $p < .001$. In the *low* Speaker Admirability condition, we observed a non-significant trend of more meaning-seeking for PPBS compared to mundane statements, $B = 0.04$, $SE = 0.02$, $t = 1.71$, $p = .087$. Unpacking this interaction differently, for PPBS, participants showed more meaning-seeking in the high compared to the low Speaker Admirability condition, $B = 0.09$, $SE = 0.03$, $t = 3.40$, $p = .001$, whereas for mundane statements we observed no significant differences between Speaker Admirability, $B = 0.04$, $SE = 0.03$, $t = 1.55$, $p = .121$.^{3,4}

Figure 1. Effect of Speaker (high admirability vs. low admirability) and Statement Type (pseudo-profound bullshit vs. mundane) on meaning-seeking in Study 1 and in Study 2 (vs. motivational). Error bars indicate 95% confidence interval.

³ We did not exclude responses based on failure to recognize the speaker, because this exclusion criterion was not preregistered. Excluding statements for which participants did not recognize the speaker did not affect the results.

⁴ Given the design of Study 1, we were unable to test the Speaker Admirability x Statement Type interaction for the SWiS; a linear regression model testing main effects of Speaker Admirability is reported in the Supplementary Materials.

Summary

Study 1 shows that people engage in more meaning-seeking for PPBS when the statements are associated with high (compared to low) admirability speakers. This difference in meaning-seeking manifested itself in response to PPBS statements, but not for mundane statements, suggesting that when the meaning of a statement is easily interpretable, an individual will not attempt to make more sense of it, regardless of who said it. However, if the statement's meaning is ambiguous, an individual will use cues external to the stimuli (such as the speaker's admirability) to facilitate meaning generation. In the case of PPBS, our participants were likely using speaker admirability to infer the likelihood that the statement was meaningful, even if they did not understand why it was (or was not). Consistent with this interpretation, we also found that participants ascribed a greater sense of meaning to statements in the high (vs. low) Speaker Admirability condition, despite both groups being presented with the same statements.

Given little explicit reference to metacognitive characteristics in the narratives coded for dimensions of wisdom, we were unable to run the necessary content-analyses of written narratives. We also did not assess metacognitive processes after each statement participants reflected on in our within-subject design. To address these methodological limitations of Study 1, we included scale measures of self-reported meaning-seeking and situated wise reasoning (Brienza et al., 2018) following each statement in Study 2.

Study 2

Study 2 aimed to conceptually replicate and extend Study 1, while simultaneously addressing its methodological limitations. We replaced the control mundane statements with motivational statements, which prior research identified as meaningful and profound (Pennycook et al., 2015). In Study 2 we included scale measures of self-reported meaning-seeking and

situated wise reasoning (Brienza et al., 2018) following each statement, to enable the direct comparison between PPBS and motivational statements. The addition of a scale response following each statement substantially increased the duration of the study; as such, we reduced the number of statements from ten in Study 1 to four in Study 2.

Method

Participants

Based on a power analysis (G*Power; Erdfelder et al., 1996), we required 294 participants to detect a small effect of $f = .20$, with 90% power and significance level of .05. We collected a sample of 376 U.S. mTurk participants with a HIT approval rate of 95% or greater. Participants received \$1.00 for participation ($M_{\text{time}} = 12$ minutes, $Median_{\text{time}} = 10$ minutes); participant recruitment occurred in January 2020. To ensure data quality we applied the pre-registered exclusion criteria, removing duplicate mTurk workers ($n = 7$), participants who did not complete experimental trials ($n = 67$), provided nonsensical responses to the open-ended reflection questions (e.g., “i kill ecosystems;” $n = 16$), or wrote that at least 2/4 statements were not attributable to the speaker ($n = 5$). The final sample consisted of 281 participants (52% Male; $M_{\text{age}} = 38$; 6% Asian; 14% Black; 71% White; 6% Latin American/Hispanic; > 3% other). The proportion of excluded participants is typical for an mTurk sample (Chandler et al., 2014), and similar to Study 1.

Procedure

We used a 2 (Speaker Admirability: high vs. low; between-subjects) x 2 (Statement Type: PPBS vs. motivational; within-subjects) mixed experimental design. Participants were randomly assigned to receive statements from speakers either high or low in admirability. We used a subset of speakers from Study 1 (see Table 1). We presented the images one at a time, accompanied by

the speaker's name and a statement underneath. We derived a total of four statements from Pennycook et al. (2015), including two PPBS and two motivational statements (see Table 2), randomizing the pairing of the statements and images. For each speaker/statement pair, participants reflected on the statement and described their stream-of-thoughts in a few sentences. Following each speaker/statement pair, participants responded to the measures described below. Descriptive statistics and reliabilities are in Table 4, and correlations between measures are available in the Supplementary Materials.

Measures

Attitudes towards speakers and statements. Participants rated the *profundity* of each statement on a scale of 1 (*not at all profound*) to 5 (*very profound*). After each statement, participants also indicated how much they *liked* the statement on a 5-point star rating scale.

Situated Wise Reasoning Scale (SWiS). The SWiS is a self-report measure of state-level reasoning, which assesses recognition of limits of knowledge/intellectual humility, consideration of diverse perspectives, open mindedness to change, and the search for compromise, as part of a broader latent factor of wise reasoning (Brienza et al., 2018). We selected six items from the intellectual humility and perspectivism sub-dimensions of the SWiS and adapted them to fit the context of the current study by relating the items to reflection on statements. For example, “double-checked whether my opinion on the situation might be incorrect” was reframed to “double-checked whether my opinion on the meaning of the statement might be incorrect.” These six items assess the extent that a participant considered others' perspectives and the integration of these varying perspectives, as well as the extent that they recognized the limits of their knowledge. Participants recorded their responses on a 5-point scale from 1 (*not at all*) to 5 (*very much*). We a priori chose to only include items from the

intellectual humility and perspectivism domains as they were relevant to reflection on statements. Though this decision was not pre-registered, for methodological reasons other components (e.g., compromise, conflict resolution) were not included.

Self-reported meaning-seeking. Participants responded to two items assessing self-reported meaning-seeking (“I tried to understand what the statement was communicating”, “I considered the idea behind the statement”) on a scale of 1 (*not at all*) to 5 (*very much*). These two items were averaged to provide a self-reported meaning-seeking score ($r = .61$).

Additional questionnaire measures. After viewing all statements, participants reported their overall sense of meaning from statements, statements’ difficulty, and credibility (same items as in Study 1). Next, they responded to the manipulation check items from Study 1, a demographic questionnaire, and concluded the study with a debrief.

Effort/Time per statement. We operationalized effort via the amount of time participants spent on the target page (i.e., reading a statement, reflecting on it, and writing a response), recorded (in seconds) per statement. Since the time spent variable was positively skewed, we applied a log10 transformation to normalize the data.

Word count. Written responses were coded by the Automated Integrative Complexity system for paragraphs (AutoIC; Conway et al., 2014, 2020; Houck et al., 2014). Word count of written responses provided a metric of quantity of engagement with statements.

Integrative complexity. AutoIC scored participants written responses along various forms of complexity, which refers to a metric of the complexity of human thought. These include dialectical complexity (i.e., consideration of/openness to a multitude of competing perspectives), elaborative complexity (i.e., presentation of multiple arguments in defense of a singular perspective), differentiation (i.e., drawing distinctions among dimensions of the environment),

and integration (i.e., drawing connections among the differentiated things in an argument; see Conway et al., 2014 for comprehensive discussion). This metric allows us to explore participants' quality of thought in response to motivational and PPBS statements.

Content-analyses of narratives. As in Study 1, we instructed two independent coders (blind to the hypothesis and the experimental procedure) to code participants' reflections for *meaning-seeking*, and two aspects of wise reasoning (*intellectual humility* and *perspectivism*) on a scale of 1 (no mention of aspect), 2 (weak/implicit mention of aspect), and 3 (explicit mention of aspect), utilizing the same coding scheme used in Study 1. Inter-rater reliability was excellent for meaning-seeking (Cohen's $\kappa = 0.94$) and good for intellectual humility and perspectivism ($\kappa = .60$, and $.64$, respectively). Disagreements between coders included meaning-seeking – 3%, perspectivism – 7%, intellectual humility – 10% of all cases respectively). Due to low variance in intellectual humility (85% of responses coded as 0, 8% - coded as 0.5, 6% coded as 1, < 1% coded as 1.5 and 1% coded as 2) and perspectivism (88% of responses coded as 0, 6% - coded as 0.5, 6% coded as 1 and <1% - coded as 1.5), we dichotomized the coding to reflect the presence or absence of these characteristics in participants' reflections (0 = absent, 1 = present). Given this was not an issue for meaning-seeking, we did not dichotomize these scores.

Results

Preliminary analyses, statement credibility, sense of meaning

As in Study 1, we conducted several exploratory manipulation check analyses. We fit an LME model with Speaker Admirability as the predictor and judgment of speakers as the dependent variable, while also nesting observations in participants. We found a large effect, such that participants' judgment of speakers was more favorable toward high (vs. low) admirability speakers, $B = 1.45$, 95% $CI_{\text{standardized}} [0.79 \ 1.09]$, $t = 12.07$, $p < .001$, $Pseudo R^2 = .221$. Speakers

in the high admirability condition were more admired ($M = 5.11$, $SD = 1.35$) than speakers in the low admirability condition ($M = 3.54$, $SD = 1.42$), $t = 13.06$, $p < .001$, $R^2 = .244$. High admirability speakers were also more liked ($M = 5.09$, $SD = 1.47$) compared to low admirability speakers ($M = 3.53$, $SD = 1.59$), $t = 11.77$, $p < .001$, $R^2 = .207$. Participants also felt more positively toward high admirability speakers ($M = 4.99$, $SD = 1.35$), compared to low admirability speakers ($M = 3.77$, $SD = 1.38$), $t = 10.15$, $p < .001$, $R^2 = .166$. Participants recognized 96% of all speakers.

Participants judged statements made by high admirability speakers as more credible ($M = 5.17$, $SD = 1.29$) than statements made by low admirability speakers ($M = 4.60$, $SD = 1.52$), $t = 3.34$, $p < .001$. Turning to the statements, we did not find a significant difference in sense of meaning when comparing the high ($M = 5.12$, $SD = 1.08$) and low ($M = 4.96$, $SD = 1.26$) admirability conditions, $t = 1.16$, $p = .245$.⁵ This final analysis was pre-registered.

⁵ As in Study 1, results did not change after excluding statements where participants did not recognize the associated speaker.

Table 4. Descriptive statistics in Study 2

Measure	High Admirability		Low admirability		<i>n</i>	Reliability (α / κ)
	<i>M</i> (<i>SD</i>)	Range	<i>M</i> (<i>SD</i>)	Range		
Judgments of speakers	5.06 (1.33)	1-7	3.61 (1.39)	1-7	1124	0.96
Admiration	5.11 (1.35)	–	3.54 (1.42)	1-7	1124	–
Liking	5.09 (1.47)	–	3.53 (1.59)	1-7	1124	–
Feeling	4.99 (1.35)	–	3.77 (1.38)	1-7	1124	–
Credibility	5.17 (1.29)	1-7	4.60 (1.52)	1-7	281	–
Sense of meaning	5.12 (1.07)	2-7	4.96 (1.26)	1-7	281	0.75
Self-reported meaning-seeking	4.20 (0.88)	1-5	4.05 (1.04)	1-5	1124	0.76
Profundity	3.33 (1.31)	1-5	2.91 (1.38)	1-5	1124	
SWiS	3.28 (0.95)	1-5	2.83 (1.19)	1-5	1124	0.88
Content-analyzed dimensions						
Meaning-seeking	0.73 (0.51)	0-2	0.64 (0.54)	0-2	1089	0.94
Perspectivism	0.08 (0.23)	0-1	0.11 (0.29)	0-1	1105	0.64
Intellectual humility	0.13 (0.36)	0-1	0.13 (0.35)	0-1	1104	0.60

Note. Unless otherwise specified, measures were comprised of 1 item. Judgments of speakers, credibility and sense of meaning (3 items) were rated on a 1-7 Likert scale. Self-reported meaning-seeking, profundity, and SWiS sub-dimensions which were comprised of 2 items each, were rated on a 1-5 Likert scale. Meaning-seeking, perspectivism, and intellectual humility were coded by two independent coders blind to the study hypothesis on a 0-2 scale. Due to low variance, perspectivism and intellectual humility were dichotomized (0 = absent, 1 = present).

Content-analyses of open-ended narratives

We fit a generalized linear mixed effects model with Statement Type as a level-1 predictor, Speaker Admirability as a level-2 predictor, and responses nested in participants. We grand mean centered both predictors as in Study 1. There was a significant main effect of Statement Type, $B = 0.20$, $SE = 0.02$, $t = 8.28$, $p < .001$, showing that participants engaged in more meaning-seeking for motivational statements ($M = 0.78$, $SD = 0.46$) compared to PPBS statements ($M = 0.58$, $SD = 0.57$). There was a marginal main effect of Speaker Admirability, $B = 0.09$, $SE = 0.05$, $t = 1.86$, $p = .06$. Importantly, the effect of Statement Type was qualified by a

significant Statement Type x Speaker Admirability interaction, $B = -0.11$, $SE = 0.05$, $t = -2.14$, $p = .033$, $R^2 = .046$ (see Figure 1).

Consistent with Study 1, when viewing PPBS statements, participants engaged in more meaning-seeking when the statements were associated with high (vs. low) admirability speakers, $B = 0.14$, $SE = 0.05$, $t = 2.65$, $p = .008$, but not when viewing motivational statements, $B = 0.03$, $SE = 0.05$, $t = 0.64$, $p = .525$. Notably, the difference between Statement Type was more pronounced in the low admirability condition. In addition, we found less coded meaning-seeking for PPBS (vs. motivational) statements for both low admirability speakers, $B = 0.25$, $SE = 0.03$, $t = 7.43$, $p < .001$, and high admirability speakers, $B = 0.15$, $SE = 0.04$, $t = 4.24$, $p < .001$.

Because intellectual humility and perspectivism scores were extremely right-skewed, we fitted a gamma distribution and ran a generalized linear mixed effects regression model with Statement Type as a level-1 predictor, Speaker Admirability as a level-2 predictor, and responses nested in participants. First, we examined effects for perspectivism as a function of Speaker Admirability and Statement Type. We grand mean centered both predictors. Because the interaction was not significant, $B = -0.02$, $SE = 0.02$, $t = -1.00$, $p = .315$, we removed the interaction term from the model and only included main effect terms. Participants were more likely to engage in perspectivism for PPBS compared to motivational statements, $B = 0.05$, $SE = 0.09$, $t = 5.042$, $p < .001$. We found no significant effect of Speaker Admirability on perspectivism, $B = -0.02$, $SE = 0.02$, $t = -0.76$, $p = .449$.

Likewise, we examined intellectual humility as a function of Speaker Admirability and Statement Type. Given the interaction was not significant, $B = -0.001$, $SE = 0.02$, $t = -0.04$, $p = .970$, we removed the interaction term from the model and only included main effect terms. Participants were more likely to engage in intellectual humility for PPBS rather than

motivational statements, $B = 0.19$, $SE = 0.01$, $t = 18.20$, $p < .001$. We found no significant effect of Speaker Admirability on intellectual humility, $B = 0.01$, $SE = 0.02$, $t = 0.48$, $p = .634$.

Self-reported meaning-seeking

We fitted a generalized mixed effects interaction model with self-reported meaning as the dependent variable, Statement Type (PPBS vs. motivational) as a level-1 predictor and Speaker Admirability (high vs. low) as a level-2 predictor and responses nested within participants. Both predictors were grand mean centered. Because the interaction was not significant, $B = -0.11$, $SE = 0.08$, $t = -1.37$, $p = .171$, we removed the interaction term from the model and only included main effect terms. The main effect of Statement Type was significant, $B = 0.14$, $SE = 0.04$, $t = 3.65$, $p < .001$. Participants self-reported more meaning-seeking in response to motivational statements, ($M = 4.19$, $SD = 0.89$), compared to PPBS statements, ($M = 4.05$, $SD = 1.04$).⁶ We did not find an effect of Speaker Admirability on self-reported meaning-seeking, $B = 0.14$, $SE = 0.09$, $t = 1.54$, $p = .126$.

Situated Wise Reasoning Scale

We analyzed effects for SWiS scores by fitting a generalized mixed effects model with Statement Type as a level-1 predictor and Speaker Admirability as a level-2 predictor, with responses nested within participants. Both predictors were grand mean centred. The main effect of Statement Type was significant, $B = -0.22$, $SE = 0.04$, $t = -5.67$, $p < .001$, demonstrating that participants engaged in more wise reasoning in response to PPBS (vs. motivational) statements. The effect of Speaker Admirability was also significant, $B = 0.45$, $SE = 0.11$, $t = 4.11$, $p = .001$, revealing greater wise reasoning in response to statements made by high admirability speakers. The Statement Type x Speaker Admirability interaction showed a marginal trend, $B = -0.14$, SE

⁶ Participants also attributed greater profoundness to motivational statements compared to PPBS statements, $B = 0.84$, $SE = 0.06$, $t = 13.56$, $p < .001$.

$= 0.08$, $t = -1.84$, $p = .066$, $R^2 = .052$ (Figure 2). Given the interaction was hypothesized a-priori and pre-registered, we formally unpacked it. While participants engaged in more wise reasoning when reflecting on PPBS (vs. motivational) statements made by speakers low in admirability, $B = -0.15$, $SE = 0.05$, $t = -2.78$, $p = .006$, this effect was more pronounced when the statements were made by high admirability speakers, $B = -0.29$, $SE = 0.06$, $t = -5.28$, $p < .001$ (see Figure 2; *B coefficient* is double that of the low admirability condition difference between PPBS and motivational). In addition, we ran simple slopes comparisons and found greater wise reasoning for high (vs. low) admirability speakers in response to both PPBS, $B = 0.52$, $SE = 0.12$, $t = 4.49$, $p < .001$, and motivational statements, $B = 0.38$, $SE = 0.12$, $t = 3.25$, $p = .001$. These results demonstrate that participants report more wise reasoning in response to PPBS (vs. motivational) statements, particularly when the statements are delivered by high admirability speakers.

Figure 2. Effect of Speaker (high admirability vs. low admirability) and Statement Type (pseudo-profound bullshit vs. motivational) on SWiS scores in Study 2. Error bars indicate 95% confidence interval.

Summary

Replicating Study 1 results, participants in Study 2 showed more meaning-seeking in response to PPBS statements when the statements were provided by high admirability speakers compared to speakers who were low in admirability. Importantly, this difference in meaning-seeking behavior occurred for PPBS statements, but not for motivational statements. Across both behavioral and self-report measures, motivational statements elicited more meaning-seeking. However, we found no effect of Speaker Admirability for self-reported meaning-seeking. Participants engaged in more wise reasoning in response to PPBS (vs. motivational) statements, and this engagement was enhanced when the statements were associated with high admirability speakers. Notably, our observed interaction effects were not statistically accounted for by the

quantity nor quality of participants' written responses. Further, we found an effect of Statement Type, but not Speaker Admirability for the content-analyzed dimensions of intellectual humility and perspectivism. Participants engaged in more wisdom-related metacognitions for PPBS, compared to motivational statements. However, due to the low variance in coded responses, we caution against drawing strong inferences from this particular finding.

Participants' self-reported sense of meaning derived from statements did not differ across high and low admirability speakers. This could be a product of the different stimuli we used in Study 2 (i.e., motivational as opposed to mundane statements). In Study 2, we presented sense of meaning questions at the end of the experimental trials. Favourable evaluations of *genuinely* profound motivational statements may have left participants with the impression that the overall experience of reading all the statements was generally meaningful.

General Discussion

We examined how an external cue – speaker admirability – influences people's cognitive processing of statements that vary in the ambiguity of their meaning. Across two studies we found that participants engaged in greater epistemic reflection in response to ambiguous PPBS when it was associated with a high (vs. low) admirability speaker. Importantly, we observed no such pattern for non-ambiguous mundane (Study 1) or motivational (Study 2) statements. In other words, participants' attempt to generate meaning from statements was dependent on *who* the statement was associated with, but *only* for ambiguous statements that were not readily interpretable. We also found that participants engaged in more wise reasoning for PPBS (vs. motivational) statements.

Our results suggest that when the meaning of a statement is not readily interpretable from the statement itself, such as in the case of ambiguous PPBS, people will use external cues to infer

whether the statement is likely to be meaningful. This initial evaluation subsequently determines the degree of epistemic reflection they will engage in to derive meaning from the statement. In contrast, when the meaning of a statement is easily interpretable, such as in the case of mundane and motivational statements, we find no evidence that external cues guide the degree of engagement with statements. This finding is only partially consistent with prior findings that messages are evaluated more favourably when delivered by high prestige sources (Manis, 1961; Lorge & Curtiss, 1936; Bar-Hillel et al., 2012). With the noted caveats that we studied epistemic reflection rather than favourability evaluations, and our indicator of prestige was admirability, we found that the influence of the source is dependent on the content of the message. Behaviorally, participants did not reason about mundane or motivational statements any differently depending on the source. Our findings suggest that people will turn to external cues (e.g., source admirability) to resolve the uncertainty associated with encountering messaging that appears meaningful but is not easily understood, but will not do so when the message's meaning is easily accessible.

The self-reported measures and content-analyzed dimensions produced somewhat inconsistent results in Study 2. While we found a Speaker Admirability x Statement Type interaction for meaning-seeking in participants' written reflections, this was not the case for self-reported meaning-seeking. We believe this occurred because internal considerations of meaning-seeking behavior and external considerations of meaning-seeking behavior may be similar but not identical. As shown by the moderate correlation between the self-reported and performance-based measures of meaning-seeking, we suspect that the measures were capturing different aspects of the same construct (see Supplementary Materials). Relatedly, we observed a Speaker Admirability x Statement Type interaction for the self-reported questionnaire measure of wise

reasoning, but this was not the case for the coded dimensions of wisdom. This is reflective of prior research showing that self-report and performance-based measures of wisdom are only weakly correlated (Brienza et al., 2018; Dang et al., 2020; Murphy & Lilienfeld, 2019; see Supplementary Materials for correlations between measures). Further, the prompt for written reflections (i.e., “*please reflect on this statement and describe your thoughts about the statement in a few sentences*”) may have been inadequate to tap into participants wisdom-related metacognitions. Performance-based measures of wisdom typically prompt participants to actively reflect on a challenging problem such as an interpersonal conflict (Brienza et al., 2018), which was outside the scope of the present research.

Pseudo-profound language represents a type of misinformation (Čavojová et al., 2019b; Littrell et al., 2021; Pennycook & Rand, 2019a) where ambiguity reigns. Our findings suggest that source admirability could play an important role in the cognitive processing of ambiguous misinformation, including fake news (Pennycook & Rand, 2020) and euphemistic language (Walker et al., 2021). For instance, in the case of fake news, people may be more inclined to engage in epistemic reflection if the source of an article is highly admirable. However, we also observed that statements from high (vs. low) admirability sources were judged as more profound and were better liked. Extended to misinformation, a combination of greater perceived profundity, liking, and acquired meaning could potentially facilitate the sharing of ambiguous fake news content throughout social networks. Increased reflective thinking (as measured by the CRT) has also been linked to greater discernment on social media, with individuals who score higher on the CRT being less likely to believe fake news stories and share this type of content (Mosleh et al., 2021; Pennycook & Rand, 2019a). Perhaps, people might engage in more epistemic reflection if the source of an article is highly admirable, which may in turn predict a

decrease in the sharing behaviour of fake news. Similarly, people may be more inclined to engage in epistemic reflection for euphemistic language, such as the term “enhanced interrogation” used in replacement of “torture,” and conclude that this type of language means something other than what it refers to, if used by a more admirable (compared to a less admirable) individual.

The finding that source admirability serves as a cue for epistemic reflection may be explained by an individual’s tendency to evaluate evidence that confirms their pre-existing beliefs more favourably (i.e., motivated reasoning; Kunda, 1990). When presented with an ambiguous statement associated with a highly admirable speaker, one may be more inclined to interpret the speaker’s words in accordance with their attitude toward them. As well, given the human tendency to spend as little cognitive effort as possible (Fiske & Taylor, 1991; Stanovich, 2009), source admirability may be used as a cue to determine whether cognitive effort is justified in interpreting a statement. Relatedly, our findings offer confirmatory evidence for the theoretical *guru effect* – the proposed tendency for people to judge profound what they have failed to grasp by relying on external criteria (e.g., source reputation; Sperber, 2010). Here we have demonstrated that the reliance on external cues manifests in part as greater epistemic reflection and wisdom-related metacognitions when high (compared to low) admirability speakers express the same sentiment. Furthermore, as opaque language can act as a cue that a message is beyond plain meaning (Sperber, 2010), perhaps ancient wisemen who had the capability of producing simple statements intentionally obfuscated their expressed thoughts. On the one hand, the thoughts might have been as nonsensical as the language used to express them. But on the other hand, the nature of expression might have cued our ancient ancestors to believe that a statement

was meaningful, even if it did not appear to be at first, and if only for a lack of cognitive effort had they yet to discern it.

Acknowledgements

The present research was supported by the Social Sciences and Humanities Research Council of Canada Insight Grant (435-2014-0685) and the Early Researcher Award from the Ontario Ministry of Research and Innovation (ER16-12-169) to IG.

Author Contributions

IG developed the study concept. EAM and AD designed Study 1 and gathered data. MKY and AD designed Study 2 and gathered data. KS, AD, and IG performed analyses for Study 1. KS, MKY, and IG performed analyses for Study 2. MKY and EAM drafted the manuscript. IG provided guidance and supervision over the research. All authors revised the manuscript.

References

- Bar-Hillel, M., Maharshak, A., Moshinsky, A., & Nofech, R. (2012). A rose by any other name: A social-cognitive perspective on poets and poetry. *Judgment & Decision Making*, 7(2), 149-164.
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). *Fitting Linear Mixed-Effects Models Using lme4*. Retrieved from <http://www.jstatsoft.org/v67/i01/>
- Bråten, I., Strømsø, H. I., & Salmerón, L. (2011). Trust and mistrust when students read multiple information sources about climate change. *Learning & Instruction*, 21(2), 180-192. <https://doi.org/10.1016/j.learninstruc.2010.02.002>
- Brienza, J., Kung, F., Santos, H., Bobocel, D., & Grossmann, I. (2018). Wisdom, bias, and balance: Toward a process-sensitive measurement of wisdom-related cognition. *Journal of Personality & Social Psychology*, 115(6), 1093-1126. <https://doi.org/10.1037/pspp0000171>
- Čavojová, V., Jurkovič, M., & Brezina, I. (2019a). To be or not to be bullshit? Obscuring the form vs. moving away from truthfulness. *Kognícia a umelý život*, 17-19.
- Čavojová, V., Secară, E. C., Jurkovič, M., & Šrol, J. (2019b). Reception and willingness to share pseudo-profound bullshit and their relation to other epistemically suspect beliefs and cognitive ability in Slovakia and Romania. *Applied Cognitive Psychology*, 33(2), 299-311. <https://doi.org/10.1002/acp.3486>
- Chandler, J., Mueller, P., & Paolacci, G. (2014). Nonnaïveté among Amazon Mechanical Turk workers: Consequences and solutions for behavioral researchers. *Behavior Research Methods*, 46(1), 112-130. <https://doi.org/10.3758/s13428-013-0365-7>

- Chmielewski, M., & Kucker, S. C. (2020). An MTurk crisis? Shifts in data quality and the impact on study results. *Social Psychological & Personality Science*, 11(4), 464-473.
<https://doi.org/10.1177/1948550619875149>
- Conway, L. G., III, Conway, K. R., & Houck, S. C. (2020). Validating Automated Integrative Complexity: Natural language processing and the Donald Trump test. *Journal of Social & Political Psychology*, 8, 504-524. <https://doi.org/10.5964/jspp.v8i2.1307>
- Conway, L. G., III, Conway, K. R., Gornick, L. J., & Houck, S. C. (2014). Automated integrative complexity. *Political Psychology*, 35, 603-624. <https://doi.org/10.1111/pops.12021>
- Dang, J., King, K. M., & Inzlicht, M. (2020). Why are self-report and behavioral measures weakly correlated? *Trends in Cognitive Sciences*, 24(4), 267-269.
<https://doi.org/10.1016/j.tics.2020.01.007>
- Dunlosky, J., & Metcalfe, J. (2008). *Metacognition*. Thousand Oaks, Sage.
- Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments & Computers*, 28(1), 1–11. <https://doi.org/10.3758/BF03203630>
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*. McGraw-Hill Book Company.
- Frankfurt, H. G. (2005). *On Bullshit*. Cambridge: Cambridge University Press.
- Frederick, S. (2005) Cognitive reflection and decision making. *Journal of Economic Perspectives*, 19(4), 25-42. <https://doi.org/10.1257/089533005775196732>
- Fry, P. S. (1998). *The development of personal meaning and wisdom in adolescence: A reexamination of moderating and consolidating factors and influences*. In P. T. P. Wong & P. S. Fry (Eds.), *The human quest for meaning: A handbook of psychological research and clinical applications* (pp. 91–110). Lawrence Erlbaum Associates Publishers.

- Gligorić, V., & Vilotijević, A. (2019). "Who said it?" How contextual information influences perceived profundity of meaningful quotes and pseudo-profound bullshit. *Applied Cognitive Psychology*, 34(2), 535-542. <https://doi.org/10.1002/acp.3626>
- Glück, J. (2018). Measuring wisdom: Existing approaches, continuing challenges, and new developments. *The Journals of Gerontology: Series B*, 73(8), 1393-1403.
- Grossmann, I. (2017). Wisdom in context. *Perspectives on Psychological Science*, 12(2), 233-257. <https://doi.org/10.1177/17456916166672066>
- Grossmann, I., Na, J., Varnum, M. E., Kitayama, S., & Nisbett, R. E. (2013). A route to well-being: Intelligence versus wise reasoning. *Journal of Experimental Psychology: General*, 142(3), 944-953. <https://doi.org/10.1037/a0029560>
- Grossmann, I., Na, J., Varnum, M. E., Park, D. C., Kitayama, S., & Nisbett, R. E. (2010). Reasoning about social conflicts improves into old age. *Proceedings of the National Academy of Sciences*, 107(16), 7246-7250. <https://doi.org/10.1073/pnas.1001715107>
- Grossmann, I., Weststrate, N. M., Ardelt, M., Brienza, J. P., Dong, M., Ferrari, M., Fournier, M. A., Hu, C. S., Nusbaum, H. C. & Vervaeke, J. (2020a). Wisdom science in a polarized world: Knowns and unknowns. *Psychological Inquiry*, 31, 103-133. <https://doi.org/10.1080/1047840X.2020.1750917>
- Grossmann, I., Weststrate, N. M., Ferrari, M., & Brienza, J. P. (2020b). A common model is essential for a cumulative science of wisdom. *Psychological Inquiry*, 31(2), 185-194. <https://doi.org/10.1080/1047840X.2020.1750920>
- Hamblyn, R. (2002). *The invention of clouds: How an amateur meteorologist forged the language of the skies*. Macmillan.

- Horai, J., Naccari, N., & Fatoullah, E. (1974). The effects of expertise and physical attractiveness upon opinion agreement and liking. *Sociometry*, 37(4), 601-606.
<https://doi.org/10.2307/2786431>
- Houck, S. C., Conway, L. G., III, & Gornick, L. J. (2014). Automated integrative complexity: Current challenges and future directions. *Political Psychology*, 35, 647-659.
<https://doi.org/10.1111/pops.12209>
- Hovland, C. I., & Weiss, W. (1951). The influence of source credibility on communication effectiveness. *Public Opinion Quarterly*, 15(4), 635-650. <https://doi.org/10.1086/266350>
- Ilić, S., & Damjanović, K. (2021). The effect of source credibility on bullshit receptivity. *Applied Cognitive Psychology*, 35(5), 1193-1205.
<https://doi.org/10.1002/acp.3852>
- Krauss, S. E. (2005). Research paradigms and meaning making: A primer. *The Qualitative Report*, 10(4), 758-770.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108(3), 480-498. <https://doi.org/10.1037/0033-2909.108.3.480>
- Laertius, D. (2019). *The lives and opinions of eminent philosophers*. Good Press.
- Littrell, S., & Fugelsang, J. A. (2021). The ‘bullshit blind spot’: The roles of overconfidence and perceived information processing in bullshit detection. <https://psyarxiv.com/kbfrz/>
- Littrell, S., Risko, E. F., & Fugelsang, J. A. (2021). ‘You can’t bullshit a bullshitter’(or can you?): Bullshitting frequency predicts receptivity to various types of misleading information. *British Journal of Social Psychology*, 60(4), 1484-1505.
<https://doi.org/10.1111/bjso.12447>

- Lorge, I., Curtiss, C. C. (1936) Prestige, Suggestion, and Attitudes, *The Journal of Social Psychology*, 7(4), 386-402. <https://doi.org/10.1080/00224545.1936.9919891>
- Maddux, J. E., & Rogers, R. W. (1980). Effects of source expertness, physical attractiveness, and supporting arguments on persuasion: A case of brains over beauty. *Journal of Personality & Social Psychology*, 39(2), 235–244. <https://doi.org/10.1037/0022-3514.39.2.235>
- Manis, M. (1961). The interpretation of opinion statements as a function of recipient attitude and source prestige. *The Journal of Abnormal and Social Psychology*, 63(1), 82–86. <https://doi.org/10.1037/h0041770>
- Meyers, E. A., Turpin, M. H., Białek M., Fugelsang, J. A., & Koehler D. J. (2020). Inducing feelings of ignorance makes people more receptive to expert (economist) opinion. *Judgment & Decision Making*. 15(6), 909-925.
- Mosleh, M., Pennycook, G., Arechar, A. A., & Rand, D. G. (2021). Cognitive reflection correlates with behavior on Twitter. *Nature Communications*, 12(1), 1-10. <https://doi.org/10.1038/s41467-020-20043-0>
- Murphy, B. A., & Lilienfeld, S. O. (2019). Are self-report cognitive empathy ratings valid proxies for cognitive empathy ability? Negligible meta-analytic relations with behavioral task performance. *Psychological Assessment*, 31(8), 1062-1072. <https://doi.org/10.1037/pas0000732>
- Pennycook, G., & Rand, D. G. (2019a). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, 188, 39-50. <https://doi.org/10.1016/j.cognition.2018.06.011>

- Pennycook, G., & Rand, D. G. (2020). Who falls for fake news? The roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking. *Journal of Personality*, 88(2), 185-200.
<https://doi.org/10.1111/jopy.12476>
- Pennycook, G., Cheyne, J. A., Barr, N., Koehler, D. J., & Fugelsang, J. A. (2015). On the reception and detection of pseudo-profound bullshit. *Judgment & Decision Making*, 10(6), 549-563.
- Petrocelli, J. V. (2021). Politically oriented bullshit detection: Attitudinally conditional bullshit receptivity and bullshit sensitivity. *Group Processes & Intergroup Relations*.
<https://doi.org/10.1177/1368430220987602>
- Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology*, 34(2), 243-281.
<https://doi.org/10.1111/j.1559-1816.2004.tb02547.x>
- Raven, J., & Raven, J. (2003). Raven Progressive Matrices. In R. S. McCallum (Ed.), *Handbook of nonverbal assessment* (pp. 223–237). Kluwer Academic/Plenum Publishers.
https://doi.org/10.1007/978-1-4615-0153-4_11
- Smith, M. (2018, April 11). World's most admired 2018. YouGov.
<https://yougov.co.uk/topics/international/articles-reports/2018/04/11/worlds-most-admired-2018>
- Sperber, D. (2010). The guru effect. *Review of Philosophy & Psychology*, 1(4), 583-592.
<https://doi.org/10.1007/s13164-010-0025-0>
- Stanovich, K. (2009). *What Intelligence Tests Miss: The Psychology of Rational Thought*. Yale University Press. Retrieved from <http://www.jstor.org/stable/j.ctt1nq14j>

- Stanovich, K. E. (2018). Miserliness in human cognition: The interaction of detection, override and mindware. *Thinking & Reasoning*, 24(4), 423-444.
<https://doi.org/10.1080/13546783.2018.1459314>
- Staudinger, U. M., & Glück, J. (2011). *Intelligence and wisdom*. In R. J. Sternberg & S. B. Kaufman (Eds.), *The Cambridge handbook of intelligence* (pp. 827–846). Cambridge University Press. <https://doi.org/10.1017/CBO9780511977244.041>
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80–93. <https://doi.org/10.1037/0022-0167.53.1.80>
- Strickland, A. A., Taber, C. S., & Lodge, M. (2011). Motivated reasoning and public opinion. *Journal of Health Politics, Policy & Law*, 36(6), 935-944.
<https://doi.org/10.1215/03616878-1460524>
- Turpin, M. H., Walker, A. C., Kara-Yakoubian, M., Gabert, N. N., Fugelsang, J. A., & Stolz, J. A. (2019). Bullshit makes the art grow profounder. *Judgment & Decision Making*, 14(6), 658-670.
- Walker, A. C., Turpin, M. H., Meyers, E. A., Stolz, J. A., Fugelsang, J. A., & Koehler, D. J. (2021). Controlling the narrative: Euphemistic language affects judgments of actions while avoiding perceptions of dishonesty. *Cognition*, 211, 104633.
<https://doi.org/10.1016/j.cognition.2021.104633>
- Walker, A., Turpin, M. H., Stolz, J. A., Fugelsang, J., & Koehler, D. (2019). Finding meaning in the clouds: Illusory pattern perception predicts receptivity to pseudo-profound bullshit. *Judgment & Decision Making*, 14(2), 109-119.

Warren, I. D. (1969). The effect of credibility in sources of testimony on audience attitudes toward speaker and message. *The Public Opinion Quarterly*, 42(3), 285-314.
<https://doi.org/10.1080/03637756909375639>