

# **CALLING BULLSHIT**

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**A STUDY ON PSEUDO-PROFOUND BULLSHIT IN A BUSINESS  
CONTEXT**

**EVA KLOCKE**

**CHRISTOPHER KUO**

Master Thesis

Stockholm School of Economics

2020

## **Calling Bullshit: A Study on Pseudo-Profound Bullshit in a Business Context**

### **Abstract:**

The global concern for fake news, pseudo-science, and conspiracy theories is growing, fueling research on why individuals are receptive to this kind of information as well as on the factors that contribute to this phenomenon. Pseudo-profound bullshit, which is randomly generated and designed to impress without any regard for the truth, has become a relevant field of research in this regard. However, reviewing relevant literature has opened up a knowledge gap when it comes to applying pseudo-profound bullshit to different areas, such as the field of business. This thesis sets out to address this gap, extending existing research by investigating business oriented pseudo-profound bullshit and its antecedents. Specifically, human factors, in the form of cognitive abilities and familiarity, as well as task characteristics, measured through fluency and English proficiency, and their influence on bullshit receptivity are investigated. Whereas the former has been examined in relation to pseudo-profound bullshit before, the latter presents a new angle bridging the current field of research with the field of fluency.

Two quantitative studies were performed to examine said relationships. The first study ( $n = 113$ ), distributed to students via an online survey, showed that individuals are indeed receptive to pseudo-profound bullshit in a business context, but neither human factors nor task characteristics have been shown to have a significant impact on said receptivity. The second study ( $n = 185$ ), which was conducted through an online data collection service, mostly confirmed the results but provided partial support for analytic cognitive capabilities having a negative impact on bullshit profundity ratings, implying that individuals with high analytic capabilities may be better able to see through bullshit. These findings imply that receptivity to business oriented pseudo-profound bullshit proves to be a worthy topic for further research in order to better understand antecedents and factors contributing to the phenomenon.

**Keywords:** Pseudo-profound bullshit, judgment and decision making, fluency, familiarity, bullshit receptivity

**Authors:** Eva Klocke (41399) and Christopher Kuo (41386)

**Supervisor:** Patric Andersson

**Examiner:** Magnus Söderlund

Master Thesis

Master Program in Business and Management

Stockholm School of Economics

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## THANK YOU

Patric Andersson, for your inspiration, guidance, and your humor. Your constructive supervision and advice were invaluable for this thesis.

Families and friends, for continuous support and encouragement.

All respondents across our studies for their patience with the bullshit we exposed them to.

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# 1. Introduction

During this era of fake news and conspiracy theories, bullshit is an unavoidable topic. Designed to impress with no regard whatsoever for the truth (Frankfurt, 2005), it presents a dangerous tool for people to increase their own fame and stir up conflicts. In particular, uncertain and scary times like the current Coronavirus pandemic present a breeding ground for conspiracies and speculations. Anti-vaxxers claim Bill Gates is using the virus to immunize the world population and people are vandalizing under the belief that 5G in fact causes all symptoms or that the lock-down is a cover established by the government for rolling out the 5G network (The Guardian, 2020). Whereas these claims are absolute nonsense for many people, a specific type of bullshit exists and operates more subtly; pseudo-profound bullshit (Pennycook et al., 2015) is designed to impress and makes use of seemingly meaningful and true concepts to fool the bullshitee. Many human factors have been linked to one's receptivity to pseudo-profound bullshit (e.g. Pennycook et al., 2015; Pfattheicher & Schindler, 2016) but the factors that contribute to being receptive to pseudo-profound bullshit in a business context are currently unknown.

## 1.1. Background

As a concept, bullshit is highly pervasive in society. According to Google Trends, the topic of bullshit has retained steady and increasing interest worldwide over the past 15 years (see Appendix A). The term is commonly found in informal settings, such as in everyday conversations, as well as in media, with the television program *Penn and Teller: Bullshit!* featuring the topic (Wakeham, 2017).

In the academic setting, the interest in bullshit has been fueled by the philosopher Frankfurt. With his publication *On Bullshit*, Frankfurt (2005) advanced the conceptualization of bullshit and clearly differentiated the term from lying. The differences exist in the liar's or bullshitter's intent and attitude towards the truth. Whereas the liar consciously deceives and hides the truth, the bullshitter does not attempt to deceive but simply does not care about the truth (Frankfurt, 2005).

With this conceptualization of bullshit, it is interesting to examine the interactions between bullshit and trends in global development. One such example can be seen with the changes in the global information system. Technology is facilitating easier information access, which at the same time contributes to a divergence in attitudes between the informed public, consisting of wealthier and more highly educated individuals who consume news more frequently, and the mass population (Edelman Trust Barometer, 2020).

From the cognitive perspective, it is also becoming more difficult for individuals to evaluate information as the truth, bullshit, or lies. Pennycook et al. (2018) found that even a single prior exposure to a fake news article, which in this case represents a lie, contributes to increased

perceptions of its accuracy. From the perspective of information providers, including businesses, more is being demanded from them in terms of providing transparency in both communication and action (Weinswig, 2018). As discussed by Frankfurt (2006), compared to lying, bullshit can be more dangerous to society due to the lack of concern for the truth. Therefore, it is of societal interest to better understand interactions between society and bullshit.

Within the concept of bullshit is pseudo-profound bullshit, which describes randomly generated statements that are formulated to convey deep meaning but actually lack notable substance (Pennycook et al., 2015). It is characterized by two main factors: 1) construction without regard or concern for the truth; and 2) a lack of consistent unambiguous meaning, which suggests that some may still find it meaningful (Pennycook et al., 2016). Therefore, pseudo-profound bullshit can be perceived as meaningful at times but is always randomly constructed. A distinction that differentiates pseudo-profound bullshit is the shift in attention from the party creating the bullshit to the bullshit recipient or “bullshitee” (Pennycook et al., 2015). Therefore, more attention is placed on the actual impact generated from spreading bullshit.

## 1.2. Problem Area

From the cognitive perspective, meaning how humans process, store and retrieve information, Pennycook et al. (2015) were the first to explore receptivity to pseudo-profound bullshit. Across four studies, they found that people have a tendency to find these types of bullshit statements as profound. Further studies have replicated these findings (Cavojova et al., 2018) and extended the research to other fields, mostly in the social sciences.

Existing research on pseudo-profound bullshit can be categorized into three main areas. First, many studies have explored which individual characteristics, such as cognitive ability, contribute to one’s receptivity to pseudo-profound bullshit (Pennycook et al., 2015; Bainbridge et al., 2019; etc.) Second, the majority of current research has examined how receptivity of pseudo-profound bullshit correlates with different attitudes such as political beliefs (Pfатtheicher & Schindler, 2016; Nilsson et al., 2019), perceptions of art (Turpin et al., 2019; Walker et al., 2019), and the tendency to fall for fake news (Pennycook & Rand, 2019). Third, the receptivity to pseudo-profound bullshit has been used to predict individual behavior (Erlandsson et al., 2018).

However, the cognitive perspective has not yet been brought together with the field of business. On a broader level, the connection between bullshit and business has been examined with many recent works that acknowledge the existence of bullshit in business (Spicer, 2018; Beckwith, 2006; etc.). Applicable to the bullshit that occurs in business, Petrocelli (2018) identified two main factors that enable individuals to bullshit: 1) pressure to provide an opinion and 2) expectation that their audience will accept or tolerate the communication. Much of the other existing research focuses on the functional role of bullshit from an organizational studies perspective, looking inward on communicating bullshit among employees. Bullshit can serve

both a positive function within an organization, such as by helping individuals build an appealing image and self-confidence, and a negative function by crowding out primary tasks (Spicer, 2013). Additionally, bullshit has been found to be used by various levels of seniority within an organization, playing a role in the common managerial practices of commanding and strategizing (Christensen et al., 2019).

Based on this evaluation of current knowledge bridging bullshit with business, the understanding of how bullshit used by businesses in external situations, such as towards the public, affects individual perceptions is underdeveloped. The topic is interesting to explore further especially in the context of a world with increased information availability and increased difficulty for individuals to evaluate the truth. Given the focus of pseudo-profound bullshit on the cognitive perspective of the “bullshitee,” it seems appropriate to bring together the topics of pseudo-profound bullshit and bullshit used by businesses to address this knowledge gap.

### 1.3. Purpose of the Study

The main purpose of this study is to understand the relationship between externally communicated business bullshit and the individual recipients of said bullshit. In particular, it is important to understand the impact of such language on the thoughts and opinions of the recipients (e.g. factors that inform decision making). A metric that can be used to assess impact is bullshit receptivity, which in studies about pseudo-profound bullshit is measured by high ratings of profundity (Pennycook et al., 2015). In some cases, bullshit receptivity has been a predictor of certain behaviors (Erlandsson et al., 2018). For that reason, the study will use pseudo-profound bullshit tailored to the business context in order to assess if individuals are receptive to believing such communications are profound. This motivates our first research question:

- 1) Are individuals receptive to pseudo-profound bullshit in a business context?

Furthermore, this study will investigate some potential drivers of bullshit receptivity. These drivers will be separated into two categories: 1) human, hence internal factors and 2) task characteristics. Human factors describe characteristics that are inherent to an individual and they will be measured by *reflective ability* and *analytic cognitive ability* as well as characteristics that can be learned and vary depending on an individual’s background and experiences like *familiarity with business articles*. Task characteristics are independent of human predispositions and are related to the task itself and measured here through *fluency*; the ease or difficulty of processing information and *English proficiency*. Therefore, the other research questions that will be addressed are:

- 2) To what extent do human factors contribute to the receptivity of pseudo-profound bullshit in a business context?
- 3) To what extent do task characteristics contribute to the receptivity of pseudo-profound bullshit in a business context?



## 1.4. Intended Knowledge Contribution

Receptivity to pseudo-profound bullshit has already been established in various contexts; for example in relation to political ideology (Erlandsson et al., 2018), willingness to share pseudo-profound bullshit in Slovakia and Romania (Čavojová et al., 2019) or how it influences the way art is interpreted (Turpin et al., 2019). A more extensive summary of all studies related to pseudo-profound bullshit can be found in Appendix B. This study aims to contribute to the growing academic interest in bullshit by extending the cognitive research on pseudo-profound bullshit receptivity to the business field, where a knowledge gap currently exists, focusing on language used by organizations in external communications in the form of earnings reports in this case. In addition, our study will extend the existing research on pseudo-profound bullshit to include a measure of the impact of task characteristics, such as how the difficulty of a text influences perception. Finally, a secondary contribution is to validate previous findings in pseudo-profound bullshit research by replicating a small portion of previous studies.

Our ambition is also to provide insights to individuals, or the recipients of business communications. The findings from this study should allow people to better understand his or her own potential susceptibility to falling victim to bullshit from businesses. While the findings of this research may have managerial implications, the intention is not to encourage organizations to take advantage of the public.

By addressing the knowledge gap that exists between cognitive research on the individual and business oriented bullshit communicated externally by organizations, this thesis aims to bring more attention to bullshit generated by businesses. While internally oriented studies within an organization can contribute to organizational performance, focusing on external use of bullshit enables another stakeholder to derive value - the general population consuming business bullshit.

## 1.5. Definitions

Throughout this thesis, several concepts central to this research will repeatedly appear. Since it may be difficult for the reader to understand the terminology or distinguish between similar concepts, the definitions of a few key ideas are included in this section for reference.

**Berlin numeracy test:** an analytic cognitive test measuring the “ability to understand, evaluate, and use numerical information” (Lindskog et al., 2015)

**BSR:** bullshit receptivity scale, which refers to the set of pseudo-profound bullshit statements that researchers use to measure bullshit receptivity in relation to other variables; while the BSR is sometimes identical across multiple studies, the term may still be used by researchers who test a scale of unique pseudo-profound bullshit statements

**Bullshit:** language that is designed to impress, generated without the intent to deceive but also without concern for the truth (Frankfurt, 2005)

**Business context:** here, communication by the management of a corporation towards external stakeholders (e.g. through earnings reports) regarding business-specific content

**CRT:** cognitive reflection test; a test measuring the extent to which people are able to reflect and resist intuitive but incorrect answers to math problems (Baron et al., 2015)

**Fluency:** the subjective experience of ease or difficulty associated with completing a mental task (Oppenheimer, 2008)

**Lying:** the act of consciously engaging in deception, hiding the truth and spreading untruths (Frankfurt, 2005)

**Profound/profundity:** of deep meaning, of great and broadly inclusive significance (Pennycook et al., 2015)

**Pseudo-profound bullshit:** a subtopic within bullshit that focuses on randomly generated statements that are formulated to convey deep meaning but actually lack notable substance (Pennycook et al., 2015)

**Traditional pseudo-profound bullshit:** for the purpose of this thesis, but not a formalized concept, traditional pseudo-profound bullshit refers to the randomly generated statements tested by Pennycook et al. (2015) in their first study and then replicated in multiple follow-up studies

## 1.6. Delimitations

Due to timing and resource constraints, a few delimitations are applicable to this thesis. First, the thesis is meant to be completed in about four months, making it unreasonable to conduct extensive experiments or longitudinal studies. Moreover, the Corona crisis prevalent at the time might impact the general mindset, impacting the willingness to participate in studies as well as the way surveys are answered. In terms of scope, there are many additional factors that can be considered when evaluating individual receptivity to statements from a business. One factor that is not covered throughout this thesis is trust and how the level of trust between an individual and a certain company could influence an individual's perceptions. As a result, business statements presented in the study attempt to be as neutral as possible, avoiding the use of specific company names and identifying particular industries. Additionally, since the purpose of the study focuses on how individuals perceive bullshit, less discussion will cover the broad adjacent topic of business communications. We have narrowed our scope to focus on task characteristics related to ease of understanding rather than the methods of communication, such as the channel of communication.

For the purpose of clarity, this study will focus on pseudo-profound bullshit in the business context. Although related concepts such as lying and fake news have been previously identified, they are intended only to illustrate the broader field of study. These concepts involve a different type of motivation (the intent to deceive) than pseudo-profound bullshit (no intent to deceive,

only lack of care). Although many studies focused more on the intent of the bullshitter, our focus is on the receiver of bullshit.

## 1.7. Thesis Outline

This thesis will examine three main research questions across two separate studies, performed sequentially. First, a review of relevant theory will be presented to inform the generation of hypotheses to answer the research questions. A description of the overall methodology used throughout this thesis will follow. The subsequent section presents the results and analysis for both studies, including an assessment of whether empirical findings support or fail to support our hypotheses. Finally, the thesis concludes with a general discussion of learnings, implications, critique of the research, and directions for further exploration.

## 2. Theory and Hypothesis Generation

In order to address the research questions formerly presented about whether individuals are receptive towards pseudo-profound bullshit and to what extent human and task factors contribute to this receptivity, the following section will present the theoretical framework, build upon literature on the respective topics and present the generated hypotheses accordingly. First, it will be discussed whether it can be assumed that people are receptive to business oriented bullshit before touching upon some human factors and task characteristics that could influence this phenomenon.

### 2.1. Pseudo-Profound Bullshit Receptivity

Bullshit can take on many forms and on one end of the spectrum lies pseudo-profound bullshit which with its vagueness and therefore lack of clear meaning is purely designed to impress rather than inform (Pennycook et al., 2015). By quoting an actual tweet by Deepak Chopra (“Attention and intention are the mechanics of manifestation”) that the authors label to be pseudo-profound bullshit due to its vagueness and presumed intent to impress, they stress the occurrence of pseudo-profound bullshit in the real world. Pointing out that bullshit is more pervasive now than ever due to an increased amount of information from both experts and non-experts, the authors stress the importance to being able to distinguish between profound and meaningful statements and pseudo-profound bullshit (Pennycook et al., 2015). In most research on pseudo-profound bullshit, bullshit receptivity has been measured through profundity ratings, with higher profundity ratings suggesting higher bullshit receptivity.

The fact that individuals have been shown to be receptive to pseudo-profound bullshit is interesting in itself. There are a few explanations that touch on why people are receptive to this form of bullshit. According to Pennycook et al. (2015), one main factor that explains people’s general receptivity towards pseudo-profound bullshit is response bias, which in this case refers to individuals’ higher inclination to rate something as true or profound. This tendency to accept something as true or real is referred to as the so-called gullibility factor which was observed earlier by Forer (1949) during an experiment in which students completed personality tests, but all received identical results on their assessment. The students still rated these assessments as accurate, indicating a general gullibility. This phenomenon was later labeled the “Barnum effect” (Meehl, 1956) and inspired many researchers to investigate the concept further. A study done by Preece and Baxter (2000) further illustrates the growing concern for gullibility and highlights the problematic rise of pseudo-scientific beliefs. They concluded that many secondary school students show a high degree of gullibility, holding superstitious and pseudo-scientific beliefs. These findings indicate a low degree of skepticism and a general inclination towards rating content as meaningful even though no proof is available. Additionally, humans have been observed to be cognitive misers, exercising a basic tendency to limit processing and

conserve mental computations. While this is often beneficial in benign situations, it can be dangerous in hostile circumstances (Stanovich, 2018).

In the original study of pseudo-profound bullshit, Pennycook et al. (2015) supported this assumption, finding that individuals rate pseudo-profound bullshit as at least somewhat profound. These findings were then further strengthened by many replications (Pfattheicher & Schindler, 2016; Bainbridge et al., 2019; Nilsson et al., 2019). Moreover, other studies applied their findings to different contexts; Čavojová et al. (2019) for example investigated pseudo-profound bullshit in Slovakia and Romania, confirming the initial findings and further connecting the concept to a willingness to share on social media. Since the results from the initial study turned out to be robust across different contexts and replications, the authors of this thesis propose that an application to a business context would lead to similar results. The inclinations that Pennycook et al. (2015) list as having an impact on whether or not an individual perceives pseudo-profound bullshit as profound should influence the judgment of information in a general way, hence are assumed to not discriminate between being receptive to pseudo-profound bullshit in different contexts.

**H1a:** Business oriented pseudo-profound bullshit is perceived as profound as pseudo-profound bullshit in previous research.

To add validity to the existing theoretical framework on pseudo-profound bullshit, novel meaningless statements from the original study (Pennycook et al., 2015), which we refer to as traditional pseudo-profound bullshit throughout the rest of this thesis, will be replicated to investigate whether the results hold when applied to a different context. As the profundity of traditional pseudo-profound bullshit has been successfully replicated in various studies, it can be expected that these statements yield a similar result here.

**H1b:** Traditional pseudo-profound bullshit is perceived as profound as traditional pseudo-profound bullshit found in previous research.

In addition to understanding the relationship between our tested metrics and previous research, it is also relevant to examine the relationship between different statement types within our study. Pennycook et al. (2015) found a significant positive correlation between their BSR (Bullshit Receptivity) scale of traditional pseudo-profound bullshit and meaningful motivational quotations, which was successfully replicated by Walker et al. (2019). Both Erlandsson et al. (2018) and Nilsson et al. (2019) measured the correlation between pseudo-profound bullshit and truly profound statements, finding a significant positive correlation as well. Taking these examples and assuming that real business statements could be a proxy for truly profound statements, we expect the receptivity to our different statement types to be positively correlated with each other.

**H1c:** There is a positive correlation between the profundity ratings of business oriented pseudo-profound bullshit, real business statements, and traditional pseudo-profound bullshit.

## 2.2. Human Factors

Relevant to assessing why individuals rate bullshit as more or less profound are human factors that relate to how internal predispositions influence people to make certain decisions. Very prominently investigating this field of research are Tversky and Kahneman (1974) who point out several biases and heuristics people use unconsciously when making decisions under uncertainty. Drawing on these cognitive shortcuts can lead to erroneous decisions and assessments which directly connects to high receptivity to pseudo-profound bullshit. The human factors identified to be significant for this thesis are reflective and analytic cognitive abilities, whose impact can be assessed through *pseudo-profound bullshit sensitivity*, as well as *business familiarity*.

### 2.2.1. Pseudo-profound Bullshit Sensitivity

Some individuals are better fitted than others to detect bullshit, which also influences receptivity to pseudo-profound bullshit. This can be measured by bullshit sensitivity, which Pennycook et al. (2015) point out to be a relevant factor that explains who falls for pseudo-profound bullshit. Bullshit sensitivity captures an individual's ability to distinguish between what is bullshit and what is real. While the previously mentioned responsive bias can be described as a kind of open-mindedness, Pennycook et al. (2015) stress the importance of distinguishing between uncritical and reflexive open-mindedness, which could foster high profundity ratings, and reflective or active open-mindedness, which might lead to the opposite. Active open-minded thinking involves reflecting on initially intuitive answers (Baron et al., 2015) and thus might prevent a respondent from rating sentences as profound. On the other hand, uncritical open-mindedness, or myside bias, describes the tendency to accept a conclusion that is already strong from the outset. The conclusion from these arguments suggests that people with strong active open-minded thinking might resist the response bias and uncover the bullshit in the presented business sentences.

Similar to the two concepts of active open-mindedness and myside bias are the cognitive processes labeled system 1 and system 2 which Kahneman (2011) extensively described in his book *Thinking, Fast and Slow*. System 1 represents intuitive and instinctive operations done without much effort whereas system 2 involves reflection and effortful, conscious deliberation. When applied to the evaluation of pseudo-profound bullshit, activation of system 1 operations would drive high profundity ratings on statements whereas respondents applying system 2 thinking might apply higher reflection and thus be able to see through the bullshit sentences. However, it has to be pointed out that even though the system 1 and 2 categorization has been widely accepted for research and practical purposes, extensive critique exists. For example, Melnikoff and Bargh (2018) claim that no empirical proof exists that test the operation of these systems and that the dimensions assigned to either system 1 or 2 such as unconscious vs. conscious or efficient vs. inefficient are neither aligned with each other nor show internal

consistency. Therefore, even though very popular in research and thus worth mentioning, the application of system 1 and 2 processes has to be drawn upon with caution.

One method that measures the capability of resisting the intuitive reaction associated with system 1 processing and reflecting before responding to a situation is the Cognitive Reflection Test (CRT). The test consists of a number of math problems that are purposefully designed to evoke a certain intuitive answer and thus measures the extent to which people are able to reflect and resist that intuition (Baron et al., 2015). Although research suggests potential limitations of the CRT in the form of a general familiarity with the scale's questions due to multiple exposure (Haigh, 2016), a study done by Bialek and Pennycook (2018) concludes that the results remain robust even after multiple exposures. Reflective capability has been found to enable individuals to withstand the intuition to reply with a certain answer and thus it can be concluded that high reflective abilities would guard against accepting bullshit as profound. In a study conducted on fake news, Pennycook & Rand (2018) established that people that score high on the CRT are better able to detect real news headlines among fake ones. Specifically in the research on pseudo-profound bullshit, Pennycook et al. (2015), Walker et al. (2019), and Pennycook & Rand (2019) tested the same BSR (Bullshit Receptivity) scale of questions and both found that performance on the CRT was significantly and negatively correlated with scores on the BSR. Erlandsson et al. (2018) and Nilsson et al., (2019) had similar findings on the relationship between bullshit receptivity and reflective ability when taking inspiration from the original BSR to formulate their own set of pseudo-profound bullshit statements to examine alongside CRT scores. Therefore, it is assumed that similar results should be observed in the present study where we have also taken inspiration from Pennycook et al.'s BSR scale but slightly modified to incorporate a business context. Individuals with higher reflective ability, and as a result perform better on the CRT, should also rate bullshit statements as less profound.

**H2a:** Individuals with higher reflective ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements.

**H2b:** Individuals with higher reflective ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound.

In addition to the CRT, Pennycook et al. (2015) measured the analytic cognitive capabilities of respondents through the use of numeracy tests. Numeracy, as the "ability to understand, evaluate, and use numerical information," (Lindskog et al., 2015) has been successfully linked to making good and informed decisions. Although first established in health communication (Reyna et al., 2009), this link has been transferred to general judgment decision-making as well. Peters et al. (2006) for example concluded that individuals high in numeracy are less susceptible to framing effects and in general are more likely to draw on relevant information when making decisions whereas individuals low in numeracy tend to be distracted by irrelevant information. Across different studies, Pennycook et al. (2015) measured numeracy through two main instruments - a three item numeracy test developed by Schwartz et al. (1997) and a nine item

test inspired by Lipkus et al.'s (2001) eleven item numeracy test. Though both measures of numeracy were significantly and negatively correlated with bullshit receptivity, the three item test (Schwartz et al., 1997) did not achieve acceptable reliability. An alternative measure of numeracy, the four item Berlin numeracy test, has been proven to effectively test risk literacy by testing cognitive abilities, demonstrating much higher predictive power than both its three item and eleven item predecessors (Cokely et al., 2012). The Berlin numeracy test has even been incorporated in pseudo-profound bullshit research, such as by Erlandsson et al. (2018) and Nilsson et. al (2019) who found that the scale achieved acceptable reliability and was significantly and negatively correlated with bullshit receptivity. Therefore, we deemed it appropriate to use the Berlin numeracy test as a measure of analytic abilities to examine alongside bullshit receptivity. Prior learnings suggest that individuals with higher analytic cognitive ability, and as a result perform better on the Berlin numeracy test, should also be better able to distinguish between business oriented pseudo-profound bullshit and rate bullshit statements as less profound.

**H2c:** Individuals with higher analytic cognitive ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements.

**H2d:** Individuals with higher analytic cognitive ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound.

### 2.2.2. Business Familiarity

As business students with access to a network of individuals more likely to have a business background, it is of interest to investigate whether being familiar with business concepts due to frequent exposure influences the profundity ratings. Hasher et al. (1977) initially found that repeatedly exposing individuals to false as well as true statements significantly increased their validity rating. This phenomenon which is called the illusory truth effect has since been researched repeatedly and proved robust for variations (Fazio et al., 2015). An example of this in the realm of pseudo-profound bullshit can be seen in Pennycook & Rand's (2019) research about the influence of familiarity on the reception to fake news, identifying who is likely to be convinced by it and who is able to see through it. Apart from examining the effect of respondents overclaiming their own knowledge as well as the presence (or lack thereof) of a source, the authors measured respondents' familiarity with the new headlines presented. Familiar headlines were found to be rated as more accurate than unfamiliar headlines indicating that exposure to the topics increased the perceived profundity.

Whereas it would be ideal to use objective facts to evaluate a given argument or statement, humans often draw on memories as a mental short-cut during truth evaluations (Begg, Anas and Farinacci, 1992). As the illusory truth effect depends largely on continuous exposure, one could argue that certain business knowledge might guard against the effect due to deeper understanding of the contexts involved. However, Fazio et al. (2015) discovered that knowledge



does not interfere with the illusory truth effect in that stored knowledge is not drawn upon when making truth-evaluations based on ease of processing.

Even though the illusory truth effect appears to be stronger when individuals are presented with the same statement repeatedly, it can still be observed for statements and concepts that seem vaguely familiar (Begg, Anas and Farinacci, 1992). Therefore, even though a repeated exposure to the statements investigated is not feasible here, a general vague familiarity with the buzzwords and concepts mentioned is hypothesised to be sufficient to be able to observe this effect.

**H3:** Individuals familiar with business articles, compared with those less familiar, perceive both business oriented pseudo-profound bullshit and real business statements as more profound.

## 2.3. Task Characteristics

Apart from investigating how human factors influence bullshit receptivity, where most existing pseudo-profound bullshit research focuses, it is also interesting to understand the impact of external factors such as task characteristics. In particular, task characteristics encompass how sentences are formulated and perceived. Historically, they have been investigated for a long time in numerous different contexts and variations in the field of decision-making. For example, Devine & Kozlowski (1995) researched its connection to domain-specific knowledge and Hackman (1968) its effect on group products. However, in the current theories about pseudo-profound bullshit, the impact of task characteristics on how the respective bullshit statements are presented has been underdeveloped.

A highly relevant research area for this thesis revolves around fluency, which represents a task characteristic since it relates to the readability of specific statements and how easy or difficult its content is to process. It is here listed as an external instead of an internal factor as it relates to how the source of statements formulates them in a manner that is either perceived as easy or difficult to understand rather than the internal processes of the receiver of the bullshit. Fluency is a highly relevant aspect to how pseudo-profound bullshit is perceived since its vagueness and intent to impress is accompanied by a rather complicated and pretentious formulation. There is ample evidence to why people might perceive complex formulations as profound regardless of the text's subject matter. A long sentence with a complex structure might appear profound to the reader because intelligence and large vocabularies are positively correlated (Spearman, 1904). As a result, if the author of a text uses a large vocabulary and is perceived to be intelligent, the text itself may be perceived as smart as well. Moreover, when individuals are presented with information that is very difficult to understand, they may struggle to fully comprehend it and suspect the idea presented in the text is meaningless. As a result, individuals might experience dissonance, in this case a cognitive conflict, leading them to rate the underlying information as more profound in an effort to justify the struggle to understand the

text. This phenomenon is in line with Festinger's (1957) theory of cognitive dissonance, which discusses how individuals create strategies to deal with dissonance they experience.

However, numerous studies suggest that the inverse relationship between complexity and perceived intelligence holds, arguing that the more simple ideas are talked about in a text, the more persuasive they are. This line of reasoning reflects the stance we take as well. The most relevant theory for this thesis is the one of processing fluency which describes "the ease or difficulty with which new, external information can be processed" (Schwarz et al., 2004). According to Schwarz et al., the variables that can be manipulated in this regard involve the presentation of information, such as the color or font of text, the environment in which it is presented as well as how complex or easy the information is written. The positive dimensions associated with processing fluency include higher judgements of truth (Reber & Schwarz, 1999) or liking (Reber, Winkielman, & Schwarz, 1998). Highly relevant to the dispute are Whittlesea and William's (2001a, 2001b) findings regarding processing discrepancy. According to these two researchers, the outcomes of fluency are especially strong when this fluency is surprising and thus discrepant from the individual's expectations about the presented text. Thus, overly complicated texts might trigger negative attitudes towards the given text due to the experienced discrepancy in expectations.

Oppenheimer (2006) found a clear positive correlation throughout his study between fluency and perceived intelligence of the author which points very clearly towards complexly formulated statements being rated as less profound and multiple studies since have confirmed this correlation. For example, Alter & Oppenheimer (2006) discovered that fluently named stocks tend to perform better than stocks with complicated and difficult to pronounce names. Moreover, Dragojevic & Giles (2016) concluded that factors impacting a listener's processing fluency negatively (e.g. an accent or noise) lead to negative attitudes on the side of the listener.

Oppenheimer (2006) also pointed out several limitations to his findings that could have impacted the robust results he observed. For example, the population he tested consisted of well-educated students and the results observed might be different if they would be tested on the general population or experts in a given field. Similar results to Oppenheimer's can be expected to be observed in study 1 due to testing the business statements on students who can be expected to be well educated and it will be interesting to evaluate whether and how things change for study 2 which is conducted with a more general population. Since the statements are specific to the business sector, a difference in judgement might be found between students studying business related subjects and students of other areas as well as individuals working within business and those that do not. Even though limitations to Oppenheimer's theory as well as opposing literature exists, we formulate the following hypothesis:

**H4a:** Ease of understanding is positively correlated with profundity ratings.

As measuring ease of understanding in our study relies on subjective ratings provided by the respondents themselves, English proficiency is drawn upon to verify the results in a more

objective manner. In line with the reasoning of Schwarz et al. (2004), language has been used as a task characteristic that was intentionally manipulated in the presentation of information. For the purpose of our research, this entails conducting the study in English among a varied sample with different levels of English proficiency. Historically, the majority of prior research on pseudo-profound bullshit has been either specifically tested among a population whose native language corresponds to the survey language (Pennycook et al., 2015; Pfattheicher & Schindler, 2016; Walker et al., 2019) or involves translating the study into the native language of respondents (Erlandsson et al., 2018; Cavojova et al., 2018; Nilsson et al., 2019). Therefore, it is interesting to measure the impact of language proficiency in addition to self-reported ease of understanding. Following the logic of Oppenheimer (2006) presented earlier, English proficiency should have a similar effect as ease of understanding, suggesting that those with higher language proficiency rate statements as more profound in comparison with those with lower language proficiency.

**H4b:** Individuals with higher English proficiency, compared with those with lower English proficiency, rate all statement types as more profound.

## 2.4. Summary of Hypotheses

**H1a:** Business oriented pseudo-profound bullshit is perceived as profound as pseudo-profound bullshit in previous research.

**H1b:** Traditional pseudo-profound bullshit is perceived as profound as traditional pseudo-profound bullshit found in previous research.

**H1c:** There is a positive correlation between the profundity ratings of business oriented pseudo-profound bullshit, real business statements, and traditional pseudo-profound bullshit.

**H2a:** Individuals with higher reflective ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements.

**H2b:** Individuals with higher reflective ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound.

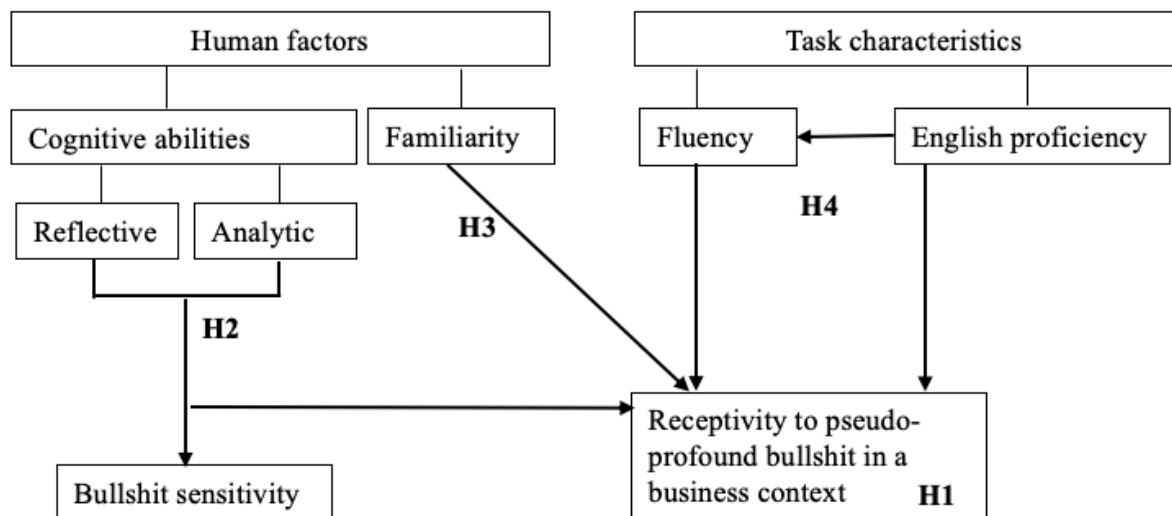
**H2c:** Individuals with higher analytic cognitive ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements.

**H2d:** Individuals with higher analytic cognitive ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound.

**H3:** Individuals familiar with business articles, compared with those less familiar, perceive both business oriented pseudo-profound bullshit and real business statements as more profound.

**H4a:** Ease of understanding is positively correlated with profundity ratings.

**H4b:** Individuals with higher English proficiency, compared with those with lower English proficiency, rate all statement types as more profound.



**Figure 1.** Theoretical framework

### 3. Methodology

The following chapter will begin with addressing all steps concerning initial work and the choice of topic as well as present the scientific approach and the research design. Then, the pre-tests are touched upon before providing details on the questionnaire development for the first and second study. This section will conclude with remarks on data quality.

#### 3.1. Initial Work and Choice of Topic

Due to a high interest in psychology and especially judgment and decision-making, the authors set out to explore potential research areas before coming across Pennycook et al.'s (2015) research and the numerous extensional studies that followed. Considering the present studies mostly focus on the cognitive perspective in other fields of study (e.g. Pennycook & Rand, 2019), a potential application to the business context was discussed and narrowed down.

Extensive research in databases and libraries on the origins of bullshit as well as its application to business in general made the authors more familiar with the concept and supported the relevance of testing pseudo-profound bullshit in a business setting. Different variables and focus areas, e.g. whether it is possible to teach someone to detect business bullshit, were discussed before the authors together with their supervisor decided to narrow the scope down to examining the receptivity to business bullshit and connect that with prior research on human and task characteristics in relation to pseudo-profound bullshit receptivity.

Thus, as noted in section 1.4 about intended knowledge contribution, this thesis sets out to address knowledge gaps between pseudo-profound bullshit and the field of business while also adding the component of task characteristics. As a secondary contribution, some parts of the original study done by Pennycook et al. (2015) will also be replicated to increase the validity of the findings as well as to enable interesting comparisons.

#### 3.2. Scientific Approach

This thesis follows the underlying premise of using research to improve social life and of specifically business research to “understand why and how things happen” (Ghauri et al., 2020, p.11). Thus, our findings are intended to create awareness and contribute to how and why people make specific decisions in a business context as already elaborated on in section 1.2, Purpose of the Study. Since our research uses existing theory as a starting point, this study follows a deductive research approach, building on available literature to generate hypotheses set out to be tested and investigated (Bryman & Bell, 2011). In line with Churchill's (1995) conclusion that most research methodologies are chosen based on previous methods applied in a specific field of research, a quantitative approach is appropriate since all prior conducted studies on pseudo-profound bullshit used surveys as a means to test their hypotheses and assumptions.

Therefore, precedent established a robust way of testing the relationships between different variables and pseudo-profound bullshit quantitatively that is intended to be followed here. A similar approach allows for detailed comparisons and thus the ability to highlight differences and similarities. The prior research conducted on pseudo-profound bullshit also enabled us to have focused research questions and hypotheses, for which quantitative data collection is a fitting method to extend the boundaries of existing theory (Edmondson & McManus, 2007). While a fully qualitative approach to data collection did not seem suitable as the goal of our research question was not to generate new theory, there were benefits of using a hybrid approach (Bryman & Bell, 2011) in conducting a qualitative pre-study as will be elaborated on in section 3.4. An alternative fully qualitative approach could have involved analyzing existing data and texts (e.g. CEO letters in earnings reports) with regards to how often and which types of bullshit have been used in line with White and Marsh's (2006) methods for content analysis. However, due to ambiguities around what to classify as bullshit or not, it had been deemed not feasible.

Given the complexity of our subject matter, some qualitative data offers valuable input to inform the quantitative metrics of our research (Edmondson & McManus, 2007). Therefore, to answer the main research questions of this thesis, the authors conducted two studies: study 1 consisted of a quantitative study informed by a qualitative pre-study and study 2 was a purely quantitative study. It was deemed appropriate to conduct a second study in order to verify and extend the findings of the first one, especially on the metrics that have not been studied in relation to pseudo-profound bullshit so far. Conducting a second study also enabled the measurement of results among a larger sample size, which contributes to greater precision in results. Moreover, the "replication crisis" mentioned by (Camerer et al., 2017), which describes that many published findings do not hold up when recreated, and a sincere ambition to produce reliable and valuable results, strengthened that decision.

Both study 1 and study 2 consisted of self-completion questionnaires, meaning a questionnaire was distributed to respondents who subsequently filled them out by themselves and answered a pre-specified set of questions (Bryman & Bell, 2011).

### 3.3. Research Design

When designing the first study to address the key research questions, it was decided to make it as similar to the original study on pseudo-profound bullshit (Pennycook et al., 2015) as possible but still feasible for the thesis scope and timing. The quantitative study took the form of a questionnaire distributed digitally to the respective target group. Study 1 was conducted entirely via a web-based survey as the impact of the Coronavirus situation prevented the collection of data in person. The survey was distributed between March 21st and March 31st, employing a mix of convenience and snowball sampling (Bryman & Bell, 2011). First, the survey was distributed to the author's friends, classmates and former classmates. Moreover, it was posted in university groups on Facebook (e.g. University of Mannheim) to reach a larger audience.

Finally, twelve professors who have conducted extensive research on pseudo-profound bullshit were contacted and asked to distribute the survey among their students with some agreeing to help distribute the survey. Study 2, consisting of a shorter survey, was distributed using Prolific, an online data collection service, and fielded on April 18th.

Given financial constraints and a longer estimated duration for questionnaire completion based on previous similar studies (Erlandsson et al., 2018), accessing a representative sample through an online survey platform such as Amazon's Mechanical Turks, Prolific, or Pollfish was deemed too costly for study 1. Since the first of Pennycook et al.'s (2015) experiments was conducted among university students and students were easier to access given the authors' student status, the target group was chosen to be students. While the network of the authors included mostly Swedish and German students in the greater Stockholm region, efforts were made to increase the respondent diversity by recruiting students from other universities and countries. Moreover, this allowed potential comparisons to be made across business knowledge and English proficiency levels.

Study 2, which further examined interesting findings from study 1 and was intentionally shorter to address the beforehand mentioned financial constraints, was distributed through the online survey platform Prolific, to enable a broad distribution and high response quantity. Moreover, we were able to access a broader range of age, analytic cognitive ability, business familiarity and expertise, and English proficiency. Notably, nearly three-quarters of available respondents in Prolific were from the UK or US, which provided the possibility of testing among a larger native English-speaking group of respondents. A new form of survey distribution had to be found since respondents from study 1 could not be asked to also participate in study 2, since some became aware of the purpose of the study which would have impacted the quality (Söderlund, 2010). Whereas many of the previous studies (Pennycook et al., 2015 and Pfattheicher & Schindler, 2016) used Amazon's Mechanical Turks as a means to gather data, it was decided to use Prolific for this thesis. A primary reason was that Prolific is dedicated to research purposes and thus informs their subjects about expectations and regulations, entailing more transparent screening methods and selection opportunities as well as provides fair and transparent payment (Palan & Schitter, 2018). Additionally, the service had transparent and competitive pricing, which facilitated its use.

The key dependent variables measured during study 1 and 2 were the *profundity* and *ease of understanding* of each statement presented. The main non-manipulated independent variables were statement type, including business oriented pseudo-profound bullshit, real business, and traditional pseudo-profound bullshit statements, reflective ability, analytic cognitive ability, familiarity of business articles, business education/work experience, and English proficiency. In the second study, only pseudo-profound bullshit and real business statements were tested and reflective ability was excluded to limit the questionnaire length. For each questionnaire, each respondent received all statement types tested and typically an equal number of business oriented pseudo-profound bullshit and real business statements. In study 1, a total amount of

125 responses was collected, out of which 113 were completed and passed the attention check included in the questionnaire. The observed results did indeed change when comparing those who passed the attention check to the full sample, which motivated excluding the responses that failed the attention check. The survey completion rate, at 62%, was quite low meaning that 70 people started filling out the survey and then abandoned it prior to finishing. With 31 total questions in our questionnaire, this is much lower than the benchmark of a 85% completion rate for 30 question surveys launched through the Survey Monkey platform (2020). However, this low completion rate was expected due to the length (approximately 15 minutes) of the questionnaire and the rather demanding nature of the questions themselves (Liu & Wronski, 2018), especially the cognitive task questions.

Study 2 generated 215 responses in total, out of which 30 were excluded for failing the attention check that was again included in the questionnaire. As one purchases a guaranteed minimum number of completions through Prolific, considerations about completion rate was not necessary though estimated duration influenced the suggested amount of reward to offer for participation.

**Table 1**

*Composition of sample in study 1 (n = 113) and study 2 (n = 185)*

	Study 1	Sample %	Study 2	Sample %
Sex	Female	56%	Female	48%
	Male	42%	Male	51%
	Other	2%	Other	1%
Age	16 – 20	4%	16 – 20	21%
	21 – 25	65%	21 – 25	34%
	26 – 30	28%	26 – 30	17%
	31+	3%	31+	28%
Country of residence	Sweden	45%	UK	28%
	Germany	32%	Poland	22%
	Other European countries	12%	Portugal	12%
	Other non-European countries	10%	Other European countries	27%
			Other non-European countries	11%

*Note:* Study 1 was conducted via convenience sampling (students) and study 2 was conducted using an online survey service, hence the differences in age distribution and countries of residence.

### 3.4. Pre-tests

In order to facilitate the collection of high-quality data when conducting study 1 and then also study 2, different preparatory steps were taken. Due to concerns about the complexity of the topic when conveyed over a questionnaire and a longer estimated duration for completion, several versions of the questionnaire were created and tested during a pre-study on 12 individuals. In terms of content, the focus of the pre-study was to explore the respondent



reaction to both the business oriented pseudo-profound bullshit and real business statements presented in different lengths and formats. This was decided as it was a unique factor not previously included in previous studies and it could have influenced ease of understanding. With the intention of understanding the respondents' cognitive processing while reading the statements, a qualitative method was used in this case. Specifically, the think aloud method was used under the assumption that the verbalized thoughts during the think aloud exercise reflected at least some of the thoughts of the respondent (Eccles & Aarsal, 2017). Each respondent was asked to speak his or her thoughts out loud while reading and responding to the questionnaire to gain an understanding on how each perceived the different statements.

Three versions of the questionnaire were used in the pre-study, varying on both statement types. One presented both types of statements as single-sentence statements, one presented paragraphs of multiple sentences strung together and the third one included context in connection with single sentences as well as paragraphs. Examples for the different formats the statements were presented in can be found in Appendix C. Results from the pre-study revealed that both the paragraph and context scenarios significantly increased the amount of time needed to answer each question. Additionally, due to the inherently complex nature of these two scenarios, the respondents were placed in a visibly uncomfortable position, struggling a lot with processing the respective statements. Thus, it was decided to use the single-sentence statements for the main study as adding complexity would place additional risk on the questionnaire completion rate. Moreover, this was also deemed most appropriate to reduce respondent tiredness (Söderlund, 2005) as much as possible by keeping the statements short and thus quick to read through.

Incorporating learnings from the pre-study, a draft of the questionnaire for study 1 including the business oriented pseudo-profound bullshit, real business, and traditional pseudo-profound bullshit statements, cognitive reasoning tests (CRT and Berlin numeracy), and demographic questions was tested on a small number of students. However, this draft turned out to be too extensive and time consuming to complete and was therefore significantly cut down before distributed in the scope of the proper study. After developing the questionnaire for study 2 by cutting down the questions from study 1, this was tested among 20 people before releasing it for the full response group.

### 3.5. Questionnaires

Developing the questionnaires for study 1 and study 2 was done under consideration of all available options and restrictions as described in the previous sections. It was decided to use a longer, more extensive questionnaire for study 1 which was subsequently reduced and more focused in scope during study 2. In the following, the different blocks as well as relevant scales and measures are elaborated on.

### 3.5.1. Study 1

After pre-testing using several iterations, the questionnaire for study 1 was constructed based on the information collected until that point as well as through careful analysis of the pre-study findings. The questionnaire was distributed using the survey platform Qualtrics and an overview of the different blocks can be seen in Table 2.

After deciding to fill out the survey, the respondent landed on a page giving a short introduction on the researchers, the research area, and an anticipated time for completion. Here, it was important to not reveal the underlying measurement of bullshit receptivity and instead focus on understanding how individuals perceive business statements. Moreover, an incentive in the form of a lottery to win one of two 25 Euro Amazon vouchers was mentioned to encourage participation (Laguilles, Williams & Saunders, 2011) as well as a second incentive in the form of 50 cents donated to a Swedish charity per completed survey to increase the probability that a given respondent completes the survey.

The first main block of the questionnaire focused on the direct application of pseudo-profound bullshit in a business setting. Respondents were asked to rate six of ten randomized business statements, of which three were business oriented pseudo-profound bullshit and three were real business sentences, on profundity and ease of understanding. Before displaying the statements, a short instruction gave some context to the subsequent statements by stating that it is assumed that those have been said by a representative of a company, in line with our intention of testing external business communication. The introduction also asked the respondent not to look up unknown words to encourage answering based on a first intuition after seeing the statements. To ensure a common understanding of profundity especially among non-native English speakers, the definition of profundity was presented each time the respondent was asked to rate that metric. The business oriented pseudo-profound bullshit business that were formulated using two online bullshit generators, namely <https://www.bullshitgenerator.com/> as well as <https://www.atrinxnet.com/bs-generator.html>. If necessary, the generated concepts were transformed into syntactically correct sentences from a grammatical perspective, consistent with the approach used in prior research (Pennycook et al., 2015). The real business statements came from the most recent quarterly earnings report of five randomly selected companies from the Dow 30 as the composition of the business oriented pseudo-profound bullshit statements came very close to this type of not vague forward-looking strategy commentary. A detailed list of all statements used in the studies as well as their sources can be found in Appendix D. To measure profundity, we used a five-degree Likert scale that mirrored the same scale employed in previous research (Pennycook et al., 2015; Pfattheicher & Schindler, 2016; Turpin et al., 2019) to enable easier comparisons of findings. However, for ease of understanding, which has not been previously tested, we used a seven-degree Likert scale because research proclaims that more response options increases the probability to achieve high reliability (Weng, 2004). Due to the complexity of the statements, a symmetric scale (having a neutral midpoint) was used for both profundity and ease of understanding to make sure the respondents do not feel forced to

choose a specific direction (Joshi et al., 2015). Moreover, all five or seven items were labeled to ensure a high understanding of the options as well as to make it easier for the respondent to pick the most suitable item (Weng, 2004). To ensure no order effect occurs, the questions in this block were displayed to the respondents in a random order.

The second block included randomly generated meaningless sentences, or traditional pseudo-profound bullshit, from Pennycook et al. (2015) in an effort to replicate their findings. Two of those bullshit statements from the original study were incorporated and also rated on profundity as well as on ease of understanding on a 5-degree and 7-degree Likert scale, respectively. As the survey was mentally demanding, it was decided to only use two sentences rather than three, which would have been in line with the previous block, to reduce the overall questionnaire length by two questions (one question each for profundity and ease of understanding).

The third block aimed to assess analytic cognitive ability, which was measured through two tests: the CRT and Berlin numeracy test. Previous studies have consistently found a negative correlation between bullshit receptivity and cognitive ability. Although the fewest number of questions was preferred to minimize survey length, shorter versions of the numeracy test have shown to lack acceptable internal reliability (Pennycook et al., 2015) or have low internal reliability (Nilsson et al., 2019). Therefore, the multiple-choice Berlin numeracy test consisting of four questions was employed instead (Cokely et al., 2012). The full three question CRT was retained. At the end of this block, one attention check question was included to make sure the respondents read the instructions carefully when filling out the questionnaire. As Liu and Wronski (2018) found, there is not sufficient evidence to suggest that having multiple attention check questions will better identify negligent respondents versus a single attention check question. In line with their recommendations, the question was placed after all significant parts were measured rather than close to the beginning.

The fourth and final block of the survey asked the respondents to fill out demographic information. Apart from the general demographic questions relating to age, gender and country of residence; educational background, familiarity with business articles, and English proficiency level were asked to address some of the hypotheses mentioned earlier.

The last question asked the respondent to choose among three charities (Röda Korset, Cancerfonden and SOS-barnbyar). Upon completion, the respondents were directed to a different page to submit their email address to enter the beforehand mentioned lottery anonymously. This method separated responses from identifying information, thereby reducing potential harm to the respondents and adhering to research ethics in line with the MRS *Code of Conduct* (Bryman & Bell, 2011). The exact layout of the questionnaire for study 1 can be found in Appendix E.

**Table 2***Questionnaire composition study 1*

Block 1	3 business oriented pseudo-profound bullshit statements each rated on profundity and ease of understanding  3 real business statements each rated on profundity and ease of understanding	Questions 1-12
Block 2	2 traditional pseudo-profound bullshit statements each rated on profundity and ease of understanding	Questions 13-16
Block 3	Berlin Numeracy test (4 questions), CRT (3 Questions) and attention check	Questions 17-24
Block 4	Demographics (age, gender, country of residence, educational background, familiarity with business articles and English proficiency)	Questions 25-30
Final questions	Choice of charity and lottery entry via e-mail address	Questions 31-32

**3.5.2. Study 2**

As previously mentioned, study 2 was developed through taking study 1 and focusing on the most interesting results that warrant further investigation. The questionnaire was again developed on Qualtrics but distributed through the online data collection service Prolific. An overview of the different blocks can be seen in Table 3.

After a short introduction and instructions similar to that of study 1 and communicating an estimated completion time of 10 minutes, block 1 contained three business oriented pseudo-profound bullshit and three real business statements taken from study 1. Specifically, the statements yielding either highest or lowest profundity or ease of understanding have been taken to increase the probability of observing more distinct results. Those have again been displayed in a random order. In line with our stated priorities for knowledge contribution, it was decided to not include the two traditional pseudo-profound bullshit statements in an effort to keep the questionnaire comparatively short.

The second block included the cognitive part of the questionnaire and it was decided to only show the Berlin numeracy test with four multiple-choice questions. Based on our first study and previous research, analytic cognitive ability as measured by the Berlin numeracy test and reflective ability as measured by the CRT are significantly and positively correlated (Erlandsson et al., 2018). Due to the desire to make the questionnaire more concise, we proceeded with only one of these two tests. Moreover, Berlin numeracy was prioritized because

it has been less explored in relation to pseudo-profound bullshit in previous research. The scoring scale, ranging from 0-4, also allowed for more variation than the CRT with scores ranging from 0-3. This could allow for more nuanced analysis of results in relation to analytic cognitive ability, such as impact of high, medium, or low analytic cognitive ability. After those questions, the attention check was included.

In the third block, the respondent was asked to fill out demographic information including, age, gender, work experience, familiarity with business statements, and English proficiency. Since the target group in this study was not students, educational background was replaced with field of work, specified as the field of work in which the respondent has worked longest.

**Table 3**

*Questionnaire composition study 2*

Block 1	3 business oriented pseudo-profound bullshit statements each rated on profundity and ease of understanding  3 real business statements each rated on profundity and ease of understanding	Questions 1-12
Block 2	Berlin Numeracy test (4 questions) and attention check	Questions 13-16
Block 3	Demographics (age, gender, field of work, familiarity with business articles and English proficiency)	Questions 17-21
Final questions	Possibility to enter Prolific ID	Question 22

### 3.5.3. Scales and Measures

To measure profundity, we used a five-degree Likert scale that mirrored the same scale employed in previous research (Pennycook et al., 2015; Pfattheicher & Schindler, 2016; Turpin et al., 2019) to enable easier comparisons of findings. This scale consisted of 1) not at all profound, 2) somewhat profound, 3) fairly profound, 4) definitely profound and 5) very profound. For ease of understanding, which has not been previously tested in relation to pseudo-profound bullshit, we used a seven-degree Likert scale because research proclaims that more response options increases the probability to achieve high reliability (Weng, 2004). Specifically, the scale used here was 1) very easy, 2) fairly easy, 3) moderately easy, 4) neutral, 5) moderately difficult, 6) fairly difficult and 7) very difficult, inspired by the scale used to measure fluency by Oppenheimer (2006) and Shah and Oppenheimer (2007). Due to the complexity of the statements, a symmetric scale (having a neutral midpoint) was used for ease of understanding to make sure the respondents do not feel forced to choose a specific direction

(Joshi et al., 2015). Moreover, all five or seven items were labeled to ensure a high understanding of the options as well as to make it easier for the respondent to pick the most suitable item (Weng, 2004). To measure business familiarity a five-degree Likert scale consisting of 1) very familiar, 2) somewhat familiar, 3) neither familiar nor unfamiliar, 4) somewhat unfamiliar and 5) very unfamiliar. The ILR (Interagency Language Roundtable) scale was drawn upon to measure English Proficiency. This scale consists of 1) elementary proficiency, 2) limited working proficiency, 3) professional working proficiency, 4) full professional proficiency and 5) native or bilingual proficiency (International Center for Language Programs, 2016).

### 3.6. Data Quality

To ensure the data a study produces is of high quality, reliability and validity concerns have to be addressed (Bryman & Bell, 2011). Reliability refers to whether a study is able to produce consistent data, hence if repeated would lead to the same findings, and validity determines whether what is set out to be measured is in fact measured by the studies conducted (Bryman & Bell, 2011). Different factors of both concepts are discussed below.

Conducting pre-tests helps to establish whether the questions are understood and interpreted in the intended way, thus an extensive qualitative pre-study was conducted as well as tests of the questionnaires with a small group of the relevant sample before sending it out to the full sample. It has to be mentioned that the relevant studies are relatively long, complex, and demanding which might have impacted the way respondents answered and thus raises concerns about the data quality. However, in order to increase *internal reliability*, scales with a minimum of five items, when applicable even seven, have been employed and were all labeled clearly to make sure the respondents understand what is asked of them (Weng, 2004). Further ensuring high internal reliability, well established multi-item measures as the CRT or the Berlin Numeracy Test were used (Söderlund, 2005). These measures have been used in research extensively before and thus are expected to produce consistent results. As a way to increase *measurement validity*, the scale to assess profundity was taken from previous studies (e.g. Pennycook et al., 2015) as it has been proven to capture the concept successfully. In order to measure familiarity with business statements and English proficiency, self-reported scores were generated. This of course reduces the reliability of those scores and thus has to be drawn upon with caution. However, the familiarity with business statements has been compared to whether or not a respondent studies or works with business which increases the applicability of the scale. We chose to not solely rely on the latter as some individuals might be familiar with business statements due to other reasons unrelated to field of studies or work.

As a measure for *internal consistency*, Cronbach's alphas were computed for each set of questions that were analyzed as a scale. The following scale by George & Mallery (2003) was used to evaluate Cronbach's alpha outputs: > 0.9 (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable). Since each respondent randomly

received six out of ten possible business oriented pseudo-profound bullshit and real business statements in study 1, a mean Cronbach's alpha of all groupings was computed. Therefore, the business oriented pseudo-profound bullshit statements showed  $\alpha = 0.83$  for profundity ratings and  $\alpha = 0.77$  for ease of understanding ratings, which were acceptable. Among real business statements, the Cronbach's alpha was not acceptable for profundity ratings and ease of understanding ratings, so each statement was evaluated individually instead of on the aggregate level. Traditional pseudo-profound bullshit statements had acceptable reliability for ease of understanding ( $\alpha = 0.71$ ) and though it was poor for profundity ( $\alpha = 0.58$ ), these statements had previously been tested at acceptable reliability levels in prior studies (Pennycook et al., 2015). Both the Berlin numeracy test ( $\alpha = 0.72$ ) and the CRT ( $\alpha = 0.77$ ) achieved acceptable reliability in line with multiple previous studies (Erlandsson et al., 2018; Nilsson et al., 2019; Walker et al., 2019).

During the second study, reliability for the business oriented pseudo-profound bullshit statements were slightly lower for profundity ( $\alpha = 0.68$ ) and ease of understanding ( $\alpha = 0.55$ ). Although these scores were questionable, we proceeded with this scale as the same questions demonstrated acceptable reliability in study 1. Again, due to unacceptable reliability as a scale, we decided to measure real business statements individually. Reliability for Berlin numeracy ( $\alpha = 0.72$ ) was once again acceptable in the second study.

Whether findings can be expected to be observed in real life, hence whether a study is representative of the real world is assessed by *ecological validity* (Schmuckler, 2001). Addressing this concern, it was made sure that the real business statements were in fact real world examples taken from financial reports. However, respondents would have come in contact with said statements in a different context in a real situation, thus impacting the generalizability of the findings to real world situations. Moreover, due to the composition of the samples, it has to be noted that neither in study 1 is the sample representative of students in general, nor is the sample examined in study 2 representable for the general population due to differences in composition.

## 4. Results and Analysis

In this section, we will discuss the results from our data analysis. This will include the summary of data statistics themselves as well as evaluating the data in relation to our initial hypotheses. At the end of this section, we will summarize all hypotheses including which ones were supported or not. In line with other research within the social sciences, results and tables will be presented in accordance to the American Psychological Association (APA) guidelines, seventh edition (2019).

### 4.1. Analytical Tool

After the collection of data was complete for each study, the data was exported from Qualtrics to Excel and filtered to exclude responses deemed inadequate. This data was then imported to IBM SPSS Statistics 26 for Windows and Mac to conduct the analysis. P-values ( $p < 0.05$ ) on a significance level of 5% were used throughout this thesis to evaluate hypotheses.

- 1) For hypothesis **H1a**, a one sample t-test was conducted. For **H1b**, an independent t-test compared results on the same statements from two different studies: our study and one previous work of research. For **H1c**, correlations between the profundity ratings of all statement types were calculated.
- 2) For hypotheses **H2a**, **H2b**, **H2c**, and **H2d**, independent t-tests were applied to investigate differences in the groups based on cognitive abilities.
- 3) For hypothesis **H3**, an independent t-test compared the mean profundity ratings of the groups, differentiated by level of familiarity with business articles.
- 4) For hypothesis **H4a**, individual correlations of each statement have been investigated and aggregated when applicable to arrive at a mean correlation between ease of understanding and profundity ratings. For **H4b** an independent t-test was used to investigate differences in the groups based on English proficiency.

In addition to these parametric tests, we also tested the corresponding nonparametric equivalent, such as the Mann Whitney U test for the independent sample t-test, in case our data did not follow a specific distribution. For each one of the tests, the results did not significantly differ between parametric and nonparametric tests. Therefore, we have focused on reporting results from the parametric tests.



## 4.2. Human Factors

### 4.2.1. Pseudo-Profound Bullshit

This section describes the evaluation of hypotheses **H1a-c**. As covered by our first research question, the first component of extending the research on pseudo-profound bullshit to the business arena involves confirming if people are receptive to business oriented pseudo-profound bullshit. Aligned with the criteria established by Pennycook et al. (2015), the benchmark for a statement evoking a feeling of profoundness was a profundity rating of 2, which is “somewhat profound.” In the first study, a one-sample t-test showed that business oriented pseudo-profound bullshit statements were perceived as profound as an aggregate scale. This effect was not solely driven by the change of context to business terminology as all five real business statements were also perceived as profound (see Table 4 for all tested values for the one-sample t-test in both study 1 and study 2).

**Table 4**

*Results for comparing profundity ratings of statements with pre-determined test value*

	Statements	<i>n</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Study 1	Bullshit profundity <sup>a</sup>	113	2.53	0.85	112	6.59	< .001**
	Traditional profundity <sup>b</sup>	113	2.37	1.02	112	3.81	< .001**
	Real profundity <sup>c</sup> 1	66	2.53	1.06	65	4.08	< .001**
	Real profundity 2	67	2.42	1.02	66	3.36	.001**
	Real profundity 3	67	2.52	1.02	66	4.19	< .001**
	Real profundity 4	65	2.75	1.23	64	4.96	< .001**
	Real profundity 5	75	2.65	0.97	74	5.86	< .001**
Study 2	BS profundity	185	2.75	0.83	184	12.27	< .001**
	Real profundity 2	185	2.46	1.00	184	6.36	< .001**
	Real profundity 3	185	2.70	1.20	184	7.93	< .001**
	Real profundity 4	185	3.02	1.06	184	13.03	< .001**

*Note.* One-sample t-test applied for comparing mean profundities with pre-determined test value = 2 which was determined by Pennycook et al. (2015) to be the threshold for a statement being profound, scale used for profundity ranged from 1 (not at all profound) to 5 (very profound).

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

<sup>c</sup> profundity ratings for real business statements on the item level

\*\*p<0.01

During the second study, similar results were found. Using the same benchmark for profundity, business oriented pseudo-profound bullshit statements were perceived as profound as an aggregate scale. Again, each of the three real business statements were also perceived as profound. A detailed table on the means and standard deviations of all individual statements of both study 1 and study 2 can be found in Table F1 in the Appendix. Additionally, the distribution of the ratings for both profundity and ease of understanding for all statement types is also available in Appendix G.

Therefore, **H1a** – business oriented pseudo-profound bullshit is perceived as profound as pseudo-profound bullshit in previous research – was **supported**.

To test the validity of existing theory, traditional pseudo-profound bullshit statements were directly replicated from previous research during study 1. In a one-sample t-test, these traditional pseudo-profound bullshit statements were perceived as profound on an aggregate scale with a mean profundity score that was significantly above 2. Since there were a limited number of statements presented, we further compared the mean profundity rating of each traditional pseudo-profound bullshit statement with its corresponding mean profundity rating from the first study of Pennycook et al. (2015), in which they also tested the statements among a student population. Though this would be an imperfect comparison, we were curious if results would be similar on a more granular level.

However, the independent t-test that compared direct statement to statement revealed significant differences in mean profundity for both statements (see Table 5). For both statements, the mean profundity in our first study was significantly different than the mean from Pennycook et al.'s (2015) original study. Although the item level results deviated from the results in previous research, several differences between the tested populations, could have contributed to the results. Overall, we deemed that empirical evidence indicating receptivity to traditional pseudo-profound bullshit on the aggregate level was sufficient. Therefore, these statements were not tested again in the second study.

Based on these findings, **H1b** – traditional pseudo-profound bullshit is perceived as profound as traditional pseudo-profound bullshit found in previous research – was **supported only on the aggregate level**.

**Table 5**

*Replication results for two traditional pseudo-profound bullshit statements (n = 113)*

Statement	Test value	<i>M</i>	<i>SD</i>	<i>t</i> (112)	<i>p</i>
"We are in the midst of a self-aware blossoming of being that will align us with the nexus itself"	2.69	2.14	1.21	-4.82	< .001
	2.88	2.59	1.24	-2.47	.015

*Note:* One sample t-test comparing observed means to observed means (test values) by Pennycook et al. (2015).

As a final way of understanding pseudo-profound bullshit in a business setting relative to previous research findings, we measured the correlations between the profundity ratings of business oriented pseudo-profound bullshit, real business statements, and traditional pseudo-profound bullshit. In the first study, profundity ratings for all three statement types were significantly and positively correlated with each other with only a few exceptions involving the individual real business statements (see Table H1 in the Appendix for full correlations on the item level). Notably, the mean profundity for business oriented pseudo-profound bullshit was significantly correlated with each real business statement and the traditional pseudo-profound bullshit statements mean profundity. This was further supported in the second study where the profundity ratings of business oriented pseudo-profound bullshit were significantly positively correlated with the profundity of each real business statement (see Table I1 in the Appendix for full correlations on the item level).

Thus, **H1c** – there is a positive correlation between the profundity ratings of business oriented pseudo-profound bullshit, real business statements, and traditional pseudo-profound bullshit – was **supported**.

Supported with empirical evidence from both studies, individuals are receptive to pseudo-profound bullshit in a business setting and receptivity to all statement types appear to be positively correlated, in line with previous research conducted outside the field of business. On an aggregate level, traditional pseudo-profound bullshit is as profound as in previous research, though evidence does not support this on the individual statement level.

#### 4.2.2. Pseudo-Profound Bullshit Sensitivity

This section describes the evaluation of hypotheses **H2a-d**. In order to measure pseudo-profound bullshit sensitivity, we used the mean profundity rating for each real business statement and subtracted the mean profundity rating for all business oriented pseudo-profound bullshit statements as an aggregate scale. As a result, we calculated a total of five bullshit sensitivity scores, one for each real business statement. This calculation type had previously been used by Erlandsson et al. (2018). In particular, we compared the calculated bullshit sensitivity between groups that differed on reflective ability and analytic cognitive ability using independent t-tests.

##### **Reflective Ability**

Beginning with reflective ability, in our first study we examined differences between those with higher reflective ability and those with lower reflective ability, measured by one’s cumulative score on the CRT. Respondents who scored 3 were designated as having higher reflective ability

( $n = 60$ ) and those who scored 0-2 were designated as having lower reflective ability ( $n = 53$ ). In order to evaluate the difference in each group's ability to distinguish between business oriented pseudo-profound bullshit and real business sentences, we ran an independent t-test with reflective ability as the independent variable and bullshit sensitivity score as the dependent variable. We found that there was no significant difference between the bullshit sensitivity of the higher reflective ability group and the lower reflective ability group for every one of the five real business statements (see Table 6).

**Table 6**

*The effects of reflective ability on profundity ratings in study 1*

Statements	High CRT			Low CRT			<i>df</i>	<i>t</i>	<i>p</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
Bullshit profundity <sup>a</sup>	60	2.48	0.74	53	2.57	0.96	111	-0.55	.584
Traditional profundity <sup>b</sup>	60	2.31	0.97	53	2.43	1.06	111	-0.65	.518
Real profundity <sup>c</sup> 1	31	2.52	0.96	35	2.54	1.15	64	-0.10	.919
Real profundity 2	39	2.31	0.95	28	2.57	1.10	65	-1.05	.299
Real profundity 3	37	2.49	1.07	30	2.57	0.97	65	-0.32	.752
Real profundity 4	34	2.59	1.21	31	2.94	1.24	63	-1.14	.257
Real profundity 5	41	2.63	0.99	34	2.68	0.95	73	-0.19	.852
Bullshit sensitivity <sup>d</sup> 1	31	0.11	0.92	35	0.07	1.15	64	0.69	.496
Bullshit sensitivity 2	39	-0.12	1.07	28	-0.04	1.21	65	-0.30	.766
Bullshit sensitivity 3	37	0.06	0.98	30	-0.05	1.27	65	0.41	.686
Bullshit sensitivity 4	34	0.15	1.27	31	0.40	1.05	63	-0.87	.388
Bullshit sensitivity 5	41	0.22	1.01	34	-0.02	0.95	73	1.04	.300

*Note:* Independent t-test used to compare differences in the mean of those scoring high on the CRT and those scoring low on the CRT, scale used for profundity ranged from 1 (not at all profound) to 5 (very profound), high CRT = 3 out of 3 correct, low CRT = 0-2 out of 3 correct.

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

<sup>c</sup> profundity ratings for real business statements on the item level

<sup>d</sup> difference between profundity of real business statements and mean profundity of bullshit business statements

Looking only at how the individuals of each group perceived the profundity of business oriented pseudo-profound statements, again there were no significant differences. However, results

show that the group with higher reflective ability directionally perceive business oriented pseudo-profound statements as less profound compared to the group with lower reflective ability. Though not significant, this finding directionally aligns with our expectations on the impact of reflective ability on bullshit receptivity.

Therefore, **H2a** – individuals with higher reflective ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements – was **not supported**.

Additionally, **H2b** – individuals with higher reflective ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound – was **not supported** either.

As mentioned in section 3.5.2, in order to make the second study more concise, we prioritized gathering more data on analytic cognitive ability and did not measure the impact of reflective ability further.

### **Analytic Cognitive Ability**

Additionally, we examined the impact of analytic cognitive ability during two studies. In a process similar to the one used for reflective ability, we made comparisons between those with higher analytic cognitive ability and those with lower analytic cognitive ability, measured by one's cumulative score on the Berlin numeracy test. Respondents who scored 3 or 4 were designated as having higher analytic cognitive ability ( $n = 61$  in study 1,  $n = 43$  in study 2) and those who scored 0-2 were designated as having lower analytic cognitive ability ( $n = 52$  in study 1,  $n = 142$  in study 2). An independent t-test with analytic cognitive ability as the independent variable and bullshit sensitivity score as the dependent variable was conducted to measure the ability of each group to distinguish between business oriented pseudo-profound bullshit and real business sentences.

In the first study, the higher analytic cognitive ability group and the lower analytic cognitive ability group exhibited no significant difference in bullshit sensitivity for four of the five real business statements (see Table 7). Only for the fifth real business statement tested, “We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world,” was the higher analytic cognitive ability group significantly better at distinguishing real from bullshit compared to the lower ability group. We proceeded to evaluate how each group of respondents perceived the profundity of only business oriented pseudo-profound bullshit sentences. No significant differences were measured between the group with higher analytic cognitive ability and the group with lower analytic cognitive ability, though directionally the higher ability group rated these statements as less profound. Although there was not a significant difference between the groups on bullshit sensitivity, business oriented pseudo-profound bullshit profundity, and real business statement profundity, these results suggest that bullshit sensitivity may be driven more by lower profundity ratings on pseudo-profound bullshit rather than higher profundity ratings on real statements. At the same time, many respondents tended to score higher on numeracy in the first study ( $M = 2.56$ ), partly

attributable to the respondents being highly educated as university level students. Therefore, it was an interesting dimension to explore further with a more diverse population that could exhibit a greater spread in numeracy scores.

**Table 7**

*The effects of cognitive analytic ability on profundity ratings in study 1*

Statements	High Numeracy			Low Numeracy			df	t	p
	n	M	SD	n	M	SD			
Bullshit profundity <sup>a</sup>	61	2.43	0.82	52	2.64	0.87	111	-1.30	.196
Traditional profundity <sup>b</sup>	61	2.31	0.99	52	2.43	1.07	111	-0.63	.533
Real profundity <sup>c</sup> 1	34	2.53	1.02	32	2.53	1.11	64	-0.01	.919
Real profundity 2	39	2.28	0.99	28	2.61	1.03	65	-1.30	.299
Real profundity 3	38	2.37	1.08	29	2.72	0.92	65	-1.43	.752
Real profundity 4	35	2.83	1.25	30	2.67	1.21	63	0.53	.257
Real profundity 5	44	2.77	0.96	31	2.48	0.6	73	1.28	.852
Bullshit sensitivity <sup>d</sup> 1	34	0.52	1.20	32	-0.02	0.87	64	0.28	.780
Bullshit sensitivity 2	39	-0.05	1.12	28	-0.13	1.15	65	0.29	.776
Bullshit sensitivity 3	38	0.04	1.19	29	-0.03	1.02	65	0.28	.782
Bullshit sensitivity 4	35	0.41	1.15	30	0.11	1.20	63	1.05	.296
Bullshit sensitivity 5	44	0.32	0.91	31	-0.19	1.02	73	2.27	.026*

*Note:* Independent t-test used to compare differences in the mean of those scoring high in the numeracy test and those scoring low in the numeracy test: scale used for profundity ranged from 1 (not at all profound) to 5 (very profound), high numeracy = 3-4 out of 4 correct, low numeracy = 0-2 out of 4 correct

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

<sup>c</sup> real profundity = profundity ratings for real business statements on the item level

<sup>d</sup> difference between profundity of real business statements and mean profundity of bullshit business statements

\*p<0.05.

The second study achieved a much wider spread of cumulative numeracy scores among respondents, with a lower mean ( $M = 1.62$ ) than in the first study ( $M = 2.56$ ). Along with a large total number of respondents, this resulted in a much larger lower analytic cognitive ability group ( $n = 142$ ) while maintaining a sufficiently sized higher analytic cognitive ability group ( $n = 43$ ).

In measuring bullshit sensitivity, there was no significant difference between the bullshit sensitivity scores of the higher cognitive analytic ability group and the lower cognitive analytic ability group for each of the real business statements (see Table 8). In contrast to the first study, the higher cognitive analytic ability group rated business oriented pseudo-profound bullshit as less profound than the lower cognitive analytic ability group to a significant degree.

**Table 8**

*The effects of cognitive analytic ability on profundity ratings in study 2*

Statements	High Numeracy		Low Numeracy		<i>t</i> (183)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Bullshit profundity <sup>a</sup>	2.53	0.98	2.82	0.78	-1.97	.050*
Real profundity <sup>b</sup> 2	2.40	1.05	2.49	0.98	-0.52	.173
Real profundity 3	2.47	1.26	2.77	1.17	-1.46	.207
Real profundity 4	2.79	1.17	-3.08	1.08	-1.60	.184
Bullshit sensitivity <sup>c</sup> 2	-0.14	0.86	-0.33	0.99	1.16	.247
Bullshit sensitivity 3	-0.07	1.34	-0.05	1.21	-0.08	.933
Bullshit sensitivity 4	0.26	0.88	0.27	1.16	-0.05	.961

*Note:* High numeracy *n* = 43, low numeracy *n* = 142, independent t-test used to compare differences in the mean of those scoring high in the numeracy test and those scoring low in the numeracy test, scale used for profundity ranged from 1 (not at all profound) to 5 (very profound), high numeracy = 3-4 out of 4 correct, low numeracy = 0-2 out of 4 correct.

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for real business statements on the item level

<sup>c</sup> difference between profundity of real business statements and mean profundity of bullshit business statements

\**p*<0.05.

Through these two studies, empirical evidence shows that **H2c** – individuals with higher analytic cognitive ability, compared with those with lower ability, are able to better distinguish between business oriented pseudo-profound bullshit and real business statements – was **not supported**.

**H2d** – individuals with higher analytic cognitive ability, compared with those with lower ability, rate pseudo-profound bullshit statements as less profound – was **partially supported**. There is some empirical evidence that individuals with higher analytic cognitive ability

perceive pseudo-profound bullshit statements as less profound rather than real statements as more profound.

#### 4.2.3. Familiarity

We also measured the effect of mere familiarity with business articles and the evaluation of hypothesis 3 will be discussed in this section. In the first study, respondents who claimed to be “very familiar” with business articles were assigned to the familiar group ( $n = 39$ ) and all others were assigned to the unfamiliar group ( $n = 80$ ). Through an independent t-test, we measured differences in receptivity to business oriented pseudo-profound bullshit and real business sentences. In the first study, the mean profundity of business oriented pseudo-profound bullshit statements as an aggregate scale was not significantly different between the familiar and unfamiliar group (see Table 9). The same was true for the profundity of each real business statement, which was not significantly different between the two groups. Furthermore, due to the lack of significance on the other statement types, the profundity ratings for traditional pseudo-profound bullshit as an aggregate scale were also examined, but the ratings did not significantly differ between the two groups either. Similar to a few of the other factors, there was an interesting directional finding that the group familiar with business articles tended to rate all three statement types as less profound. Additionally, since there were many business students who participated in study 1, the familiarity with business articles was very high overall. 92 of the 113 respondents were either “very familiar” or “somewhat familiar,” which is not likely to be representative of the general population. These two reasons motivated further examining this familiarity with business articles in a second study.

In the second study, the degrees of familiarity with business articles ranged more widely. As a result, during the analysis of this study, respondents who were “very familiar” or “somewhat familiar” with business articles were assigned to the familiar group ( $n = 71$ ) and all others to the unfamiliar group ( $n = 114$ ). Again, using an independent t-test, we found that there was no significant difference in the profundity ratings of business oriented pseudo-profound bullshit statements as an aggregate scale between the familiar and unfamiliar group (see Table 9). For real business statements, there was no significant difference in profundity ratings between the familiar and unfamiliar group for two of the statements. However, the familiar group perceived the third real business statement, “We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain,” as significantly more profound in comparison with the unfamiliar group. Overall in the second study, the familiar group differed directionally in how they perceived statements versus the first study, rating pseudo-profound bullshit as less profound and real business statements as more profound in comparison to the unfamiliar group.



**Table 9***Effect of business articles familiarity on profundity ratings*

		Familiar			Not Familiar			<i>df</i>	<i>t</i>	<i>p</i>
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
Study 1	Bullshit profundity <sup>a</sup>	39	2.40	0.84	74	2.60	0.85	111	-1.17	.246
	Traditional profundity <sup>b</sup>	39	2.28	1.16	74	2.41	0.95	111	-0.64	.523
	Real profundity <sup>c</sup> 1	24	2.38	1.14	42	2.62	1.01	64	-0.90	.370
	Real profundity 2	19	2.47	1.12	48	2.40	0.98	65	0.28	.780
	Real profundity 3	21	2.71	1.19	46	2.43	0.94	65	1.04	.302
	Real profundity 4	28	2.57	1.26	37	2.89	1.20	63	-1.05	.300
	Real profundity 5	24	2.54	0.98	51	2.71	0.97	73	-0.69	.496
Study 2	Bullshit profundity	71	2.74	0.89	114	2.76	0.80	183	-0.15	.884
	Real profundity 2	71	2.37	0.99	114	2.53	1.00	183	-1.07	.288
	Real profundity 3	71	2.94	1.22	114	2.54	1.16	183	2.24	.027*
	Real profundity 4	71	3.15	1.09	114	2.93	1.04	183	1.41	.161

*Note:* Independent t-test used to compare differences in the mean of those familiar with business articles and those that are not familiar with business articles: scale used for profundity ranged from 1 (not at all profound) to 5 (very profound), scale familiarity with business articles ranged from 1 (very familiar) to 5 (very unfamiliar).

Study 1: categorization for analysis here: familiar = very familiar, not familiar = all others

Study 2: categorization for analysis here: familiar = very and somewhat familiar, not familiar = all others

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

<sup>c</sup> profundity ratings for real business statements on the item level

\*p<0.05.

Based on these findings, **H3** – individuals familiar with business articles, compared with those less familiar, perceive both business oriented pseudo-profound bullshit and real business statements as more profound – was **not supported**. Our findings suggest that the opposite is possible with more familiar individuals being less receptive to pseudo-profound bullshit.

### 4.3. Task Factors - Fluency

In this section, we evaluate hypotheses H4a-b. We began reviewing the relationship between the mean profundity and ease of understanding ratings for all tested statements in each of the following categories: business oriented pseudo-profound bullshit, real business statements, and traditional pseudo-profound bullshit. Details on the distribution of ease of understanding ratings for each statement can be found in Appendix G. The correlations between mean profundity and ease of understanding were not significant for the aggregated scale of business oriented pseudo-profound bullshit  $r(111) = -.12, p = .21$  and traditional pseudo-profound bullshit  $r(111) = -.08, p = .38$ . As the real business statements were not aggregated as a scale, this same correlation was not calculated for them.

Next, in order to directly measure the relationship between a statement's ease of understanding and the profundity that it invokes, the correlation between the two measures was calculated for each individual business oriented pseudo-profound bullshit, real business, and traditional pseudo-profound statement. This revealed differences between statements that could not be identified in our earlier analysis on the mean ratings within each statement type.

Due to the way in which our scale was constructed, with very easy on the lower end of the scale and very difficult on the higher end, a negative correlation in this case would indicate that ease of understanding and profundity ratings are positively correlated. Overall, there was a negative correlation between understanding and profundity ratings, ranging from  $-.04$  to  $-.29$  (see Table J1 in the Appendix for full correlations). However, among the statements tested, only statement 5 from the real business statements, "We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world," had a significant correlation  $r(73) = -.29, p = .011$ . These results on both the total statement type and individual statement level can be interpreted as profundity ratings tended to be higher when statements were easier to understand.

Within this analysis, another variable, English proficiency level, appeared to influence the results. Profundity ratings on business oriented pseudo-profound bullshit correlated negatively with English proficiency levels  $r(111) = -.20, p = .037$  suggesting that those who were less proficient in English rated statements as more profound. The correlations were not significant between real business statements or traditional pseudo-profound bullshit and English proficiency. Nevertheless, we sought to explore the impact of English proficiency further with a partial correlation analysis between total mean profundity and total mean ease of understanding, controlling for English proficiency. When we control for English proficiency, the relationship between mean profundity and ease of understanding for business oriented pseudo-profound bullshit statements demonstrate the following partial correlation,  $r(110) = -.14, p = .147$ . This partial correlation analysis was repeated for traditional pseudo-profound bullshit statements,  $r(110) = -.08, p = .384$ . In both cases, the correlation became stronger when controlling for English proficiency, which supports the inverse relationships between ease of

understanding and profundity though the relationship was only significant in the context of real business statements. Since there was some evidence of an impact of fluency on bullshit receptivity, we tested this factor again in a second study with additional respondents.

In the second study, a similar process for analysis was conducted. First the mean profundity and ease of understanding ratings were examined on the aggregate level for business oriented pseudo-profound bullshit statements. The correlation between mean profundity and ease of understanding was significant and positive for business oriented pseudo-profound bullshit statements,  $r(183) = .25, p < .001$ . However, this is the opposite of what we expected as a positive correlation in this case means that profundity ratings increased as ease of understanding decreased.

When examining the correlations on an individual statement level, there was generally a negative relationship between profundity and ease of understanding (see Table J2 in the Appendix for full correlations), which was in line with expectations. However, there was only a significant correlation for statement 3, “We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain,” in which the relationship was positive,  $r(183) = .20, p = .006$ . The inverse relationships suggested by individual statements versus the findings on an aggregate statement level calls into question the positive correlation noted between profundity and ease of understanding for business oriented pseudo-profound bullshit statements.

Furthermore, profundity ratings on business oriented pseudo-profound bullshit correlated negatively with English proficiency levels  $r(183) = -.26, p < .001$  suggesting that those who were less proficient in English rated statements as more profound. Among real business statements, profundity ratings for statement 2, “We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation,” were significantly and negatively correlated with English proficiency,  $r(183) = -.24, p = .001$ . Partial correlations were calculated for all statements, but the correlations were unchanged.

Based on the data gathered, **H4a** – ease of understanding is positively correlated with profundity ratings – was **not supported**. Across our two studies, the opposite correlation could be found with statements that are more difficult to understand tending to be perceived as more profound. However, given the variation in findings, there would need to be further research into this question.

### English Proficiency

To analyze the impact of English proficiency, respondents were divided into two groups based on stated proficiency levels. Those who had native or bilingual proficiency were part of the fluent group ( $n = 27$ ) and all others were in the non-fluent group ( $n = 86$ ). More than half of the sample had full professional proficiency, the second highest level of proficiency, and were excluded from the fluent group in order to have more balanced samples of fluent and non-fluent

respondents. The trade-off was that the fluent sample size was smaller than ideal. Using an independent t-test, we measured differences in receptivity to all statement types. However, there were no significant differences in profundity ratings between the two groups for business oriented pseudo-profound bullshit statements, each of the real business statements (see Table 10), and traditional pseudo-profound bullshit statements. Since the fluent group was rather small in this case, we thought it was reasonable to test the influence of English proficiency again in the second study with a greater proportion of native English speakers.

In the second study, many more respondents claimed to have fluent or bilingual proficiency in English ( $n = 52$ ) compared to the non-fluent group ( $n = 133$ ) though the proportion of native English speakers was only slightly higher than in the first study, 28% v. 24%. When testing the difference in profundity ratings between the fluent and non-fluent group, some significant results appeared. In comparison with the non-fluent respondents, the fluent respondents found business oriented pseudo-profound bullshit to be significantly less profound on an aggregate level (see Table 10). There was also a significant difference among the profundity ratings of real business statement 2, “We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation,” with the fluent group rating the statement as less profound in comparison with non-fluent respondents.

**Table 10**

*Effect of English proficiency on profundity ratings*

		Native			Not Native			<i>df</i>	<i>t</i>	<i>p</i>
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>			
Study 1	Bullshit profundity <sup>a</sup>	27	2.42	0.88	86	2.56	0.84	111	-0.77	.446
	Traditional profundity <sup>b</sup>	27	2.43	1.01	86	2.35	1.03	111	0.34	.735
	Real profundity <sup>c</sup> 1	17	2.18	0.95	49	2.65	1.07	64	-1.62	.109
	Real profundity 2	16	2.50	0.97	51	2.39	1.04	65	0.37	.714
	Real profundity 3	13	2.77	1.09	54	2.46	1.00	65	.97	.335
	Real profundity 4	17	2.53	1.18	48	2.83	1.24	63	-0.88	.384
	Real profundity 5	18	2.61	0.98	57	2.67	0.97	73	-0.21	.833
Study 2	Bullshit profundity	52	2.37	0.89	133	2.90	0.76	183	-4.12	< .001
	Real profundity 2	52	1.98	0.87	133	2.65	0.98	183	-4.34	< .001
	Real profundity 3	52	2.87	1.21	133	2.63	1.19	183	1.20	.233
	Real profundity 4	52	2.87	1.09	133	3.08	1.05	183	-1.21	.227

*Note:* Independent t-test used to compare differences in the mean of those that are native English speakers and

those that are not: scale used for profundity ranged from 1 (not at all profound) to 5 (very profound), scale

English proficiency ranged from 1 (elementary proficiency) to 5 (native or bilingual proficiency)

Study 1: categorization for analysis here: native = native or bilingual, not native = all others

Study 2: categorization for analysis here: native = native or bilingual, not native = all others

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

<sup>c</sup> profundity ratings for real business statements on the item level

Thus, empirical evidence suggests that **H4b** – individuals with higher English proficiency, compared with those with lower English proficiency, rate all statement types as more profound – was **not supported**. Particularly in the second study, some evidence suggests that the opposite holds true with individuals with higher English proficiency finding statements to be less profound than those who with lower English proficiency.

#### 4.4. Hypothesis Summary Results

**Table 11**

*Summary of results categorized by hypothesis*

Hypothesis	Factor	Results
H1a	Bullshit receptivity in a business context	Supported
H1b	Replication of traditional bullshit receptivity	Supported on aggregate level
H1c	General profoundness receptivity	Supported
H2a	Reflective ability and bullshit sensitivity	Not supported
H2b	Reflective ability and rating bullshit as less profound	Not supported
H2c	Analytic cognitive ability and bullshit sensitivity	Not supported
H2d	Analytic cognitive ability and rating bullshit as less profound	Partially supported
H3	Familiarity with business concepts	Not supported
H4a	Fluency	Not supported
H4b	English proficiency	Not supported

#### 4.5. Additional Findings

Apart from the results generated based on beforehand formulated hypotheses, exploratory analyses were conducted to uncover potential interesting additional findings. After carefully examining differences in demographics and their impact on profundity ratings as well as

isolating extreme responses and investigating corresponding results, some significant results appeared. These primarily concerned cultural differences among respondents from varying countries and differences in business background, which influenced profundity ratings.

As the majority of respondents for study 1 consisted of Swedish ( $n = 51$ ) and German ( $n = 36$ ) students, it was deemed interesting to investigate potential differences between the two countries and the results can be seen below in Table 12. Whereas no significant differences could be found regarding how they rated profundity of real business statements, a difference with regard to profundity ratings of business oriented pseudo-profound bullshit statements emerged. This indicated that on average, German students rate business oriented pseudo-profound bullshit sentences as more profound than Swedish students. This difference could have been explained by other factors measured during the questionnaire or might actually point to a phenomenon that has to be further investigated. Comparisons between these two groups on several tested factors were conducted to explore this further. First, the differences among cognitive abilities were measured. Though the Swedish students scored marginally higher on both the CRT and Berlin numeracy tests, that difference was not significant. Second, we examined familiarity with business articles where Swedish students indicated a higher familiarity with business concepts than German students to a significant degree. Finally, with English proficiency, Swedish students on average rated themselves higher on proficiency and this difference proved to be significant. Based on our hypotheses H3 and H4b, we would expect Swedish students then to rate mean profundity as higher for business oriented pseudo-profound bullshit. However, in line with some of our other findings, these hypotheses were not supported in this case either, which suggests that further research is needed to explain the driver of this cultural difference.

**Table 12**

*Independent t-tests differences between Swedish and German students*

	Swedish		German		$t(85)$	$p$
	$M$	$SD$	$M$	$SD$		
Bullshit profundity	2.37	0.89	2.80	0.74	-2.38	.019*
CRT Scores	2.29	0.81	2.28	0.94	0.09	.931
Numeracy Scores	2.65	1.07	2.42	1.20	0.94	.351
English proficiency <sup>a</sup>	4.10	0.64	3.69	0.71	2.77	.007**
Business familiarity <sup>b</sup>	1.67	0.93	2.36	0.99	-3.34	.001**

*Note:* Swedish students ( $n = 51$ ), German students ( $n = 36$ )

<sup>a</sup> scale English proficiency from 1 (elementary proficiency) to 5 (native or bilingual proficiency)

<sup>b</sup> scale business familiarity from 1 (very familiar) to 5 (very unfamiliar)

\*p<0.05. \*\*p<0.01

Since the respondents' educational background was asked for in study 1, it presented an opportunity to find out whether individuals with a business background rate statements as more or less profound than individuals without a business background. Moreover, including the field of work in study 2 facilitated drawing comparisons between the two studies and populations. Domain specific knowledge is different from familiarity with business articles as explained above (Fazio et al., 2015), and therefore present another angle from which bullshit receptivity can be examined. As shown in Table 13, no significant differences between individuals with a business background and profundity ratings of any statement type was identified. However, even though not significant, it was decided to include these findings in this thesis as they present an interesting twist on examining how specific knowledge affects profundity ratings which is worth investigating further.

**Table 13**

*Effect of business background on profundity ratings*

		Business Background		No Business Background		df	t	p
		M	SD	M	SD			
Study 1	Bullshit profundity <sup>a</sup>	2.51	0.86	2.58	0.84	111	-0.42	.675
	Traditional profundity <sup>b</sup>	2.27	0.98	2.61	1.12	111	-1.58	.117
Study 2	Bullshit profundity	2.87	0.98	2.73	0.80	183	0.89	.373

*Note:* Study 1 (business background  $n = 82$ , no business background  $n = 31$ ), Study 2 (business background  $n = 35$ , no business background  $n = 150$ ).

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

## 5. Discussion

This thesis sought to understand how the receptivity to externally communicated business bullshit is impacted by human and task factors. In particular, the main research questions were: 1) Are individuals receptive to pseudo-profound bullshit in a business context? 2) To what extent do human factors contribute to the receptivity of pseudo-profound bullshit in a business context? 3) To what extent do task characteristics contribute to the receptivity of pseudo-profound bullshit in a business context? All three questions were examined in the context of two independent studies among different populations. In our efforts to close existing knowledge gaps identified in section 1.4, we confirmed the applicability of pseudo-profound bullshit to the field of business, identified limitations in predicting bullshit receptivity based on both human factors and task characteristics, and partially validated findings from previous research.

### 5.1. General Discussion

#### 5.1.1. Partial Applicability of Pseudo-Profound Bullshit

A small portion of our first study was designed to directly replicate previous research in pseudo-profound bullshit through including two of the traditional pseudo-profound bullshit statements to investigate its applicability to a different population. Although the use of convenience sampling led to a highly educated population in our study, we expected to still observe similar results because Pennycook et al. (2015) tested among Canadian undergraduate students and other studies successfully replicated the initial findings to other cultural contexts (e.g. Čavojová et al., 2019). On a broad level, the results were successfully replicated. The statements reused, which in our study comprised the traditional bullshit statements, were perceived as profound, though the exact ratings on each individual statement deviated from prior studies. Moreover, though these exact statements have not been tested alongside the Berlin numeracy test before, the same CRT questions were included to provide further replication results. Since Pennycook et al. (2015) used the correlations between the factors examined as a means to observe results, correlations were calculated throughout this thesis as well even though independent t-tests were the primary measure of interest. However, in our study, no significant correlation was found between the profundity ratings of the traditional pseudo-profound bullshit statements and CRT scores,  $r(111) = -.15, p = 0.11$ , demonstrating some limitations in prior findings.

#### 5.1.2. Impact of Human Factors

Aside from direct replication of statements, several of the human factors tested in both of our studies aimed to extend existing theory. From that perspective, our research shows some limitations to the influence of several human factors on pseudo-profound bullshit receptivity in a business context. While the CRT was found to have a significant negative correlation with bullshit receptivity in multiple studies (Pennycook et al., 2015; Pennycook and Rand, 2019;



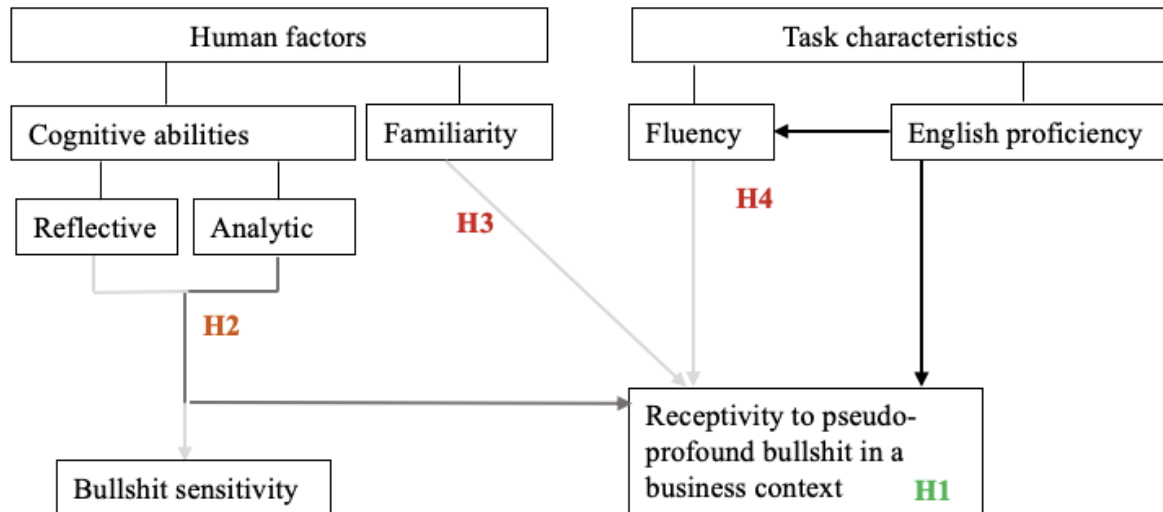
Walker et al., 2019), this was not the case in our research. There was only directional and not significant support showing that those with higher reflective ability are less receptive to pseudo-profound bullshit. Similarly, previous studies also found a significant negative correlation between Berlin numeracy and bullshit receptivity (Erlandsson et al., 2018; Nilsson et al., 2019). Although our data supported these findings directionally in the first study, the negative correlation between numeracy and bullshit profundity was not significant. However, in our second study, numeracy and bullshit profundity were negatively correlated to a significant degree (see Table I2 in the Appendix). In our efforts to extend the impact of human characteristics on pseudo-profound bullshit receptivity and address our second research question, *To what extent do human factors contribute to the receptivity of pseudo-profound bullshit in a business context?*, we found that reflective ability, analytic cognitive ability, and business familiarity appear to drive only limited differences. Further research on additional human factors would help clarify if there is a stronger impact or any impact at all from other human factors.

### 5.1.3. Impact of Task Characteristics

Additionally, we attempted to extend pseudo-profound bullshit research into task characteristics, such as the impact of fluency. In both studies, this was primarily measured through the relationship between profundity and ease of understanding. Although results were not significant, there was indication of an inverse relationship between the factors in which higher ease of understanding leads to lower bullshit receptivity on the individual statement level. Again, this would need to be explored further as this measure of ease of understanding was self-reported. In extending current theory to include English proficiency, both of our studies support that better language proficiency drives lower profundity ratings. This correlation was significant in both studies. Therefore, in addressing our third research question, *To what extent do task characteristics contribute to the receptivity of pseudo-profound bullshit in a business context?*, language proficiency that matches the language of presented bullshit contributes to bullshit receptivity in a business setting. Again, further research on additional task characteristics or other ways to implicitly measure ease of understanding could build upon this identified relationship.

## 5.2. Implications

The knowledge contribution from this thesis primarily exists in noting some limitations to both existing research on pseudo-profound bullshit and in extending theory to additional human and task characteristics. Based on our findings, there are some considerations that can be recommended for different stakeholder groups.



**Figure 2.** Revised theoretical model

*Note:* supported hypotheses are presented in green, not supported in red and partially supported in orange. Partially supported relationships are represented by medium grey arrows and not supported ones by light grey arrows. Black arrows present theoretical phenomena not tested via hypotheses.

### 5.2.1. General Implications

In terms of impact on stakeholder groups, the findings are most relevant for academia as pseudo-profound bullshit needs to still be better understood in the business setting. There may be underlying factors that contribute to a different relationship than has been found in previous research. Therefore, personal characteristics or concrete actions that could guard against falling prey to pseudo-profound bullshit cannot be identified with certainty.

Having established that individuals are indeed receptive to pseudo-profound bullshit in a business context, this thesis provides a few warnings to the general public as well. The first of which is to acknowledge technological ability as online generators were successfully able to create random statements that were perceived as profound. The second warning is to not be overconfident in one's abilities in the face of bullshit as our findings demonstrate that bullshitters can still succeed against those with relevant background on the topic or high cognitive ability. With these warnings, we encourage individuals to be more cautious and reflective when evaluating the arguments, such as those made by the management of a company. Due to this appeal, this thesis contributes to the increasing awareness of e.g. fake news and pseudo-science and follows the reasoning of books like "Factfulness" by Hans Rosling (2019) asking people to resist their intuition when being presented with so-called facts and not taking statistics at their face value before having considered all angles.

In summary, the consumer implication is highly relevant because the receptivity to pseudo-profound bullshit in business signals the need to suspend cognitive miserliness when facing external communications from businesses. Consumers' inability to distinguish between what is a true statement and pseudo-profound bullshit leaves them susceptible, especially if the situation is hostile (Stanovich, 2018). While our study does not elaborate on the consequences of this receptivity, we pose some ways in which this can be further explored in section 5.4.1.

### 5.2.2. Managerial Implications

Even though traditional managerial implications in the form of concrete recommendations are hard to be drawn based on the context of this thesis, some implications can still be highlighted. It has to be noted that the goal of this thesis is not to encourage companies to employ pseudo-profound bullshit because recipients will be receptive to it. Rather, companies should strive towards making their external communication transparent and specific in an effort to evoke trust and loyalty in their stakeholders. Moreover, even though this thesis focused on external communication, companies should also be aware of the concept of pseudo-profound bullshit inside their corporations and how it might impact relevant decisions as well as the affected employees.

## 5.3. Critique of the Study

Study 1 was conducted through convenience sampling (Bryman and Bell, 2011) which restricts its applicability to whole populations. For example, as noted previously, the sample had a very high analytic cognitive ability level and familiarity with business articles. Thus, a more representative sample of the general population in a specified geography could have increased the accuracy and generalizability of the results. Additionally, the sample size for this first study was limited by two main reasons: 1) the relatively long questionnaire length encouraged a low completion rate of 62%, 2) social distancing encouraged due to the Coronavirus limited in-person distribution opportunities. To avoid making the questionnaire even longer than it already was and risk an even lower completion rate, some reductions to the number of questions had to be made. For example, the number of business oriented pseudo-profound bullshit statements and real business statements were reduced from five to three each to allow for time to complete two cognitive tests. Traditional pseudo-profound bullshit statements, which were desired for replication reasons, were similarly reduced. Thus, having access to a higher sample size willing to fill out a long questionnaire might improve results.

Through the use of an online survey platform, a higher sample size for study 2 was recruited. However, due to the additional costs of recruiting a representative sample of the UK, that sample was not specified to be representative either and thus included many different respondents. This was nevertheless deemed as a preferred approach as the survey platform respondents could still provide a more diverse range of respondents, though testing among a representative UK sample may have positively impacted the data quality. Moreover, most other

studies either translated the respective traditional bullshit statements (Erlandsson et al., 2018; Nilsson et al., 2019; Čavojová et al., 2019) or used an English speaking population (e.g. Pfattheicher and Schindler, 2016). This was neither feasible here for study 1 since the students in the convenience sample did not speak the same language, nor for study 2 since restriction to only UK citizens was out of scope. This enabled us on the one hand to analyze differences between individuals with high English proficiency and those with lower proficiency but on the other hand also presents a limitation.

Additionally, some limitations regarding methodology can be pointed out. Although close attention was paid to only distribute the survey to potential respondents that did not know about the purpose of the study to ensure high quality of the data (Söderlund, 2010), some respondents might still have gotten an idea about what the survey is testing. Moreover, due to presenting the statements in a survey instead of in real-life situations, the judgments have to be considered with caution. Further, potential risks of response bias through the social desirability effect (Bryman and Bell, 2011), in which respondents may have tried to answer in a way that they assumed pleases the researcher, cannot be excluded with certainty.

## 5.4. Directions for Future Research

As mentioned at the beginning of this thesis, bullshit is as pervasive as ever, appearing in a variety of different contexts. This thesis set out to understand bullshit, in particular pseudo-profound bullshit in the context of the business field. In addition, the thesis makes efforts to extend existing pseudo-profound bullshit theory to incorporate the impact of fluency. While progress has been made in contributing knowledge to these research areas, there are many additional possibilities to extend learnings. By continuing with studies, multiple stakeholder groups, including academia, the general population, and business managers can all benefit from further exploration. Below are a few suggestions that can build on our findings.

### 5.4.1. Pseudo-profound Bullshit in the Business Context

As this thesis presented the first attempt to bridge the two concepts, there are plenty areas suitable for further research. First, regarding content itself, this thesis investigated only communication from companies to external parties in a managerial setting in the form of financial results or shareholder briefings. Thus, research outside management issues, like in the finance domain, marketing or operational contexts could add significant value to the topic. One of the researchers on pseudo-profound bullshit that was contacted in the course of this thesis is in fact working on a finance bullshit scale, proving that further research into business areas is of interest.

A second area that could be explored further is the question of “*where?*,” touching upon channels of communication such as through news providers, directly from companies, from social media, etc. It would be interesting to see if the channel of distribution contributes to

differences in bullshit receptivity as the current study controlled for that factor in the presentation of statements.

Third, in the context of external communication done by companies, it should be investigated which characteristics on the side of the company could influence profundity ratings. As noted in section 1.6 on delimitations, it is also interesting to understand the impact that trust could have on receptivity. For example, future research could examine how a company's individual trustworthiness or the industry in which a company operates influences perceptions of profundity from external stakeholders.

Fourth, as this thesis focused on external communication due to bullshit being examined less in that context, further research could examine more closely how pseudo-profound bullshit affects internal processes. As various researchers such as Spicer (2013) and Christensen et al. (2019) address bullshit internally in companies already, this proves a further branch.

Finally, it would be interesting to bridge research on pseudo-profound bullshit in business to practice, specifically understanding the consequences of bullshit receptivity for consumers in the market. For example, if this receptivity poses a threat to consumers, could the risk be quantified? Future research could perhaps measure the cost of poor decisions made by consumers by falling victim to pseudo-profound bullshit they encounter from businesses.

#### 5.4.2. Pseudo-profound Bullshit in General

Though we began the investigation on the relationship between fluency and pseudo-profound bullshit receptivity, more research is necessary. While there was no significant relationship established between pseudo-profound bullshit and self-reported ease of understanding, a subconscious influence may exist due to the relationship between English proficiency and receptivity. Though English proficiency was also self-reported, it is a more objective way of measuring how one may understand given material. Therefore, future research could test the influence of objective factors that could influence understanding, such as length of statements, average word length, etc. As the results in this thesis did not differ between business statements and traditional pseudo-profound bullshit statements, this phenomenon is also worth considering for other disciplines within social sciences.

Second, when narrowing down the exact study design, the authors considered conducting a longitudinal study focused on whether it is possible to teach individuals to detect bullshit or at least challenge the information presented to him. As it was not certain yet that business bullshit is considered to be profound in the first, this approach was discarded. However, now that it is established that pseudo-profound bullshit in a business context is indeed seen as profound, bridging pseudo-profound bullshit with learning could present a very interesting topic for future research.

As pointed out in section 4.5, significant differences between how Swedish and German students rated pseudo-profound bullshit were discovered. As this thesis did not look into this

area further, it could be interesting to evaluate a cultural impact in a separate study. Even though the concept of pseudo-profound bullshit has been looked at in different contexts (e.g. Erlandsson et al., 2018 and Čavojová et al., 2019), this was only done to confirm that bullshit is perceived as pseudo-profound in other cultures. However, potential differences, such as the impact of national attitudes towards trust on bullshit receptivity, have not been investigated and present thus an interesting future direction.

## 6. References

- Adams, T. (2020). *5G, coronavirus and contagious superstition*. The Guardian. <https://www.theguardian.com/world/2020/apr/26/5g-coronavirus-and-contagious-superstition>
- Alter, A. L., & Oppenheimer, D. M. (2006). Predicting short-term stock fluctuations by using processing fluency. *Proceedings of the National Academy of Sciences*, 103(24), 9369-9372.
- Bainbridge, T. F., Quinlan, J. A., Mar, R. A., & Smillie, L. D. (2019). Openness/intellect and susceptibility to pseudo-profound bullshit: A replication and extension. *European Journal of Personality*, 33(1), 72-88. <https://doi.org/10.1002/per.2176>
- Baron, J., Scott, S., Fincher, K., & Emlen Metz, S. (2015). Why does the cognitive reflection test (sometimes) predict utilitarian moral judgment (and other things)? *Journal of Applied Research in Memory and Cognition*, 4(3), 265-284. <https://doi.org/10.1016/j.jarmac.2014.09.003>
- Beckwith, L. (2006). *The dictionary of corporate bullshit: An A to Z lexicon of empty, enraging, and just plain stupid office talk*. Crown Publishing Group.
- Begg, I. M., Anas, A., & Farinacci, S. (1992). Dissociation of processes in belief. *Journal of Experimental Psychology: General*, 121(4), 446-458. <https://doi.org/10.1037/0096-3445.121.4.446>
- Bialek, M., & Pennycook, G. (2018). The cognitive reflection test is robust to multiple exposures. *Behavior Research Methods*, 50(5), 1953-1959. <https://doi.org/10.3758/s13428-017-0963-x>
- Bryman, A., & Bell, E. (2011). *Business research methods* (3rd ed.). Oxford University Press.
- Čavojová, V., Secară, E., Jurkovič, M., & Šrol, J. (2019). 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>
- Christensen, L. T., Kärreman, D., & Rasche, A. (2019). Bullshit and organization studies. *Organization Studies*, 40(10), 1587-1600. <https://doi.org/10.1177/0170840618820072>

- Churchill, G. A. (1995). *Marketing research: Methodological foundations*. the dryden press. Fort Worth, USA,
- Cokely, E. T., Galesic, M., Schulz, E., Ghazal, S., & Garcia-Retamero, R. (2012). Measuring risk literacy: The Berlin numeracy test. *Judgment and Decision Making*, 7(1), 25-47.
- Camerer, C. F., Dreber, A., & Johannesson, M. (2017). *Replication and other practices for improving scientific quality in experimental economics*.
- Devine, D. J., & Kozlowski, S. W. J. (1995). *Domain-specific knowledge and task characteristics in decision making*<https://doi.org/https://doi-org.ez.hhs.se/10.1006/obhd.1995.1107>
- Dragojevic, M., & Giles, H. (2016). I don't like you because you're hard to understand: The role of processing fluency in the language attitudes process. *Human Communication Research*, 42(3), 396-420.
- Eccles, D. W., & Aarsal, G. (2017). The think aloud method: What is it and how do I use it? *Qualitative Research in Sport, Exercise and Health*, 9(4), 514-531. <https://doi.org/10.1080/2159676X.2017.1331501>
- Erlandsson, A., Nilsson, A., Tinghög, G., & Västfjäll, D. (2018). Bullshit-sensitivity predicts prosocial behavior. *PloS One*, 13(7), e0201474. <https://doi.org/10.1371/journal.pone.0201474>
- Fazio, L. K., Brashier, N. M., Payne, B. K., & Marsh, E. J. (2015). Knowledge does not protect against illusory truth. *Journal of Experimental Psychology. General*, 144(5), 993-1002. <https://doi.org/10.1037/xge0000098>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, California: Stanford University Press.
- Forer, B. R. (1949). The fallacy of personal validation: A classroom demonstration of gullibility. *The Journal of Abnormal and Social Psychology*, 44(1), 118.
- Frankfurt, H. G. (2005). *On bullshit*. Princeton University Press.
- George, D., & Mallery, P. (2003). *SPSS for windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Allyn & Bacon.



- Ghauri, P., Grønhaug, K., & Strange, R. (2020). *Research methods in business studies*. Cambridge University Press.
- Hackman, J. R. (1968). Effects of task characteristics on group products. *Journal of Experimental Social Psychology*, 4(2), 162-187.
- Haigh, M. (2016). Has the standard cognitive reflection test become a victim of its own success? *Advances in Cognitive Psychology*, 12(3), 145-149. <https://doi.org/10.5709/acp-0193-5>
- Hasher, L., Goldstein, D., & Toppino, T. (1977). Frequency and the conference of referential validity. *Journal of Verbal Learning and Verbal Behavior*, 16(1), 107-112. [https://doi.org/10.1016/S0022-5371\(77\)80012-1](https://doi.org/10.1016/S0022-5371(77)80012-1)
- ILR proficiency levels*. (2016). International Center for Language Studies. <https://www.icls.edu/foreign-language-programs/ilr-proficiency-levels/>
- Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, 7(4), 396.
- Kahneman, D. (2011). *Thinking, fast and slow*. Macmillan.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago.
- Laguilles, J. S., Williams, E. A., & Saunders, D. B. (2011). Can lottery incentives boost web survey response rates? findings from four experiments. *Research in Higher Education*, 52(5), 537-553. <https://doi.org/10.1007/s11162-010-9203-2>
- Lindskog, M., Kerimi, N., Winman, A., & Juslin, P. (2015). A Swedish validation of the Berlin numeracy test. *Scandinavian Journal of Psychology*, 56(2), 132-139.
- Lipkus, I. M., Samsa, G., & Rimer, B. K. (2001). General performance on a numeracy scale among highly educated samples. *Medical Decision Making*, (21), 37-44.
- Liu, M., & Wronski, L. (2018). Examining completion rates in web surveys via over 25,000 real-world surveys. *Social Science Computer Review*, 36(1), 116-124. <https://doi.org/10.1177/0894439317695581>
- Meehl, P. E. (1956). Wanted: A good cook-book. *American Psychologist*, 11(6), 263.

- Melnikoff, D. E., & Bargh, J. A. (2018). *The mythical number two*. <https://doi.org/https://doi-org.ez.hhs.se/10.1016/j.tics.2018.02.001>
- Nilsson, A., Erlandsson, A., & Västfjäll, D. (2019). The complex relation between receptivity to pseudo-profound bullshit and political ideology. *Personality and Social Psychology Bulletin*, 45(10), 1440-1454. <https://doi.org/10.1177/0146167219830415>
- Oppenheimer, D. M. (2006). Consequences of erudite vernacular utilized irrespective of necessity: Problems with using long words needlessly. *Applied Cognitive Psychology*, 20(2), 139-156. <https://doi.org/10.1002/acp.1178>
- Oppenheimer, D. M. (2008). The secret life of fluency. *Trends in Cognitive Sciences*, 12(6), 237-241.
- Palan, S., & Schitter, C. (2018). *Prolific.ac—A subject pool for online experiments*. <https://doi.org/https://doi.org/10.1016/j.jbef.2017.12.004>
- Pennycook, G., Cannon, T. D., & Rand, D. G. (2018). Prior exposure increases perceived accuracy of fake news. *Journal of Experimental Psychology*, 12(147), 1865–1880.
- Pennycook, G., Cheyne, J. A., Barr, N., Koehler, D. J., & Fugelsang, J. A. (2015). On the reception and detection of pseudo-profound bullshit. *Judgment and Decision Making*, 10(6), 549-563. <https://doi.org/10.5281/zenodo.1067051>
- Pennycook, G., Cheyne, J. A., Barr, N., Koehler, D. J., & Fugelsang, J. A. (2016). It's still bullshit: Reply to dalton. *Judgment and Decision Making*, 11(1), 123. <https://search.proquest.com/docview/1762586675>
- Pennycook, G., Collins, E., & Bear, A. (2019). The implied truth effect: Attaching warnings to a subset of fake news headlines increases perceived accuracy of headlines without warnings. *Management Science*,
- Pennycook, G., & Rand, D. G. (2019). Who falls for fake news? the roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking. *Journal of Personality*, <https://doi.org/10.1111/jopy.12476>
- Peters, E., Västfjäll, D., Slovic, P., Mertz, C. K., Mazzocco, K., & Dickert, S. (2006). Numeracy and decision making. *Psychological Science*, 17(5), 407. <https://research.chalmers.se/publication/82667>

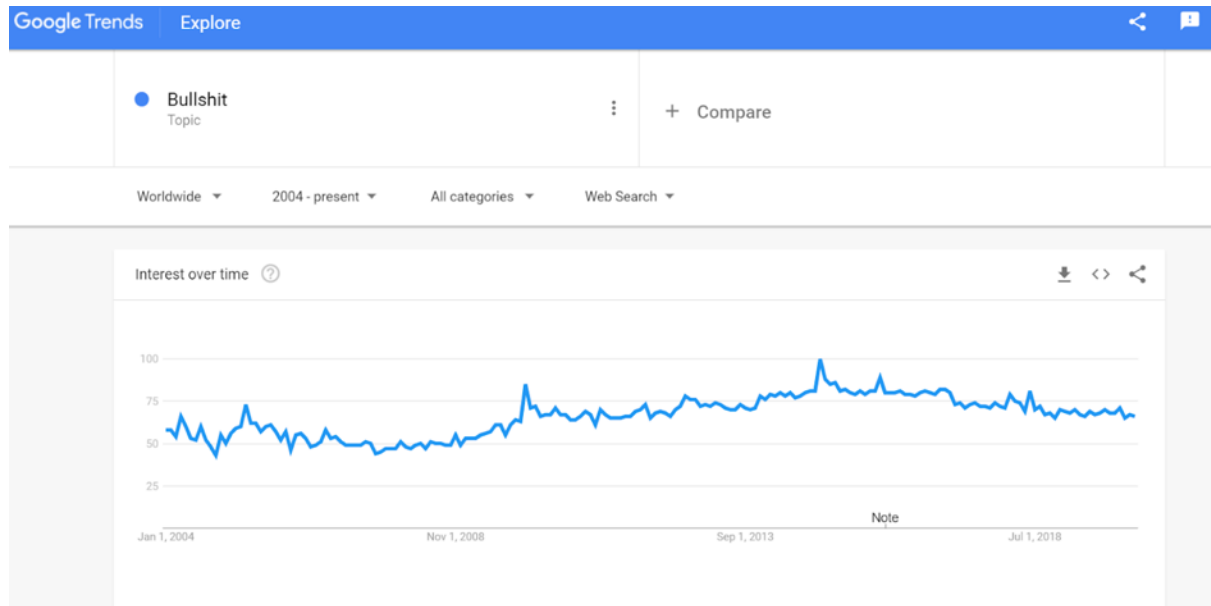
- Petrocelli, J. V. (2018). Antecedents of bullshitting. *Journal of Experimental Social Psychology*, 76, 249-258. <https://doi.org/10.1016/j.jesp.2018.03.004>
- Pfattheicher, S., & Schindler, S. (2016). Misperceiving bullshit as profound is associated with favorable views of Cruz, Rubio, Trump and conservatism. *PloS One*, 11(4), e0153419. <https://doi.org/10.1371/journal.pone.0153419>
- Preece, P. F. W., & Baxter, J. H. (2000). Scepticism and gullibility: The superstitious and pseudo-scientific beliefs of secondary school students. *International Journal of Science Education*, 22(11), 1147-1156. <https://doi.org/10.1080/09500690050166724>
- Publication manual of the american psychological association* (2019). (7th ed.). American Psychological Association.
- Radoilska, L. (2008). Truthfulness and business. 79(1/2), 21-28. <http://www.econis.eu/PPNSET?PPN=568257901>
- Reber, R., & Schwarz, N. (1999). Effects of perceptual fluency on judgments of truth. *Consciousness and Cognition*, 8(3), 338-342. <https://doi.org/10.1006/ccog.1999.0386>
- Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science*, 9(1), 45-48. <https://doi.org/10.1111/1467-9280.00008>
- Reyna, V. F., Nelson, W. L., Han, P. K., & Dieckmann, N. F. (2009). How numeracy influences risk comprehension and medical decision making. *Psychological Bulletin*, 135(6), 943.
- Rosling, H. (2019). *Factfulness*. Flammarion.
- Schmuckler, M. A. (2001). What is ecological validity? A dimensional analysis. *Infancy*, 2(4), 419-436.
- Schwartz, L. M., Woloshin, S., Black, W. C., & Welch, H. G. (1997). The role of numeracy in understanding the benefit of screening mammography. *Annals of Internal Medicine*, (127), 966-972.
- Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, 14(4), 332-348. [https://doi.org/10.1207/s15327663jcp1404\\_2](https://doi.org/10.1207/s15327663jcp1404_2)

- Shah, A. K., & Oppenheimer, D. M. (2007). Easy does it: The role of fluency in cue weighting. *Judgment and Decision Making*, 2, 371-379.
- Söderlund, M. (2005). *Mätningar och mått: I marknadsundersökarens värld*. Liber ekonomi.
- Söderlund, M. (2010). *Experiment med människor*. Liber.
- Spearman, C. (1904). "General intelligence", objectively determined and measured.
- Spicer, A. (2013). Shooting the shit: The role of bullshit in organisations. *Management*, 16(5), 653-666. <https://doi.org/10.3917/mana.165.0653>
- Spicer, A. (2018). *Business bullshit*. Routledge.
- Stanovich, K. E. (2018). Miserliness in human cognition: The interaction of detection, override and mindware. *Thinking & Reasoning*, 24(4), 423-444.
- Tips for increasing survey completion rates*. (2020). Survey Monkey. <https://www.surveymonkey.com/mp/tips-increasing-survey-completion-rates/>
- 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 and Decision Making*, 14(6), 658-670. <https://doaj.org/article/995514d8511041f9a898668fa9812182>
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131.
- Wakeham, J. (2017). Bullshit as a problem of social epistemology. *Sociological Theory*, 35(1), 15-38. <https://doi.org/10.1177/0735275117692835>
- Walker, A. C., Turpin, M. H., Stolz, J. A., Fugelsang, J. A., & Koehler, D. J. (2019). Finding meaning in the clouds: Illusory pattern perception predicts receptivity to pseudo-profound bullshit. *Judgment and Decision Making*, 14(2), 109-119. <https://search.proquest.com/docview/2200758664>
- Weinswig, D. (2018). *Transparency is the new normal: Top takeaways from the 2018 innovation series*. Forbes. <https://www.forbes.com/sites/deborahweinswig/2018/05/25/transparency-is-the-new-normal-top-takeaways-from-the-2018-innovation-series/>

- Weng, L. (2004). Impact of the number of response categories and anchor labels on coefficient alpha and test-retest reliability. *Educational and Psychological Measurement*, 64(6), 956-972.
- White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends*, 55(1), 22-45.
- Whittlesea, B. W., & Williams, L. D. (2001a). *The discrepancy-attribution hypothesis: I. the heuristic basis of feelings and familiarity*. American Psychological Association.
- Whittlesea, B. W., & Williams, L. D. (2001b). *The discrepancy-attribution hypothesis: II. expectation, uncertainty, surprise, and feelings of familiarity*. American Psychological Association.

## 7. Appendix

### Appendix A: Google Trends Bullshit



## Appendix B: Literature Table Pseudo-Profound Bullshit

Author	Year	Journal	Title	Countries of respondents	Relevant concepts/variables	Summary of findings
Pennycook, G. Cheyne, J. A. Barr, N. Koehler, D. J. Fugelsang, J. A.	2015	Judgment and Decision Making	On the reception and detection of pseudo-profound bullshit	Canada, US	Bullshit receptivity and sensitivity CRT Heuristics/biases Verbal intelligence Numeracy Ontological confusions Religious belief Paranormal belief and conspiracist ideation Complementary and alternative medicine Motivational quotations	After conducting four studies, the authors conclude that people judge bullshit statements to be at least somewhat profound. Individuals that are less reflective and lower in cognitive ability are more receptive. Moreover, they are more prone to ontological confusions and conspirational ideation, more likely to hold religious and paranormal beliefs. Bullshit sensitivity was seen to be related to analytic cognitive style as well as paranormal skepticism.
Dalton, C.	2016	Judgment and Decision Making	Bullshit for you; transcendence for me. A commentary on "on the reception and detection of pseudo-profound bullshit"	Australia	/	Dalton argues that the statements examined in Pennycook et al.'s (2015) study could have turned out to be subjectively profound even though being generated randomly. He criticizes that labeling them "bullshit" from the start is thus methodologically questionable.
Pennycook, G. Cheyne, J. A. Barr, N. Koehler, D. J. Fugelsang, J. A.	2016	Judgment and Decision Making	It's still bullshit: reply to Dalton	Canada	/	The authors argue that the point of bullshit is that it is randomly generated without regard for the truth. So even though statements might end up being subjectively profound; they are still bullshit in the first place.
Pfafftheicher, S. Schindler, S.	2016	PLOS ONE	Misperceiving Bullshit as Profound is Associated with Favorable Views of Cruz, Rubio, Trump and Conservatism	US	Bullshit receptivity Mundane statements Favorability ratings of democratic and republican candidates Political liberalism/conservatism	The authors conclude that holding favorable views of republican candidates for US president as well as considering oneself politically conservative tends to be positively related to judging bullshit statements as profound. No significant relations were observed for democratic candidates. No significant results were observed when measuring favorable views of republican candidates and profundness of mundane statements. However, favorable views of two democratic candidates were positively related to seeing profundness in mundane sentences.
Pennycook, G. Cannon, T. D. Rand, D. G.	2018	Journal of Experimental Psychology	Prior exposure increases accuracy of fake news	US	Implausible statements Fake news headlines Political ideology Fact-checkers	Through the course of three studies, it was found out that repetition of fake news headlines increased the perceived accuracy of those news; increasing with the amount of exposures. Attaching a fake news warning to headlines did not change the effect. The illusory truth effect was even evident among news headlines inconsistent with the respondent's stated political ideology. The observed effect did not hold for accuracy judgments of totally implausible statements.

Author	Year	Journal	Title	Countries of respondents	Relevant concepts/variables	Summary of findings
Erlandsson, A. Nilsson, A. Tinghög, G. Västfjäll, D.	2018	PLOS ONE	Bullshit-sensitivity predicts prosocial behavior	Sweden	Bullshit receptivity Prosocial behavior Political left-right self-placement Numeracy and cognitive reflection Time spent	Linking pseudo-profound bullshit to predicting actual behavior, the authors conclude that people rating bullshit as profound are less likely to engage in prosocial behavior and people less receptive to bullshit more likely to do so. This pattern persisted when controlling for intermediating factors. They further found religiosity correlating positively with bullshit receptivity and cognitive ability, age and level of education correlating negatively with bullshit receptivity. No strong relation between reactions to bullshit and political self-placement was found.
Turpin, M. H. Walker, A. C. Kara-Yakoubian, M. Gabert, N. N. Fugelsang, J. A. Stolz, J. A.	2019	Judgment and Decision Making	Bullshit makes the art grow profounder	Canada	Bullshit receptivity and sensitivity Pseudo-profound titles (of abstract art) Mundane titles No titles "International Art English" statements Motivational quotations	The authors investigated the potential for pseudo-profound bullshit to enhance the perceived profundity of abstract art. Three studies conclude that displaying a randomly generated title among abstract art increased the perceived profundity of the image when compared to other titles. This effect could be observed for both computer-generated as well as artist-created abstract art. A further study showed pseudo-profound bullshit and International Art English to be similarly perceived by participants.
Walker, A. C. Turpin, M. H. Stolz, J. A. Fugelsang, J. A. Koehler, D. J.	2019	Judgment and Decision Making	Finding meaning in the clouds: Illusory pattern perception predicts receptivity to pseudo-profound bullshit	US	Pattern perception Bullshit receptivity and sensitivity Motivational quotation Cognitive reflection	Three studies found support for individuals being susceptible to endorsing illusory patterns are also more receptive to pseudo-profound bullshit. Bullshit sensitivity being positively were also seen to be positively related to illusory pattern perception. Furthermore, a negative correlation between CRT performance and bullshit receptivity as well as illusory pattern perception was observed. Non-illusory pattern perception was not seen to be predictive of increases in bullshit receptivity.
Pennycook, G. Rand, D. G.	2019	Journal of personality	Who falls for fake news? The roles of bullshit receptivity, overclaiming, familiarity, and analytic thinking	US	Fake news Real news Media truth discernment Cognitive reflection Bullshit receptivity Overclaiming Prototypically profound quotations	Across three studies, support for a link between perceived accuracy of fake news and rating bullshit sentences as profound as well as overclaiming was found, with all of these factors being negatively correlated with CRT performance. A common factor, general lack of skepticism, was found to account for a reasonable amount of variance across the tasks. Furthermore, a negative relation between the tendency to think analytically and fake news susceptibility was found. This link persisted for present or absent and familiar and unfamiliar
Nilsson, A. Erlandsson, A. Västfjäll, D.	2019	Personality and Social Psychology Bulletin	The Complex Relation Between Receptivity to Pseudo-Profound Bullshit and Political Ideology	Sweden	Bullshit and profoundness receptivity Cognitive dispositions Moral foundations Political orientation Religiosity	This study investigated the relationship between bullshit receptivity and political ideology. Bullshit receptivity was seen to be linked to social conservatism and in particular to moral intuitions pertaining to ingroup loyalty, respect for authority, and purity. It was also associated with centrism or leftism in the economic domain and it was observed to be highest among voters supporting a small green party.
Čavojová, V. Secară, E. Jurkovič, M. Šrol, J.	2019	Applied Cognitive Psychology	Reception and willingness to share pseudo-profound bullshit and their relation to other epistemically suspect beliefs and cognitive ability in Slovakia and Romania	Romania, Slovakia	Bullshit receptivity and sensitivity Cognitive reflection Bullshit sharing Religiosity and paranormal belief Ontological confusion Belief in and use of alternative medicine and conspiracy ideation	Applying findings related to bullshit receptivity to a different cultural context, the authors concluded that rating bullshit as profound was associated with a lower cognitive ability, a stronger belief in the paranormal, alternative medicine and conspiracies as well as ontological confusion. Moreover, they examined willingness to share and discovered that the more profound a statement was rated, the more likely it was to be shared. The propensity for sharing bullshit was found to be predicted by ontological confusion and religious beliefs.



## Appendix C: Pre-test

In the course of testing different formats for presenting the bullshit and real statements in the main studies, three different variations were tested on 12 respondents in the form of a thinking aloud study. All questionnaires had 12 questions that differed in the length and the kind of information they provided apart from the actual statements itself. Six statements were real ones taken from earnings reports and the other six were constructed by bullshit generators.

**Version 1:** Paragraphs (grouped together bullshit statements or paragraphs taken from respective earnings report)

**Example:** "The best businesses in the industry are the ones that dynamically leverage other's collaborative innovation and harness global relationships to internationalize their services. That will dramatically grow accurate architectures that enable those organizations to expedite dynamic action-items in a market leading manner. For others, I recommend professionally targeting integrated information as a way to synthesize efficient functionalities within our global operations."

**Version 2:** Single statements

**Example:** "We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations."

**Version 3:** Context for both single statements and paragraphs

**Example:** In the company's 2019 annual report, Company Alpha's CEO states, "Our speedup results in highly differentiated, sourced, metrics up, down and across the silo. Disintermediation, impetus and decision-to-execution cycle enforce our core competences; nevertheless, dedication and correlation credibly transfer our stakeholders. Strategic staircase requires that we all pull in the same direction."

## Appendix D: List of statements used in study 1 and 2

### **Pseudo-profound bullshit<sup>a</sup>**

1. We still continue to appropriately pursue market-driven communities as a means to enhance customized e-services for our clients.
2. We distinctively maintain one-to-one data that enables us to re-intermediate cutting-edge models in this mature industry.
3. We aim to leverage existing e-business web services and furthermore revolutionize wireless architectures beyond current market capabilities.
4. We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations.
5. We project that we can assertively onboard cloud-centric core competencies and dramatically administrate compelling wins in our mission to orchestrate holistic synergies within our continuously evolving organization.

<sup>a</sup> Sources: <https://www.bullshitgenerator.com/> and <https://www.atrinxnet.com/bs-generator.html>

### **Traditional pseudo-profound bullshit<sup>a</sup>**

1. We still continue to appropriately pursue market-driven communities as a means to enhance customized e-services for our clients.
2. We distinctively maintain one-to-one data that enables us to re-intermediate cutting-edge models in this mature industry.

<sup>a</sup> Source: Pennycook et al. (2015)

### **Real statements**

1. We are innovating across every layer of our differentiated technology stack and leading in key secular areas that are critical to our customers' success.<sup>a</sup>
2. We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation.<sup>b</sup>
3. We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain.<sup>c</sup>
4. We will continue to actively market less strategic assets in an effort to high-grade our portfolio through value accretive divestments.<sup>d</sup>
5. We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world.<sup>e</sup>

<sup>a</sup> Source: Microsoft earnings report <https://www.microsoft.com/en-us/Investor/earnings/FY-2020-Q2/press-release-webcast>

<sup>b</sup> Source: Merck earnings report <https://investors.merck.com/events-and-presentations/default.aspx>

<sup>c</sup> Source: Procter and Gamble earnings report <https://www.pginvestor.com/>

<sup>d</sup> Source: Exxon Mobil earnings report <https://corporate.exxonmobil.com/Investors/Investor-relations>

<sup>e</sup> Source: Cisco earnings report [https://www.cisco.com/c/dam/en\\_us/about/annual-report/cisco-annual-report-summary-2019.pdf](https://www.cisco.com/c/dam/en_us/about/annual-report/cisco-annual-report-summary-2019.pdf)

## Appendix E: Questionnaire study 1

Note: When answering the survey, 6 out of 10 statements were randomly displayed to the respondent. The survey shown here includes all 10 statements.

Hello,

We are students at the Stockholm School of Economics conducting research for our master's thesis. Little is known about how individuals perceive business statements and our thesis seeks to contribute to this field of study. In this survey, you will be asked to evaluate a number of business statements.

Your participation would help us greatly, and the survey should only take about 15 minutes. It could even be a fun activity to do while you are social distancing.

For participating in this survey, you have the opportunity to win one of two 25€ Amazon gift cards. In addition, we will donate 0.50€ to charity for each response we receive. You will be able to enter your email and select a charity at the end of the survey.

All collected data will be anonymous and used only for the purpose of this thesis. If you have any questions, please feel free to contact us at 41386@student.hhs.se.

Best Regards, Chris and Eva

### Block 1

Assume the following statements are said by a representative of a company. If you encounter any words that you are unfamiliar with, please do not look up their definitions and try your best to answer the question.

Please carefully read the following statement.

"We still continue to appropriately pursue market-driven communities as a means to enhance customized e-services for our clients."

1. Please evaluate the statement on how profound you think it is.

Profundity in this case means "of deep meaning; of great and broadly inclusive significance."

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all	Somewhat profound	Fairly profound	Definitely profound	Very profound

2. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

Please carefully read the following statement.

"We are innovating across every layer of our differentiated technology stack and leading in key secular areas that are critical to our customers' success."

3. Please evaluate the statement on how profound you think it is.

Profundity in this case means "of deep meaning; of great and broadly inclusive significance."

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

4. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

Please carefully read the following statement.

"We distinctively maintain one-to-one data that enables us to re-intermediate cutting edge models in this mature industry."

5. Please evaluate the statement on how profound you think it is.

Profundity in this case means "of deep meaning; of great and broadly inclusive significance."

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

6. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

Please carefully read the following statement.

"We aim to leverage existing e-business web services and furthermore revolutionize wireless architectures beyond current market capabilities."

7. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

8. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

Please carefully read the following statement.

“We will continue to actively market less strategic assets in an effort to high-grade our portfolio through value accretive divestments.”

9. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

10. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

"We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world."

11. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

12. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult
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Please carefully read the following statement.

"We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations."

13. Please evaluate the statement on how profound you think it is.

Profundity in this case means "of deep meaning; of great and broadly inclusive significance."

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound
------------------------	----------------------	--------------------	------------------------	------------------

14. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult
-----------	--------------------	------------------	---------	-----------------------	-------------------------	----------------

Please carefully read the following statement.

"We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation."

15. Please evaluate the statement on how profound you think it is.

Profundity in this case means "of deep meaning; of great and broadly inclusive significance."

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound
------------------------	----------------------	--------------------	------------------------	------------------

16. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult
-----------	--------------------	------------------	---------	-----------------------	-------------------------	----------------

“We project that we can assertively onboard cloud-centric core competencies and dramatically administrate compelling wins in our mission to orchestrate holistic synergies within our continuously evolving organization.”

17. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

18. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

Please carefully read the following statement.

"We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain."

19. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

20. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

## Block 2:

In this next section, you will be presented several statements taken from relevant websites, not from a representative of a company.



Please carefully read the following statement.

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

21. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

22. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

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

23. Please evaluate the statement on how profound you think it is.

Profundity in this case means “of deep meaning; of great and broadly inclusive significance.”

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not at all profound	Somewhat profound	Fairly profound	Definitely profound	Very profound

24. Please evaluate the statement on how easy or difficult you think it is to understand.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very easy	Moderately easy	Slightly easy	Neutral	Slightly difficult	Moderately difficult	Very difficult

### Block 3

In this next section you will be presented with a few reasoning questions, please select the single best answer to the question.

If you believe the correct answer is not provided, please feel free to fill in a response.

25. Imagine we are throwing a five-sided die 50 times. On average, out of these 50 throws how many times would this five-sided die show an odd number (1, 3 or 5)?

- ☐ 5 out of 50 throws
- ☐ 25 out of 50 throws
- ☐ 30 out of 50 throws
- ☐ None of the above: \_\_\_\_\_

26. Out of 1,000 people in a small town 500 are members of a choir. Out of these 500 members in the choir 100 are men. Out of the 500 inhabitants that are not in the choir 300 are men. What is the probability that a randomly drawn man is a member of the choir? Please indicate the probability in percent.

- ☐ 10%
- ☐ 25%
- ☐ 40%
- ☐ None of the above: \_\_\_\_\_

27. Imagine we are throwing a loaded die (6 sides). The probability that the die shows a 6 is twice as high as the probability of each of the other numbers. On average, out of these 70 throws, about how many times would the die show the number 6?

- ☐ 20 out of 70 throws
- ☐ 23 out of 70 throws
- ☐ 35 out of 70 throws
- ☐ None of the above: \_\_\_\_\_

28. In a forest 20% of mushrooms are red, 50% brown and 30% white. A red mushroom is poisonous with a probability of 20%. A mushroom that is not red is poisonous with a probability of 5%. What is the probability that a poisonous mushroom in the forest is red?

- ☐ 4%
- ☐ 20%
- ☐ 50%
- ☐ None of the above: \_\_\_\_\_

Thank you for your participation so far! The following will be the last section of our survey.

In this section you will be presented with a few open-ended reasoning questions. Please state your answer in the space provided.

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

- ☐ Cents: \_\_\_\_\_

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

- ☐ Minutes: \_\_\_\_\_

31. 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?

- ☐ Days: \_\_\_\_\_

32. During the first part of this survey, which of the following was not measured?

- ☐ Profundity
- ☐ Ease of Understanding
- ☐ Persuasiveness

#### **Block 4**

Finally, we would like to know more about your personal background.

33. What gender do you identify as?

- ☐ Female
- ☐ Male
- ☐ Other

34. What is your age?

---

35. What is your current country of residence?

---

36. Which of the following best describes your educational background?

- ☐ Art
- ☐ Business
- ☐ Education
- ☐ Engineering
- ☐ Law
- ☐ Medicine
- ☐ Natural Sciences (biology, chemistry, etc.)
- ☐ Social Sciences (psychology, sociology, etc.)
- ☐ Other (please specify): \_\_\_\_\_

37. Please rate your level of familiarity with business articles (such as news articles and financial reports) and terminology.

- ☐ Very familiar
- ☐ Somewhat familiar
- ☐ Neither familiar nor unfamiliar
- ☐ Somewhat unfamiliar
- ☐ Very unfamiliar

38. Which of the following best describes your level of English language proficiency?

- ☐ Elementary proficiency
- ☐ Limited working proficiency
- ☐ Professional working proficiency
- ☐ Full professional proficiency
- ☐ Native or bilingual proficiency

39. To which of the following charities would you like us to make a donation on your behalf?

- ☐ Röda Korset (Red Cross)
- ☐ Cancerfonden (Swedish Cancer Society)
- ☐ SOS Barnbyar (SOS Children's Villages)

Note: This questionnaire was cut down for study 2 as elaborated on in section 3.5.2.

## Appendix F: Profundity ratings in study 1 and 2 on the item level

**Table F1**

*Means and Standard Deviation of all statements in study 1 and study 2*

Statements	Study 1			Study 2		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
<b>Bullshit<sup>a</sup></b>						
We still continue to appropriately pursue market-driven communities as a means to enhance customized e-services for our clients.	71	2.38	0.96	-	-	-
We distinctively maintain one-to-one data that enables us to re-intermediate cutting-edge models in this mature industry.	64	2.45	1.05	-	-	-
We aim to leverage existing e-business web services and furthermore revolutionize wireless architectures beyond current market capabilities.	75	2.87	1.08	185	2.71	1.04
We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations.	67	2.72	1.01	185	2.75	1.05
We project that we can assertively onboard cloud-centric core competencies and dramatically administrate compelling wins in our mission to orchestrate holistic synergies within our continuously evolving organization.	65	2.29	1.18	185	2.79	1.12
<b>Real<sup>b</sup></b>						
We are innovating across every layer of our differentiated technology stack and leading in key secular areas that are critical to our customers' success.	66	2.53	1.06	-	-	-
We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation.	67	2.42	1.02	185	2.46	1.00
We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain.	67	2.52	1.02	185	2.70	1.20
We will continue to actively market less strategic assets in an effort to high-grade our portfolio through value accretive divestments.	65	2.75	1.23	185	3.02	1.06
We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world.	75	2.65	0.97	-	-	-
<b>Traditional<sup>c</sup></b>						

We are in the midst of a self-aware blossoming of being that will align us with the nexus itself.	113	2.14	1.21	-	-	-
Consciousness is the growth of coherence, and of us.	113	2.59	1.24	-	-	-

---

*Note:*  $n$  varies for study 1 as every survey in study 1 ( $n = 113$ ) randomly displayed six out of ten total statements, as not every statement was tested in study 2 ( $n = 185$ ), some fields are blank

<sup>a</sup> Bullshit = randomly generated statements

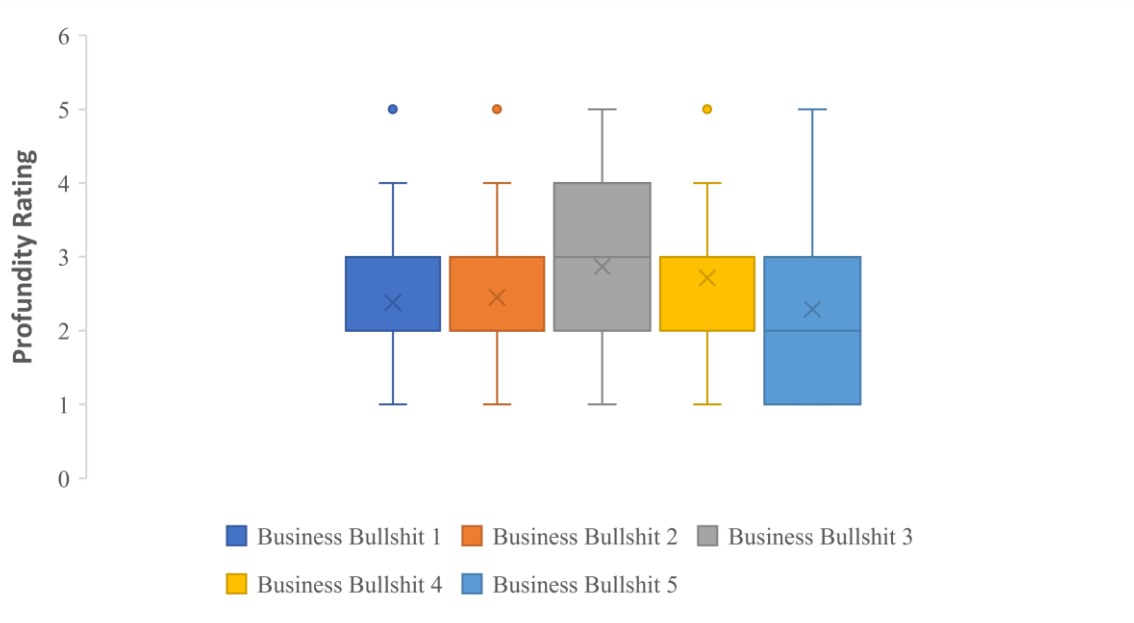
<sup>b</sup> Real = statements taken from real earnings reports

<sup>c</sup> Traditional = statements taken from Pennycook et al. (2015) for replication purposes

## Appendix G: Profundity and ease of understanding distributions for study 1 and 2

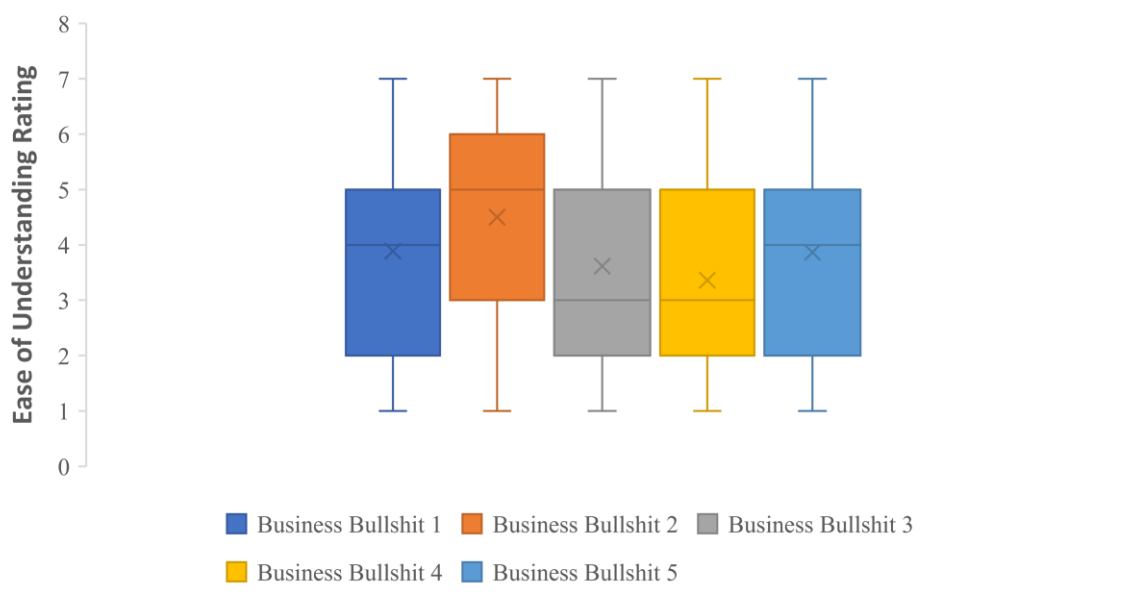
**Figure G1**

*Profundity Rating Distribution for Business Oriented Pseudo-Profound Bullshit Statements Study 1*



**Figure G2**

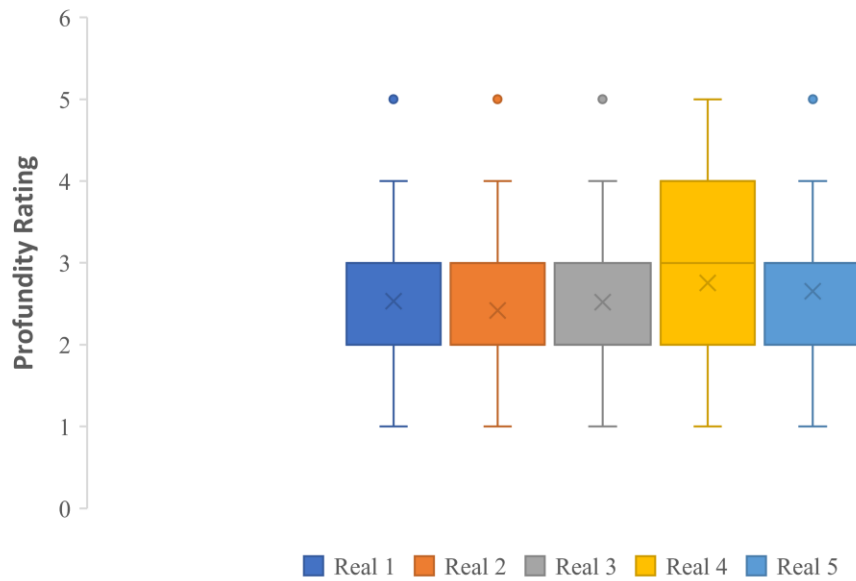
*Ease of Understanding Rating Distribution for Business Oriented Pseudo-Profound Bullshit Statements Study 1*





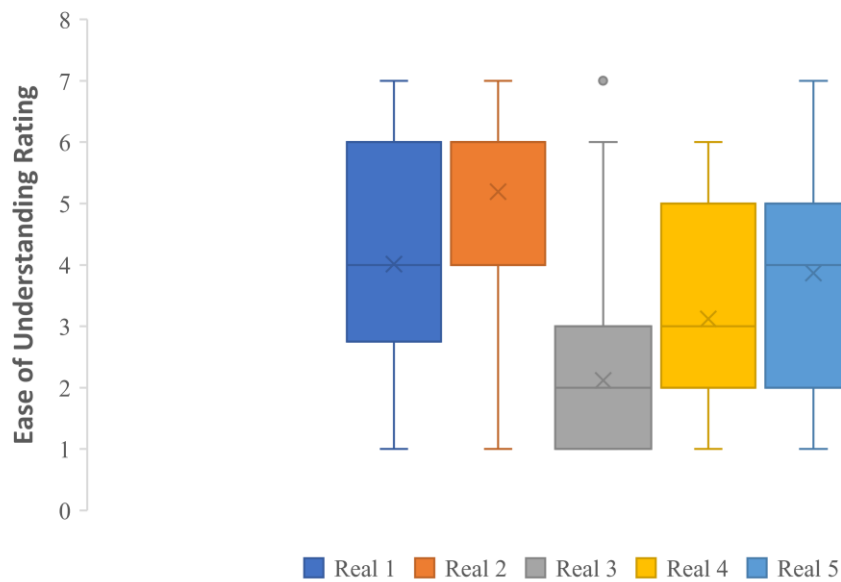
**Figure G3**

*Profundity Rating Distribution for Real Business Statements Study 1*



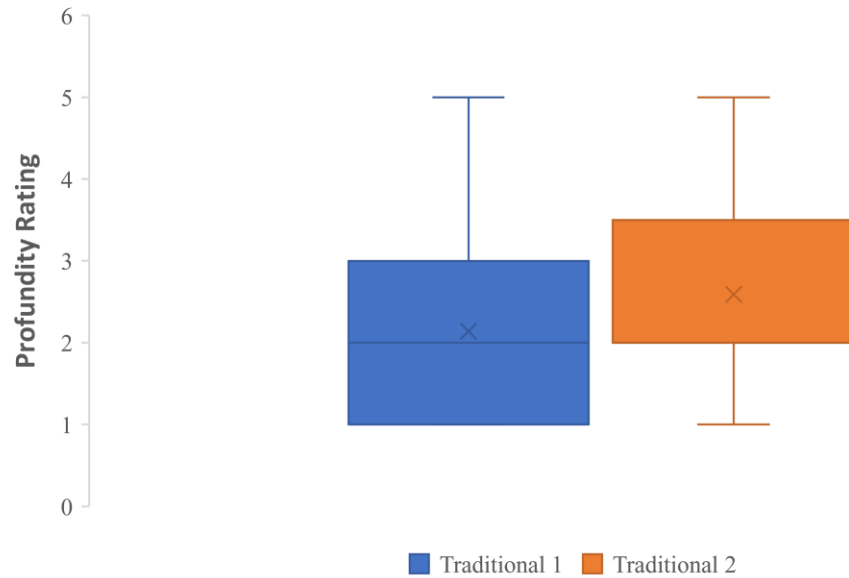
**Figure G4**

*Ease of Understanding Rating Distribution for Real Business Statements Study 1*



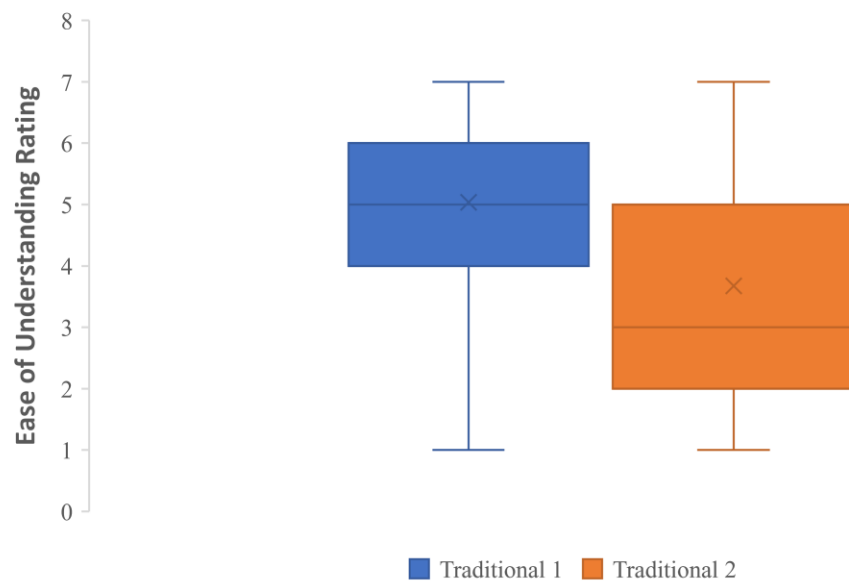
**Figure G5**

*Profundity Rating Distribution for Traditional Pseudo-Profound Statements Study 1*



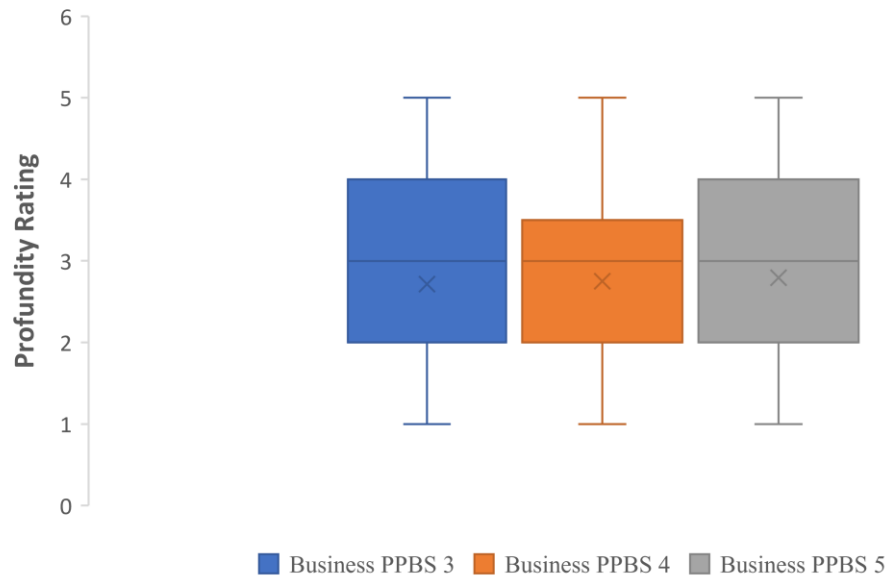
**Figure G6**

*Ease of Understanding Rating Distribution for Traditional Pseudo-Profound Statements Study 1*



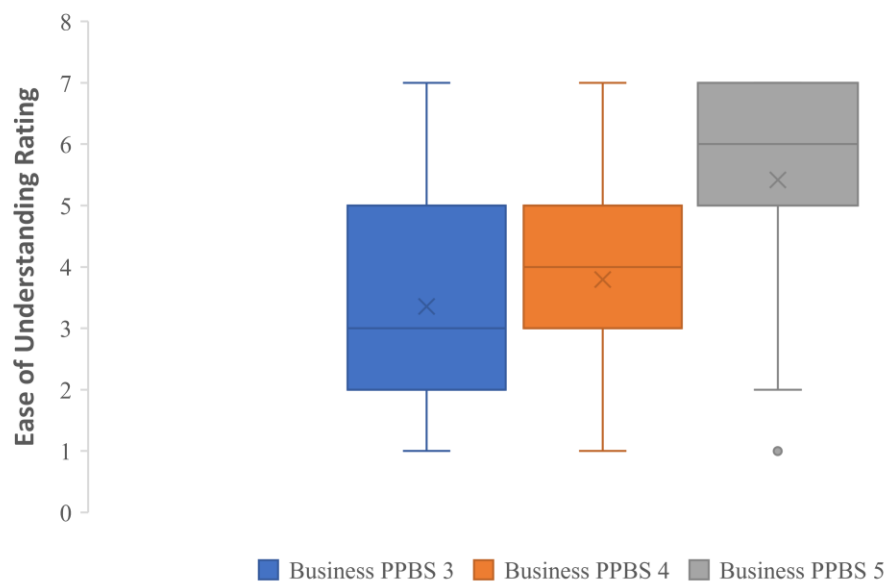
**Figure G7**

*Profundity Rating Distribution for Business Oriented Pseudo-Profound Bullshit Statements Study 2*



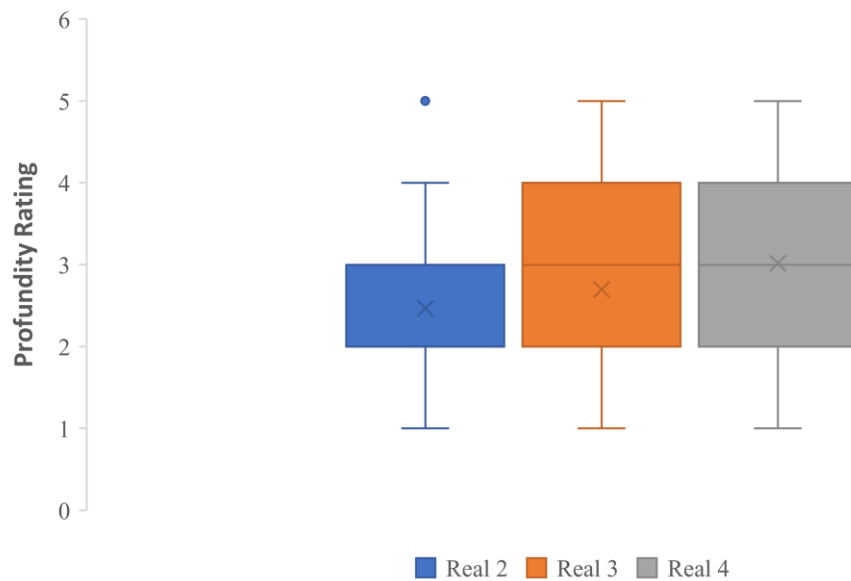
**Figure G8**

*Ease of Understanding Rating Distribution for Business Oriented Pseudo-Profound Bullshit Statements Study 2*



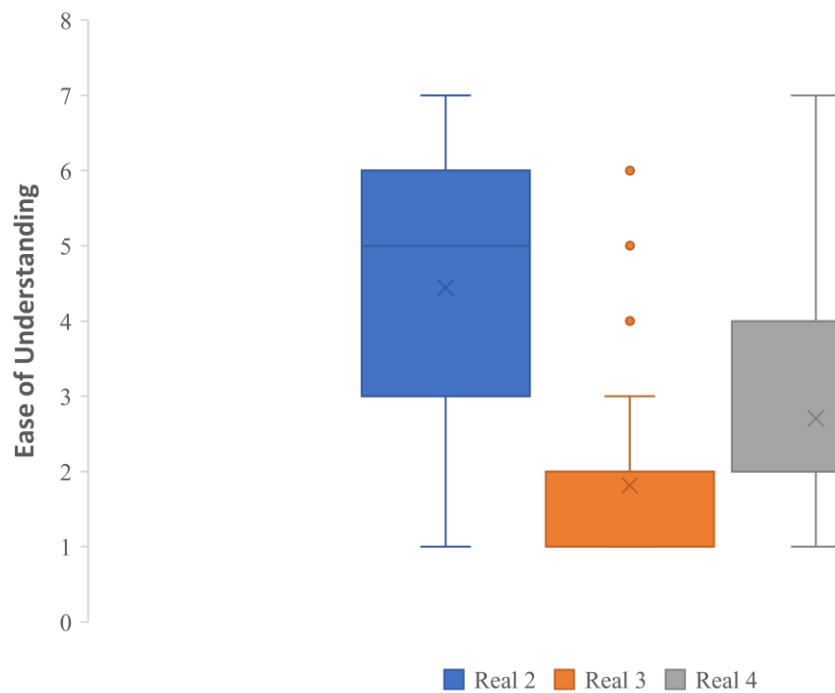
**Figure G9**

*Profundity Rating Distribution for Real Business Statements Study 2*



**Figure G10**

*Ease of Understanding Rating Distribution for Real Business Statements Study 2*



## Appendix H: Relevant correlations study 1

**Table H1**

*Correlation between real statements' and other statement's profundity in study 1*

	1	2	3	4	5	6	7
1 Bullshit profundity <sup>a</sup>	-						
2 Real 1 profundity <sup>b</sup>	.42**	-					
3 Real 2 profundity	.30*	.18	-				
4 Real 3 profundity	.31*	.44**	.30	-			
5 Real 4 profundity	.41**	.29	.07	.60**	-		
6 Real 5 profundity	.44**	.45**	.39*	.45**	.45**	-	
7 Traditional profundity <sup>c</sup>	.39**	.19	.31**	.12	.18	.18	-

*Note:* Due to low Cronbach's alphas of real statements, correlations are investigated on the item instead of the aggregate level.

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for real business statements on the item level

<sup>c</sup> profundity ratings for statements taken from Pennycook et al. (2015) for replication purposes

\*p<0.05. \*\*p<0.01.

**Table H2***Correlations study 1*

	1	2	3	4	5	6	7	8	9
1 Bullshit profundity	-								
2 Bullshit ease of understanding	-.12	-							
3 Traditional profundity	.39**	-.06	-						
4 Traditional ease of understanding	-.07	.50**	-.08	-					
5 Numeracy	-.05	.17	-.13	.08	-				
6 CRT	-.08	.09	-.15	-.14	.43**	-			
7 Business education <sup>a</sup>	-.04	.12	-.15	.24*	.02	.15	-		
8 Business familiarity <sup>b</sup>	.09	-.06	.20*	-.24**	-.03	-.04	-.62**	-	
9 English proficiency <sup>c</sup>	-.20*	-.08	.01	-.08	-.00	.18	.02	-.09	-

*Note:* Control statements' correlations are exempted for clarity reasons, but relevant results are instead presented in a separate correlation table in Appendix x.

<sup>a</sup> 1 = business education, 0 = no business education

<sup>b</sup> low values = high familiarity, high values = unfamiliar

<sup>c</sup> low values = low English proficiency, high values = high English proficiency

\*p<0.05. \*\*p<0.01.

## Appendix I: Relevant correlations study 2

**Table I1**

*Correlation between real statements' and pseudo-profound bullshit's profundity in study 2*

	1	2	3	4
1 Bullshit profundity <sup>a</sup>	-			
2 Real 2 profundity <sup>b</sup>	.46**	-		
3 Real 3 profundity	.30**	.14	-	
4 Real 4 profundity	.34**	.21**	.33**	-

*Note:* Due to low Cronbach's alphas of real statements, correlations are investigated on the item instead of the aggregate level.

<sup>a</sup> profundity ratings for business oriented pseudo-profound bullshit statements on the aggregate level

<sup>b</sup> profundity ratings for real business statements on the item level

\*p<0.05. \*\*p<0.01.

**Table I2**

*Correlations study 2*

	1	2	5	6	7	8
1 Bullshit profundity	-					
2 Bullshit ease of understanding	.25**	-				
5 Numeracy	-.20**	-.07	-			
6 Business field of work <sup>a</sup>	.07	-.01	-.11	-		
7 Business familiarity <sup>b</sup>	-.10	.02	.14	-.38**	-	
8 English proficiency <sup>c</sup>	-.26**	-.11	.06	.13	-.15*	-

<sup>a</sup> 1 = business field of work, 0 = no business field of work

<sup>b</sup> low values = high familiarity, high values = unfamiliar

<sup>c</sup> low values = low English proficiency, high values = high English proficiency

\*p<0.05. \*\*p<0.01.

## Appendix J: Correlations individual statements on fluency

**Table J1**

*Correlation between ease of understanding and profundity for study 1 (n = 113) on item level*

Statements	<i>r</i>	<i>df</i>	<i>p-value</i>
<b>Bullshit <sup>a</sup></b>			
We still continue to appropriately pursue market-driven communities as a means to enhance customized e-services for our clients.	-.04	69	.73
We distinctively maintain one-to-one data that enables us to re-intermediate cutting-edge models in this mature industry.	-.07	62	.56
We aim to leverage existing e-business web services and furthermore revolutionize wireless architectures beyond current market capabilities.	-.17	73	.16
We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations.	-.07	65	.56
We project that we can assertively onboard cloud-centric core competencies and dramatically administrate compelling wins in our mission to orchestrate holistic synergies within our continuously evolving organization.	-.23	63	.07
<b>Real <sup>b</sup></b>			
We are innovating across every layer of our differentiated technology stack and leading in key secular areas that are critical to our customers' success.	-.15	64	.24
We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation.	-.2	65	.11
We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain.	-.13	65	.29
We will continue to actively market less strategic assets in an effort to high-grade our portfolio through value accretive divestments.	-.2	63	.11
We intend to continue to build the most innovative products and solutions to unleash the potential of our digital world.	-.29*	73	.01
<b>Traditional <sup>c</sup></b>			
We are in the midst of a self-aware blossoming of being that will align us with the nexus itself.	-.05	111	.57
Consciousness is the growth of coherence, and of us.	-.14	111	.15

*Note:* reported correlation is between the profundity rating and ease of understanding of each individual statement



<sup>a</sup> randomly generated statements

<sup>b</sup> statements taken from real earnings reports

<sup>c</sup> statements taken from Pennycook et al. (2015) for replication purposes

\*p<0.05. \*\*p<0.01

**Table J2**

*Correlation between ease of understanding and profundity for study 2 (n = 185) on item level*

Statements	<i>r</i>	<i>df</i>	<i>p-value</i>
<b>Bullshit <sup>a</sup></b>			
We aim to leverage existing e-business web services and furthermore revolutionize wireless architectures beyond current market capabilities.	-.02	183	.78
We are committed to our plans to progressively engage timely markets, continually deploy B2B best practices, and continue to integrate wireless functionalities into our business operations.	-.04	183	.61
We project that we can assertively onboard cloud-centric core competencies and dramatically administrate compelling wins in our mission to orchestrate holistic synergies within our continuously evolving organization.	-.03	183	.65
<b>Real <sup>b</sup></b>			
We are also mindful of the changing industry landscape and believe that evolving our operating model will allow us to benefit from an even more intense focus on breakthrough science and innovation.	-.14	183	.07
We aim to make productivity as integral to our culture as innovation and to lead constructive disruption across the value chain.	.20	183	.00*
We will continue to actively market less strategic assets in an effort to high-grade our portfolio through value accretive divestments.	.00	183	.97

*Note:* reported correlation is between the profundity rating and ease of understanding of each individual statement

<sup>a</sup> randomly generated statements

<sup>b</sup> statements taken from real earnings reports

\*p<0.05. \*\*p<0.01

