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Predictive Factors of Bullshit Receptivity Among Adults

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Walden University

College of Psychology and Community Services

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Gregory Coffing

has been found to be complete and satisfactory in all respects,
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Walden University
2023

Abstract

Predictive Factors of Bullshit Receptivity Among Adults

by

Gregory Coffing

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

General Psychology

Walden University

May 2023

Abstract

Bullshit receptivity is a relatively new concept in the field of psychology and refers to people's susceptibility to providing meaning to meaningless claims. Ascribing meaning to meaningless claims is a way to make inaccurate judgments regarding the behaviors, events, and interactions around each person. The research on bullshit receptivity is scant. The purpose of this quantitative cross-sectional survey design study was to investigate whether critical thinking, individualism–collectivism, political ideology, religiosity, right-wing authoritarianism, social–dominance orientation, and need for closure predict bullshit receptivity. These variables were selected to represent a greater conglomeration of daily internal and external factors that affect a person's processing of data both to oneself and toward others. Kruglanski's lay epistemic theory was used as the backdrop for this study. Participants of this study were 167 English-speaking adults who completed an online survey and were recruited via Amazon Mechanical Turk. A stepwise multiple linear regression analysis was used to determine if the predictor variables or a subset of these variables predicted the criterion variable of bullshit receptivity. Results of this study indicated that critical thinking and vertical collectivism were significant predictors of bullshit receptivity. The results of this study have the potential implications for positive social change by raising awareness about how critical factors relate to bullshit receptivity. The potential to understand what makes individuals more receptive or resistant toward bullshit claims can help determine what factors contribute to falling for bullshit. Maintaining dialogue or engaging in open debates is difficult when people are not critical about evaluating statements.

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Chapter 1: Introduction to the Study

Introduction

Humanity is on the cusp of its own amelioration, if it can just get past its own bounded-rational interpretations to embrace a collective consciousness. What kind of statement is that? What does it mean? “In a modern, moral, and wealthy society, no person should be too poor to live. That’s what a just society means to me.” (Ocasio-Cortez, Justice Democrats, 2019). What kind of statement is that? “Your hardest days are the most important” (Hogg, 2019). “The Greatest Witch Hunt in the history of our Country!” (Trump, 2019). What kind of statements are any of these? By what standard would we make such a decision on how to label said statements?

Most casual observers of politics would agree that politicians lie (Edgar, 2013; Sowell, 2012). Lies are intentional (i.e., knowing a statement is untrue) acts. However, politicians also bullshit. *Bullshit* is distinguished from lies in that a lie is an intentional false statement designed to mislead away from perceived truth, bullshit is a statement that does not have any regard for the truth (Frankfurt, 2005); bullshit’s function is to convince without argument, to persuade without using claims that are not related to truth or falsity.

Bullshit, as originally defined by Frankfurt, has been reviewed and operationalized by Pennycook et al. (2015). In their study, Pennycook et al. examined how susceptible people are to believe in bullshit claims—that is, how quickly people provide meaning to meaningless claims. The authors did find that some people are more receptive to bullshit claims. In particular, people who tend to be more analytical and more educated were less receptive to bullshit claims contrasted to people who were less

educated and more intuitive. The research also showed that people's beliefs in the supernatural were also correlated with being receptive to bullshit claims.

A line of research that has gained recent attention regarding bullshit claims is the association with political ideology. Past research reviewing the correlations among political affiliation and thinking indicate that liberals and conservatives process information differently (Eidelman et al., 2012). Conservative political ideology is related to intuitive thinking (Kemmelmeier, 2010), need for cognitive closure, and low tolerance for ambiguity and avoidance of cognitive complexity (Jost et al., 2003). Such results show a diminished cognitive need with conservativism (Sargent, 2004). Additionally, Deppe et al. (2015) found that conservatives were dispositionally less reflective than liberals. Based on the association between cognitive styles and conservative political ideology, a similar relationship between susceptibility to bullshit claims and political ideology could be proposed. However, Kahan (2013) found no difference in cognitive reflective ability between conservatives and liberals. The assumption remains that susceptibility to bullshit claims is somewhat anchored in cognitive styles (see Pennycook et al., 2015).

Recent studies have linked intuitive cognitive style to religious beliefs (Shenhav et al., 2012). Analytical processing has been indicated to promote religious disbelief (Gervais & Norenzayan, 2012). Moreover, an analytical cognitive style is associated with lower acceptance of conventional religious beliefs (Pennycook et al., 2012). Expanding on the relationship found between cognitive style and religiosity, Pennycook et al. (2015) found religious beliefs as positively correlated with bullshit receptivity. As indicated

before, bullshit receptivity was associated with less analytical and more intuitive cognitive styles. People who score high on religious fundamentalism may avoid examining issues from more than a single perspective relying more on a less analytical type of thinking (Antonenko et al., 2013).

Other potentially relevant variables are right-wing authoritarianism (RWA) and social-dominance orientation (SDO), which account for most variance in personality and prejudice scores (Altemeyer, 2004). Altemeyer (1996; 2004) founded the concept of RWA. According to Altemeyer (2006), an authoritarian personality shows "a high degree of submission to the established, legitimate authorities in their society; high levels of aggression in the name of their authorities; and a high level of conventionalism" (p. 9). The theory of SDO was created by Pratto et al. (1994), who indicated that SDO refers to the belief that one's ingroup dominate and be superior to outgroups. The main tenets of this theory refer to the maintenance and stability of group-based social stratification. Two main concepts on dominance form the SDO: group-based dominance and opposition to equality. Opposition to equality reflects conventionalism in supporting the belief that social groups at the bottom of the social ladder should stay at that level. Group-based dominance supports the belief that groups should be organized in a hierarchical fashion; social groups at higher levels dominate lower-level groups.

Individuals high in RWA tend to be more deferent to traditional and moral norms, while those high in SDO tend to be more deferent to intergroup dominance and social stratification (Crawford, 2012). RWA and SDO are two concepts related to right-wing beliefs (Cornelis & Van Hiel, 2006). These beliefs have been associated with cognitive

rigidity and different cognitive styles, including the need for closure (Webster & Kruglanski, 1994) and a variety of information-processing styles (Jost et al., 2003). Cognitive rigidity may affect bias (Caparos et al., 2015). This cognitive style may be linked to bullshit receptivity.

Another variable that has not been studied in relation to bullshit claims, but which has had a significant impact on cross-cultural and multicultural relations, is individualism–collectivist value orientation. Individualism can be seen as a preference for self-reliance, competition, and emotional distance, whereas collectivism can be seen as a preference for interdependence, closeness to family, and sociability (Triandis, 1996). Levels of individualism/collectivism, with their corresponding characteristics, affect how individuals interpret perceptions of events, relations among people to other people and things, and individual roles. This individualistic/collectivistic base will affect how people process local and global perceptions (Caparos et al., 2012). Collectivism's interdependence may lead one to bypass their own critical thought in favor of the social norm to the collective that is to regulate social behavior; however, individualism leaves one less influenced by social pressures to conform to an opinion belief not one's own (Park et al., 2013).

The individualism/collectivism base is not fully a character base absolute; people may act differently in different contexts (Greif, 1994; Li & Aksoy, 2006). Notwithstanding social–contextual factors influencing behaviors associated with individualist versus collectivist value orientations, this value could be expected to moderate how much cognitive elaboration someone will invest when encountering

bullshit claims. For example, people high on individualism might prioritize independence of criteria in examining a particular claim, while valuing less social expectations to conform with a particular interpretation of the claim. On the other hand, a person with high collectivist orientation could be expected to be associated with a greater degree of conformity to group norms. Thus, in social context involving statements made by in-group members, persons high on collectivism are likely to be less interested in the falsifiability of the claim per se; the need to conform is likely to override any cognitive elaboration related to the examination of such claim.

In summary, the current literature on the susceptibility to pseudo-profound bullshit claims reveals some critical problems. Although relationships between susceptibility to pseudo-profound bullshit claims and cognitive styles, political ideology, and religiosity have been studied, such research is too limited to make any claims as to the significance of these early findings. Further research is needed to establish associations among these variables. The purpose of the study was to investigate how critical thinking, political ideology, religiosity, RWA, SDO, individualism–collectivism value orientation, and need for closure relate to seeing profoundness in bullshit statements. In this chapter, I present the background, problem statement, purpose, research question, theoretical foundation, and nature of the study.

Background

Frankfurt (2005) provided an initial account of the concept of bullshit. Frankfurt stated that a bullshit statement is made with no concern toward any relation to truth. In other words, a lie requires knowing or having an idea about the truth in order to lie about

it. A bullshitter, on the other hand, does not need to know about the truth, while trying to convey a message; the purpose of bullshit is to convince or get one to believe through ascribing meaning that has nothing to do with the veracity of what is bullshitted about. Pennycook et al. (2015) continued this line of thought, stating bullshit is not simply nonsense or not related to the truth, but has an element within it that is to imply truth. In other words, bullshit is to convince without logical argument, to get someone to believe something is true. Pennycook et al. studied how people ascribe meaning and profundity to bullshit statements. Results of their study showed how being more analytical and educated was related to not believing in bullshit, while showing a tendency to believe in the supernatural predisposed people toward believing in bullshit (Pennycook et al., 2015).

Research has been done reviewing political influences with different aspects of cognitive processing. For example, Sargent (2004) found conservatives have a diminished cognitive need, i.e., effortful thought, while Deppe et al. (2015) found conservatives were less dispositionally reflexive than liberals. Conservativism has been found to be related to higher levels of intuitive, quicker, and more heuristic-based thinking as well as low tolerance of cognitive ambiguity and complexity (Jost et al., 2003; Kemmelmeier, 2010). However, Kahan (2013) found no difference between liberals and conservatives in cognitive reflective ability. The degree to which mental resources are taxed can also affect how an individual perceives and believes information, with affective and/or cognitive beliefs echoes (unconscious/conscious prior value statements) also using mental resources in effortful review or processing of incongruent data, especially in the context of real-world situations and consequences, as well as

further affected by source cues (Gilbert et al., 1993; Goren et al., 2009; Thorson, 2016). In studying bullshit receptivity, Sterling et al (2016) showed Republicans overall and those who were more trusting in government regardless of political party tended to be more susceptible toward believing in bullshit.

In sum, Pennycook et al. (2015) showed that some people are more receptive to bullshit than others. For example, people who tend to be more analytical and more educated were less receptive to bullshit claims as contrasted to people who were less educated and more intuitive. People's beliefs in the supernatural were also correlated with being receptive to bullshit claims. This study attempts to identify other related variables that could be linked to bullshit receptivity. Thus, other potentially relevant variables included in this study are RWA and SDO. These two variables account for most variance in personality and prejudice scores (Altemeyer, 2004). Those high in RWA tend to be more deferent to traditional and moral norms, while those high in SDO tend to be more deferent to intergroup dominance and social stratification (Crawford, 2012). RWA and SDO are two concepts related to right-wing beliefs (Cornelis & Van Hiel, 2006). These beliefs have been associated with cognitive rigidity and different cognitive styles, including the need for closure (Webster & Kruglanski, 1994) and a variety of information-processing styles (Jost et al., 2003). Cognitive rigidity may affect bias (Caparos et al., 2015). This cognitive style may be linked to bullshit receptivity.

Another variable that has not been studied in relation to bullshit claims but has had a significant impact on cross-cultural and multicultural relations is individualism–collectivist value orientation. Individualism can be seen as a preference for self-reliance,

competition, and emotional distance, while collectivism can be seen as a preference for interdependence, closeness to family, and sociability (Triandis, 1996). Levels of individualism/collectivism, with their corresponding characteristics, affect how individuals interpret perceptions of events, relations among people to other people and things, and individual roles. This individualistic/collectivistic base will affect how people process local and global perceptions (Caparos et al., 2012). Collectivism's interdependence may lead one to bypass their own critical thought in favor of the social norm to the collective that is to regulate social behavior, while individualism leaves one less influenced by social pressures to conform to an opinion/belief not one's own (Park et al., 2013).

Last, need for closure is also expected to be related to bullshit receptivity. Cognitive closure is the preference toward an understood conclusion and a firm answer with minimal ambiguity (Kruglanski, 2004; Panno et al., 2018). The need for closure is described as a psychological need to avoid ambiguity and reduce uncertainty. Webster and Kruglanski (1994) identified five aspects related to need for closure. When there is a higher need for closure there is also the usage of less data for judgment, as well as using more prejudices to justify (reinforce) the position taken (Kruglanski, 1990). Additionally, those who have higher needs for cognitive closure also tend to seek those who share similar viewpoints, further strengthening the position taken (Kruglanski, 1990).

Statement of the Problem

Bullshit is problematic whether heard from someone else or something one tells oneself. Not having relation to the reality of the thing in question can leave one in a

position whereby moving closer toward the reality of a thing is only by coincidence, leaving one more susceptible to a manipulator (individual or group) who tries to position an agenda or a norm the individual may not fully embrace if the details were known. This manipulation can be from outside or self-directed, an unrealistic base for either pursuing an action or staying in one's tradition.

Frankfurt (2005) defined the original term bullshit. Though bullshit has synonyms and the concept has existed for a long time, its operationalization is recent and recently formally studied. Pennycook et al. (2015) studied Frankfurt's concept of bullshit but in different contexts; their study focused on the ways that people may bullshit themselves by ascribing profound meaning to meaningless statements. This concept of bullshit receptivity is new, and although relationships between receptivity to bullshit claims and cognitive styles, political ideology, and religiosity have been studied, there are few studies (Pennycook et al., 2015; Sterling et al., 2016). Further research is needed in establishing an association between these variables. Another shortcoming of the scant research available on this topic is that a number of potentially relevant variables—such RWA, SDO, need for closure, individualism-collectivism value orientation, and critical thinking—have not been considered.

Purpose of the Study

The purpose of this quantitative research study was to fill a gap in scholarly research by focusing specifically on the relationship of various factors to bullshit receptivity. Accordingly, the purpose of this study was to investigate the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and

individualism–collectivism value orientation predict bullshit receptivity among adults. The dependent variable in this study was bullshit receptivity and the predictor variables were critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure.

Research Question and Hypotheses

The research question and hypotheses that guided this study were:

RQ: Do critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure or a subset of these variables adequately predict, when in linear combination, bullshit receptivity among adults in the United States?

H_0: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure or a subset of these variables will not adequately predict bullshit receptivity among adults in the United States.

H_1: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure, or a subset of these variables will adequately predict bullshit receptivity among adults in the United States.

Theoretical Framework

Kruglanski's lay epistemic theory (1999) is presented as the foundation for understanding the relationship between the key variables in this study. In short, the theory attempts to explain how knowledge is developed. Knowledge, which is used

interchangeably with belief (when not tied to a specific/concrete), is key to how people understand themselves and the world. The difference between knowledge and belief is that knowledge is testable, while belief is not; for example, it was accepted that the sun went around the Earth and that humans had 48 chromosomes. People believed those claims as accepted knowledge from socially accepted authorities. Communications and interactions with others in social contexts draw from the knowledge of oneself and the social world. Although knowledge is surely influenced by shared beliefs (e.g., social and cultural norms, values, culture), its subjectivity has psychological relevance. The accuracy of the knowledge itself does not influence communications and actions with others, but belief does.

The concept of need for cognitive closure is particularly relevant for this study. Cognitive closure is the preference toward an understood conclusion and a firm answer with minimal ambiguity (Kruglanski, 2004; Panno et al., 2018). Bullshit statements have no regard for truth. However, the acceptance of bullshit statements may be explained by a high need for closure (Jost et al., 2003). Need for structure, which can be conceptualized as an individual difference variable but can also be influenced by social situational and group dynamics factors, is likely to be related to an abrupt stop to the hypothesis generation process involved in knowledge acquisition. Political ideology and religion are also likely to be associated with how social beliefs are developed. There is a growing number of studies that link a conservative political ideology and a fundamentalist religious orientation with a rigid cognitive style, a higher need for closure, and lower

need for cognition (Brandt & Reyna, 2010; Carraro et al., 2011; Hennes et al. 2012; Jost et al., 2007; Jost et al., 2016; Saroglou, 2002; Stern et al., 2013).

Nature of the Study

The purpose of this non-experimental, retrospective quantitative study was to examine the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and individualism–collectivism value orientation predict bullshit receptivity among adults. The instruments to measure the variables used Likert scales; the instrument to measure critical thinking was a fill-in-the-blank format. Likert scales have been used for objective measures since the 1930s (Hartley, 2013).

The target population was limited only by: (a) being legal majority; (b) being an English speaker (future research could include translations); and (c) being American (future research could include cross-country/national implementations). With the various variables involved, the method to analyze the data was multiple linear regression analysis. This type of regression analysis was used to test the hypotheses. Stepwise regression is typically used to maximize prediction and helps in determining which variable or set of variables have the greatest predictive power in a model (Tabachnick & Fidell, 2013). In this analytical approach, the bivariate associations of each predictor or independent variable with the criterion or dependent variable are explored, and the variable with the greatest predictive power is entered first. In a subsequent step, the rest of the predictors are examined for their incremental predictive validity, and the one that explains the most additional criterion variance is added to the model. Typically, multiple regression is used to explore the relationship between one continuous dependent variable

and a number of independent variables or predictors that are usually continuous (Pallant, 2005). In this study, bullshit receptivity was the continuous dependent variable, and political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and individualism–collectivism value orientation were the continuous independent or predictor variables. Multiple regression allows for a sophisticated exploration of the interrelationship among a set of variables. Chapter 3 has a more detailed review of the methodology.

Definition of Terms

Bullshit: A statement unrelated to truth and can be spoken by a speaker to a listener or as an individual's internal monologue/own mental processing (Frankfurt, 2005; Pennycook et al., 2015).

Critical thinking: The mental ability to process and review old and new concepts, as well as being able to take into the context those concepts experienced through a process of analyzing claims and evidence (Facione, 1990; Lai, 2011; Sternberg, 1986).

Individualism–collectivism orientation: A continuum for an individual with regard to the overriding value and influences in life; those who are more individualistic have higher degrees of self-reliance and competition instead of interdependence and sociability (Caparos et al., 2015; Park et al., 2013; Triandis, 1996).

Need for closure: A psychological need to avoid ambiguity and reduce uncertainty (Kruglanski, 2004; Panno et al., 2018); refers to people's preference toward an understood conclusion and a firm answer that generates minimal ambiguity.

Political ideology/orientation: Follows the classic left–right/liberal–conservative dimensions as an established system (Everett, 2013). Cognitive processing differences have been found in how people align themselves on the political spectrum (Eidelman et al., 2012; Scholz & Zuell, 2016).

Religiosity: Self-identification as to religion and how active a person is in their faith; a non-religious option will also be available, which similarly will have a range to show activity.

RWA and SDO: Both related to forming different types of in-group and out-group orientations and which one should be superior, though they differ in relation to tradition where RWA is toward tradition while SDO is more open to change, while still having hierarchies (Altemeyer, 2004; Crawford, 2012).

Significance

This study contributes to the newer operationally defined concept of bullshit. This study expanded on how various other well-reviewed factors contribute to bullshit receptivity. There is a long research history on the relevance of analytical skills, cognitive structure, and socioideological beliefs; a newer construct of bullshit is not well developed and its relevance is not as well known. The constructs of cognitive styles and political ideology have been identified. For example, showing a preference for a conservative political ideology has been linked to a higher need for closure and lower need for cognition (Carraro et al., 2011; Hennes et al., 2012; Jost et al., 2007; Jost et al., 2016; Stern et al., 2013).

Nonetheless, including the construct of bullshit receptivity provides an almost unexplored dimension. For example, Kruglanski's (1990) epistemic theory describes that the first step toward the acquisition of knowledge is the generation of hypotheses. The generation of hypotheses is continuous until a person finds closure. Those who score high on being receptive to bullshit may stop hypothesis generation early in the process, accepting statements without questioning their validity. The maintenance of order, civility, and justice within society depends on the ability to dialogue and communicate while evaluating each other's statements, whether it is an open society relaying and explaining options available and choices made or an authoritarian society with options given and orders to be obeyed (Kahan, 2013; Kruglanski, 1990). Maintaining dialogue or engaging in open debates is difficult when people are not critical about evaluating statements (Sperber, 2010). Thus, further exploring relationships between bullshit statements and relevant constructs, such as critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure, could advance the understanding of factors that can contribute to the development and maintenance of a just society.

Results of this study indicate that critical thinking and vertical collectivism affect receptivity to bullshit on their own, and this may have compounding effects. In a world that has quickly adapted to the internet and the resulting speed of information sharing, in addition to the expanded division in some areas (tribes/collectives being antagonistic) and the level of power given or taken by various groups or individuals in positions of

authority, it is quite important to see how one may fall for bullshit and how to be resistant against it. As Dietrich Bonnhoeffer stated (1997):

> Folly is a more dangerous enemy to the good than evil. One can protest against evil; it can be unmasked and, if need, be, prevented, by force. Evil always carries the seeds of its own destruction, as it makes people, at the least, uncomfortable. Against folly we have no defense. Neither protests nor force can touch it; reasoning is no use; facts that contradict personal preferences can simply be disbelieved—indeed, the fool can counter by criticizing them, and if they are undeniable, they can be pushed aside as trivial exceptions. So the fool, as distinct from the scoundrel, is completely self-satisfied; in fact, he can easily become dangerous, as it does not take much to make him aggressive. A fool must therefore be treated more cautiously than a scoundrel; we shall never again try to convince a fool by reason, for it is both useless and dangerous. (p. 8)

Assumptions and Limitations

This study was based on several assumptions. I assumed that all participants would complete the full surveys honestly and accurately to the best of their abilities. I also assumed that participants would have insight into the different factors that constituted the data collection.

One of the limitations of this study was the use of the internet and surveys to collect data. People who did not access the internet or those who were not related to Mechanical Turk (MTurk) were not represented. Finally, the main bullshit questionnaire Pennycook et al. (2015) created was about individuals seeing profundity in banal

statements but was not looking at specific bullshit statements from political discourse. Such a refined version of the bullshit questionnaire would be a valuable instrument to use to further check how bullshit relates to specific political ideas. A more refined study on political bullshit would require a revised version of the bullshit instrument.

Summary

Bullshit receptivity refers to people's susceptibility to providing meaning to meaningless claims. This is a relatively new concept in the field of psychology. The scant research on bullshit receptivity has been focused almost exclusively on cognitive style, political ideology, and religiosity. The purpose of this quantitative study was to investigate the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and individualism–collectivism value orientation predicted bullshit receptivity among adults. Participant data were collected through online surveys. The sample was drawn from a population of adults in the United States who had access to MTurk.

This introductory chapter provided a basic overview of the study. The following chapter presents a comprehensive review of the literature related to this study and a more in-depth description of the theoretical framework. Chapter 3 presents a review of the methodology, including the descriptions of the sample populations, procedures and instruments, and method of analysis.

Chapter 2: Literature Review

Introduction

Bullshit was initially defined as a statement not related to the truth and made to persuade without using claims that are either true or false (Frankfurt, 2005). Bullshit is distinguished from lies because lies are specific misdirection away from a perceived truth. Bullshit may or may not coincide with truth—the truth is irrelevant to a bullshit statement—and pairing with truth is coincidental, whereas a lie is an intentional redirection from a truth.

Many individuals in society recognize that politicians lie (Edgar, 2013; Sowell, 2012). But politicians also bullshit as do individuals in society recognized as politicians—and other authority figures. Bullshit is not limited to one group, class, profession, or social role. For example, as a formal field of study, propaganda (later relabeled *persuasion*) researchers have been reviewing the different examples of persuasion from different countries since the 1920s (Jowett & O'Donnell, 2014).

Pennycook et al. (2015) used Frankfurt's definition and operationalized it in their study on susceptibility to bullshit: how people ascribe meaning and profundity to bullshit claims. How people ascribe that meaning may or may not be related to truth inasmuch they may stop at their truth, which may include not a full review but enough to convince, to be satisfied with that ascribed meaning. Bullshit claims are meaningless, as the bullshitter provides not meaning but only persuasive tactics for the bulshittee to provide the meaning. One of the findings by Pennycook et al. was that those who are more analytical were less susceptible to bullshit.

Bullshit receptivity is a new concept in the field of psychology, and the research is scant. Variables of cognitive style, political ideology, and religiosity have been studied as related to bullshit (Pennycook et al., 2015; Sterling et al., 2016). Those variables are important and have been found to show strong relations to bullshit receptivity; however, there are other variables to consider in understanding individuals' receptivity to bullshit. The purpose this quantitative cross-sectional survey design study was to investigate whether critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure predict bullshit receptivity.

Bullshit and the variables that can contribute to its susceptibility are an important subject of study because of the prevalence of bullshit and its consequence of acceptance. If a population is potentially subject to malicious or unconscious manipulations of a bullshitter, bullshit is a concern for any society when combined with politics because politics is tied with legislation that involves governmental force for violations. In other words, the legal use of force from enforcement of laws by agents of the government could be directed by bullshitters upon bullshitees—or there could be no bullshit involved. The level of consequence for failing to be able to distinguish between the two provides an added reason for people needing to distinguish bullshit from argument, or regular talk, because punishment from the State could follow.

Understanding the factors that relate to bullshit receptivity has the potential to help understand why people are susceptible to bullshit. Scholars have argued that the maintenance of order, civility, and justice within U.S. society depends on citizens' ability to dialogue and communicate while evaluating each other's statements; this applies to

both an open society relaying and explaining options available and choices made and an authoritarian society with options given and orders to be obeyed (Kahan, 2013; Kruglanski, 1990). Maintaining dialogue or engaging in open debates is difficult when people are not critical about evaluating statements (Sperber, 2010). Thus, further exploring relationships between bullshit statements and relevant constructs such as critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure could advance understanding of factors that can contribute to the development and maintenance of a just society.

In this chapter, I provide a description of each variable under study and a description of the strategy used to collect the literature. The theoretical framework in this study is also presented. The outcome variable in this study is bullshit receptivity, while the predictor variables are critical thinking, political ideology, religiosity, RWA, SDO, need for closure, and individualism–collectivism value orientation. These topics are described in this chapter.

Literature Search Strategy

For more psychology-related databases, I used PsycInfo, PsycArticles, Sage, SocIndex, and SciDirect. For more general searches, I used Google Scholar and ProQuest. I also reviewed related books from my own library. One variable originally intended to be included was obedience to law, but I replaced it because the variable was not as well established as the others. I searched for the following terms together and separately: *bullshit, profound bullshit, individualism and collectivism, judgment, evolution, authority, RWA, SDO, politics, religion, obedience to law, critical thinking,*

perception, dogmatism, epistemic theory, evolutionary psychology, free will, and *determinism*. Lastly, many works were sources for further studies as each had a reference list that had multiple articles related in some aspect to one or more of the variables of interest.

Bullshit and bullshit receptivity are relevant concepts in this study, but research on this relatively new concept is scant. A search using *bullshit* as the sole search term revealed that PsychInfo had 20 articles, SocIndex had 15, and PsychArticles had no articles at all. Databases used that were not limited to psychological research revealed that Sage Journals had 943 entries, and Thoreau had 574,845 articles. Sage and Thoreau included articles that were not psychological studies but were reviews, essays, and other nonpsychological research or links to books that included a poem that had *bullshit* in the title. Even the psychological-related articles included the original work by Pennycook et al. (2015), as well as responses to it, and Pennycook et al.'s responses to those responses.

Theoretical Framework

Major Assumptions of Lay Epistemic Theory

The lay epistemic theory by Kuglanski (1999) served as the foundation for understanding the relationships between the various variables in this study. Summarized, lay epistemic theory tries to explain the development of knowledge. Knowledge and belief may be used interchangeably and is the key aspect in how people understand themselves and their place in the world. Context drives an understanding of oneself, the world, and one's communications and interactions. Knowledge is shaped through experience of the external world, but that phenomenological process leaves people with a

subjective, psychological experience of that external world. This phenomenological experience leaves individuals with subjective, and potentially inaccurate, knowledge of events and communications with others.

A key component of lay epistemic theory is the understanding of the epistemic functions of hypothesis generation and validation. “Hypotheses are validated on the basis of relevant evidence. Relevance, in turn, is determined by preexisting inference rules that, by the knower’s assumption, link together different cognitive categories” (Kruglanski, 1990, p. 181). There is a blending of heuristic top-down and systematic bottom-up processing methods involved with lay epistemic theory. Helping inform Krugalanski’s (1990) lay epistemic theory, Chaiken and Eagly (1989) defined systematic processing as comprehensive and analytic, whereby data are reviewed for relevance and application, and heuristic processing is less demanding and based on what is perceived, making quick judgments and inferences.

Humans seek out new knowledge continuously, but before one can make sense of any knowledge, it must be oriented in context (Kruglanski et al., 2009). In other words, new knowledge is to have a dialectical review—dialectic being the process of using reason and relations to get to the truth of a thing being reviewed (Hall, 1972). People, especially those who may speak in bullshit terms, may utilize metaphors. When those metaphors, or regular talk, are congruent with what one already believes or likes, it takes less mental resources to process; if there are incongruent or disliked metaphors or messages, more mental resources may be used. Additionally, if one is in a position of a minority belief/position, the perceived pressure of the group—or to belong—may

convince one to acquiesce (Asch, 1956). The influence of a supported idea by the group could also help receptivity to bullshit.

The concept of need for cognitive closure is particularly relevant for this study. Cognitive closure is the preference toward an understood conclusion and a firm answer, with minimal ambiguity (Kruglanski, 2004; Panno et al., 2018). The need for closure is described as a psychological need to avoid ambiguity and reduce uncertainty. Webster and Kruglanski (1994) identified five aspects related to need for closure. High need for closure is related to (a) a preference for order, (b) a discomfort with ambiguity, (c) a preference for predictability, (d) closed-mindedness, and (e) decisiveness. When there is a higher need for closure, there is also the usage of less data for judgment and using more prejudices to justify (reinforce) the position taken (Kruglanski, 1990). Additionally, those who have higher needs for cognitive closure also tend to seek those who share similar viewpoints, further strengthening the position taken (Kruglanski, 1990).

Need for closure increases the tribal, or group, mentality of *us versus them* (Kruglanski et al., 2006); those in groups support members toward a shared vision and dissuade or punish those who may go against that vision. Seizing and freezing are methods of cognitive closure whereby an individual seizes upon confirmatory information and freezes dis-confirmatory information (DeDreu et al., 1999; Kruglanski et al., 2006; Landau et al., 2014). A difference among social values was not found regarding the need for cognitive closure (DeDreu et al., 1999).

Prior Application of Lay Epistemic Theory

Lay epistemic theory and, particularly, the concept of need for closure has been studied and applied around the variables of this study. Need for closure refers to a need for certainty and predictability while using non-thorough cognitive processes, which tend to match previously held beliefs (Kruglanski, 2004; Kteily et al., 2017; Landau et al., 2014). People seize and freeze upon their topics of interest, becoming closed off to other non-confirmatory types of information (Kruglanski et al., 2006).

Need for closure has been studied around religion (Brandt & Reyna, 2010; Saroglou, 2002). Brandt and Reyna (2010) proposed that religious fundamentalism provides a sense of consistency and closure and conducted a series of studies and found an association between need for closure and fundamentalism. Saraglou (2002) tested the relationship between religiosity and need for closure and concluded that religious fundamentalism (religion considered in traditional terms) was associated with need for closure (particularly, need for order, need for predictability, discomfort with ambiguity, and closed-mindedness). In other words, the more fundamentalist a person may be, the higher the degree of preference for order and for predictability (Saroglou, 2002). Interestingly, results indicated that those who scored high on openness to spirituality–emotional religion were not associated with need for closure.

Need for closure has also been studied in relation to politics. Conservative ideology has been shown association with a higher need for closure when compared to liberal ideology (Crawford et al., 2015; Panno et al., 2018). Jost et al. (2003) linked cognitive functioning with conservative beliefs, stating that conservative ideology

appeals to those who want to preserve the status quo. Hence, conservatives show a higher need for closure to avoid and manage uncertainty (Jost et al., 2007). Right-wing political ideology has been linked to need for closure. Studies conducted in the United States (Ksiazkiewicz et al., 2016; Onraet et al., 2011) and in international contexts (Chirumbolo et al., 2004) consistently have demonstrated that individuals high in need for closure show an orientation toward RWA (Kugler et al., 2014). The concept of SDO has been studied in relation to need for closure. SDO has been linked to RWA through motivated social cognition (Jost et al., 2003). Both SDO and RWA are related to right-wing beliefs (Cornelis & Van Hiel, 2006), and both are related to conservative ideology and high levels of need for closure (Van Hiel et al., 2004).

Relevance of Lay Epistemic Theory to this Study

By definition, bullshit statements have no regard for truth (Frankfurt, 2005); yet the acceptance of these statements has implications for how people conduct behavior and communicate with each other. The acceptance of bullshit statements may be explained by a high need for closure (Jost et al., 2003). Need for structure, which can be conceptualized as an individual difference variable but can also be influenced by social situational and group dynamics factors, is likely to be related to an abrupt stop to the hypothesis generation process involved in knowledge acquisition. Political ideology and religion are also likely to be associated with how social beliefs are developed. There is a growing number of studies that link a conservative political ideology, RWA, SDO, and a fundamentalist religious orientation with a rigid cognitive style, a higher need for closure, and lower need for cognition (Jost et al., 2004). In the same line of reasoning, it can be

argued that individuals who are higher on collectivism (as opposed to individualism) are more susceptible to norm-conforming pressures and thus likely to accept knowledge based on social mores and/or authority figures of that particular group.

Literature Review

This literature review provided an overview and current trends in research concerning the variables included in this investigation: bullshit, political ideology, religiosity, RWA, SDO, and individualism-collectivism value orientation, and need for closure.

Bullshit

Bullshit is defined as "… in contrast to mere nonsense, is something that implies but does not contain adequate meaning or truth" (Pennycook et al., 2015, p. 549). Bullshit receptivity refers to how easily one finds meaning in pseudo-profound statements. Bullshit is not the same as lying. To lie is to know the truth of a thing, and to intentionally divert the receiver away from it. Lies know truth enough to deflect from it. Bullshit, however, may or may not have any relation to truth – truth is irrelevant to bullshit (Frankfurt, 2005). Bullshit is to convince without argument, but emotion – to get the responder to feel a way, not to think anything specific about the reality of a thing.

As a new concept for study, bullshit has not been reviewed much. Pennycook et al. (2015) work on bullshit receptivity formed the base for this study. They examined how susceptible people are to bullshit claims – how quickly people provide meaning to meaningless claims. In their study, they found there is a difference among individuals with respect to who are more receptive to bullshit. Factors that involved with how

resistant one was to bullshit included being more analytical and educated, while believing in the supernatural was correlated with being more receptive to bullshit. Additionally, Pennycook et al. (2015) found that bullshit may be believable because of people's tendency to believe that a thing is meaningful or true from the outset upon hearing it; and due to an inability to detect bullshit, resulting in considering a statement as being profound when the statement was vague.

On a subsequent study, Sterling et al. (2016) investigated if there was a political group that was more susceptible toward believing in bullshit. This susceptibility to bullshit was tested in a series of four experiments. What was found was that there was a tilt toward Republicans and to those who were more trusting in government. They were more susceptible toward believing in bullshit than those who endorsed a neoliberal, free market ideology. Pfattheicher and Schindler (2016) obtained similar results in a study in which people who held positive views toward Republican candidates in the 2016 U.S. presidential primaries showed high levels of acceptance of pseudo-profound bullshit statements.

Regardless of liberal or conservative political outset, there is a point which will affect either side. The issue remains that those less analytical and less logical are more susceptible to bullshit (Pennycook et al., 2016). A higher reliance on heuristic thinking is also associated with bullshit receptivity. An overreliance on traditional thinking helps heuristic processing but emphasizing an 'open-mindedness' could also make one more susceptible to bullshit – both may embrace a distorted, flawed, or simplistic way of thinking (Sterling et al., 2016). The aforementioned combines natural predisposition,

social upbringing, and learning styles as various influences on how susceptible people may be toward believing in bullshit.

Individualism and Collectivism

Individualism and collectivism are separate, multi-dimensional orientations regarding how a person places oneself within the society in which one lives, as well as how one is to live within and base judgments (Li & Aksoy, 2007; Triandis, 1995). Individualism can be seen as a preference for self-reliance, competition, and emotional distance, while collectivism can be seen as a preference for interdependence, closeness to family, and sociability (Triandis, 1996). There are contexts when people may act differently, showing that individualism and collectivism are not timeless, immutable traits (Li & Aksoy, 2006; Miller, 1999). One's culture does provide a base context from which to act from; specific variations/events/situations may arise that change how one perceives their individualistic/collectivistic base of behavior, but there is a penchant for one's normative behavior that the contexts may deviate. Triandis (1996) refers to a 'cultural syndrome' whereby "…shared attitudes, beliefs, norms, role and self-definitions, and values of members of each culture that are organized around a theme" (p. 407). For example, it is well documented that there is tendency for Western individuals to be more individualistic while Eastern individuals are more collectivistic (Park et al., 2013). Individualistic cultures have clearer and more consistent preferences and make choices easier than collectivist cultures (Park et al., 2013).

Individualism emphasizes more belief in self-direction, as well as a penchant for hedonism, while collectivism emphasizes security and conformity (Triandis, 1996).

Triandis (1995) created a scale to measure the concepts of individualism and collectivism. The original scale is divided into four types: horizontal individualism (HI), which people see themselves as equal and independent of others; vertical individualism (VI), which people see themselves as unequal with, and still independent of others; horizontal collectivism (HC), which people see themselves as equal and interdependent; vertical collectivism (VC), which people see themselves as unequal, yet interdependent.

Though there have been some tests that reviewed the four-branched system that Triandis had created, the reviewers still found that overall the I-C model was superior to other models tested for validity and predictability (Li & Aksoy, 2007). It was found that there may not have been significant correlations between the HI & VC. Nonetheless, there were significant correlations between HC and VC, as well as HI and VI; a modified instrument was created which further buttressed the validity of the I-C scale (Li & Aksoy, 2007).

Additionally, Li and Aksoy (2007) found that there are also contextual considerations in how individualistic or collectivistic an individual may be: an individualist may be collectivistic, and a collectivist may be individualistic under the proper circumstances. This switch is directed when there is a clash of values requiring an individual to change a course of action which may include the I-C focus. For example, one who lives in a collectivist society may decide that one's family or pursuit of art may be deemed more important that the perceived collective judgment, or one who lives in an individualistic society may defer to a collective judgment on a topic that one does not know well.

Gender and ethnicity are obvious and easily recognizable factors for early collectivism, but they do not last as a main collectivistic base. Though gender and ethnicity may continue to play a contributing factor, other factors take precedent in dealing with one another individually, even when recognized as part of a group, such as having shared beliefs, language, or culture (Bloom, 2013; Dembo et al., 2007; Esqueda et al., 2008; Raaijmakers et al., 2005; Sargent, 2004). Each factor gives some degree of group membership, but the strongest ones are those that are more chosen and worked toward, instead of being as based in chance: i.e., religion or politics over gender and ethnicity. Stronger factors are those one has more choice in membership such as religion or politics, over weaker factors such as gender and ethnicity in which one has less or no choice in membership.

Society can provide a general base from which one gets an understanding of relationships and roles; the family can provide a more specific and detailed review of roles. This will include helping shape how individualistic or collectivistic one may be, and in what contexts. There are formal and informal groups that an individual may belong to in a society, and the group provides support, a shared vision, and a sociopsychological context to live (Pratto, et al., 2000; Ratner, 2000). Each individual has a biased base from which they perceive and understand information from the environment. In general, collectivistic individuals have formal or informal systems of correcting members who deviate from the group's norm (Kahan, 2013). Collectives have not only their norms at stake, but also the basis for understanding their norms at risk when a counter point is given too much of a voice. The collective came to be as it is

based upon a consensus of what works for the group and following the group means a benefit for all those in that society (Sperber, 2010). Collective groups settle on decisions in a time frame that takes longer than individualistic societies as the decision structure must be more coherent to the members (Park, Choi et al., 2013).

To understand the concepts of individualism and collectivism, culture must be briefly reviewed. There are individualistic and collectivistic societies that typically follow Western and Eastern traditional differences. What must be taken into consideration is that culture is not limited to a society only, and people do not just act individually or collectively as an absolute character trait (Greif, 1994; Li & Aksoy, 2006). There are three levels which form a culture: universal, intermediate, and proximal (Oyserman, 2015). People can form localized groups within their larger groups from which they act more individualistically or collectivistically. Collectivist mindsets are more apt to process info in manners that match the perceived collective's set borders (Oyserman, 2016).

Culture and Cognitive Differences

As aforementioned, Western societies tend to be more individualistic, while Eastern societies tend to be more collectivistic. This division between more individualistic Western, and more collectivistic Eastern societies can be traced back millennia (Nisbett et al., 2001). Such long-term division could assist in creating greater genotypic, phenotypic, and meme variation, which will be reviewed more in Chapter 5. In this section, the focus will be on what cognitive processing differences that may emerge between more individualist and more collectivistic societies, and how it may relate to being susceptible to bullshit.

Culture provides the schema for how members are to understand the world and act within it (Oyserman, 2015). People within a culture are taught vertically (parent to child), horizontally (peer to peer), and obliquely (non-parental elder to younger) (Alesina & Giulano, 2015). Combining the two prior statements, and what emerges is from a member's beginning in a culture, they are inculcated on multiple fronts into various patterns established within the culture for proper behavior. This has an effect upon mental processes, for the understanding of one's own, as well others in society, and individualist members as well as collectivistic members may see the same stimulus, but understand and respond to it quite differently (Nisbett et al., 2001).

This difference in understanding comes from the differences in thought processes between individualistic and collectivistic cultures. Western/individualistic cultures tend to be more analytical, while Eastern/collectivistic cultures tend to be more holistic (Doherty et al., 2008; Nisbett et al., 2001; Oh, 2013; Varnum et al., 2010); analytical is more logic-based, while holistic is more relationally based. These norms and cognitive bases have been around for millennia in their respective cultures (Nisbett et al., 2001). In addition, there are types of conformity. The extent and contexts by which a person may conform was originally studied by Asch (1956). The dual-process theory of conformity (normative and informational) created by Deutsch and Gerard in 1955, continues to be used when finding results that show between the two types of conformity, group pressures may affect normative conformity, but not informational conformity (Oh, 2013). Newer conformity theories break from the normative and informational, including a three-aspect theory of persuasion, authority, and coercion (Turner, 2005).

Returning to Frankfurt's (2005) original definition of bullshit, and the operationalization by Pennycook et al. (2015), bullshit is claims without relevance to any truth, which can be done from a speaker to a listener or by a listener to a speaker, by providing meaning beyond what is actually stated. Pennycook et al. (2015) also found that the more analytical one may be, the less susceptible to bullshit one is. However, when reviewing bullshit to political beliefs, Sterling et al. (2016) found that though conservatives have higher intuitive processing, liberal open-mindedness could also lead to bullshit receptivity, and both could be affected by simplistic and distorted thinking. The political divisions are relevant as they are one part of the three-tiered levels of culture (Oyserman, 2015), through which members could be more conforming. Cultures can evolve, adapt and change when better explanations for events can be seen elsewhere (Gastil et al., 2016). Gastil et al. (2016) also found that when there is agreement amongst groups, they are salient with one another. These two points highlight the potential use of bullshit: to avoid the potential amelioration through truthful understanding, those in power (granted legitimate authority by a formal or informal collective) can use bullshit to sway a populace to an end. This end need not be maliciously manipulative, but can be sincerely held, which, nonetheless, does not take away from the nature of bullshit to treat truth as irrelevant, while trying to convince.

Right-Wing Authoritarianism and Social-Dominance Orientation

Those high in RWA have a combination of being submissive to those they deem as authorities, become aggressive to those they see the authorities be aggressive toward, and are conventional (Altemeyer, 2004; Lee et al., 2010). In addition, those high in RWA

(as an extension of being conventional) follow the religion they were raised with and attend church regularly (Altemeyer, 2004). RWA is focused more toward socio-cultural issues (Crawford, 2012). Violating those cultural issues makes those high in RWA more amenable to punishment, including of Human-rights and Civil-liberties (HR-CL; Swami, et al., 2012).

Those high in SDO have a preference to have their in-group be dominant and held in a superior position toward others (Pratto et al., 1994). Though those with SDO tendencies may speak of equality, those with higher SDO scores disregard such ideas as equality (Altemeyer, 2004). If the in-group is not in power, high SDO seeks to have power while lower SDO seeks to reduce inequality (Pratto et al., 1994). SDO goes along with following a hierarchy, but with an openness to change (Lee et al., 2010). This contrasts to the traditionalism of RWA. Additionally, SDO is focused more toward economic and status issues (Crawford, 2012).

Crawford (2012) found that the focus of some traits deemed a right-wing trait were also found in the left-wing. In addition, Van Hiel et al. (2006) found shared traits among LWA and RWA, though RWA was more generalized within a population while LWA was stronger within extremist sections or groups. Although groups may have different ideologies, they both can be similar in how they are authoritarian (McFarland et al., 1992).

In addition, social dominance is not a trait associated with only a specific political orientation with respect to the ‘left or right’ inasmuch that SDO is about hierarchy, dominance, and submission; the difference is who does what and for what reason. RWA

is more toward traditionalism, and SDO is similar with the exception that it does not lend itself to following tradition. Both in RWA and SDO, those with high scores see imposition of order upon the other as needed, even if the other does not want it – a moral gray area (Altemeyer, 2004). Those high in SDO may or may not have RWA tendencies and if the SDO has control over a system, may submit to it and the new traditions it holds (Altemeyer, 1996).

Cognitive Differences

Kemmelmeier (2010) found both right and left, of which authoritarianism is strongly linked to intuitive, heuristic-based thinking, along with rigidity and a high need for closure. Authoritarians are more punitive (Altemeyer & Hunsberger 1992). A higher need for closure has been found to be linked toward social conservatism, but not economic conservatism (Panno et al., 2018). Authoritarianism is a closed system that has absolute beliefs and reinforces itself (Rokeach, 1954). The need for closure can have an effect upon group behavior, pressing members to opinion uniformity with in-group/out-group divisions enforced, and autocratic tendencies within (Kruglanski et al., 2006). In addition, closure can be either specific, or nonspecific, which is to say pragmatic for a context or situation, or for general knowledge; cognitive closure keeps things known and predictable (Kruglanski, 1990).

Political Orientation

Political orientation comes with an array of problems with respect to definitions. First off, the ends of a continuum must be defined: should they be left/right, or liberal/conservative? After those labels have been settled upon, the next question

emerges, what exactly is it to be left/right, liberal/conservative, or whatever other labels are used? Though needing clarification, one of the versions shall still be used. Across studies they tend to use right = conservative, and left = liberal. Those who tend to be more toward being between the left and right have been found to truly centrist, or not be as active politically (Scholz & Zuell, 2016).

The left-right or liberal-conservative dimensions have been the primary method of classifying political values (Everett, 2013). Conservatism is more directed toward one's locality while comparing globally (Caparos et al., 2015), trust toward government, (Browne et al., 2015), against centralized redistribution to the people and for greater homogeneity (De Vries et al., 2013), and a preference toward tradition and traditional roles (Altemeyer & Hunsberger 1992). Liberalism is more directed toward a more global preference over more local considerations (Caparos et al., 2015), more for a centralized redistribution to the people and for greater heterogeneity (De Vries et al., 2013), and a preference toward non-traditional roles and an openness to ideas or concepts that are outside of traditional norms (Caparos et al., 2015; Lee et al., 2010).

RWA and SDO mentioned earlier have some connection to conservativism and liberalism. However, the connection is indirect (Everett, 2013). The connection is also not one-sided. RWA, true to its name, focuses on 'the right' which is associated with conservatism and an intolerance for change; however, intolerance was found not to be a trait of one side and that liberals could be as, if not more, intolerant than conservatives (Crawford & Pilanski, 2014).

Finally, in regard to what not to include, there has been research showing brain structure and functioning as part of what forms a liberal or conservative political inclination (Amodio et al., 2007; Kanai et al., 2011). For example, Amodio et al. (2007) found larger insulas associated with conservatism. However, as brain scans would require different testing to review, they will not be considered in this study.

Liberal and conservative are too simplistic to properly explain political ideology (Conover & Feldman, 1981). In creating a new scale, Everett (2013) stressed the point that there is to be a consideration between two types of liberal-conservative positions: there is the social, and there is the economic positions. Specifically, Everett states "A useful distinction can be drawn between social and economic conservatism: individuals (and political parties) can be differentially placed on social and economic dimensions, such that it is possible to be economically conservative and socially liberal (as with some libertarians), or socially conservative and economically liberal (as with some populists) (p. 1)." With such a distinction, a clearer vision of what is conservative and liberal, and in what sense, can be made as, for example, one who claims to be conservative and has in mind that label was implicit in regard to economic – not social – policies while leaving the listener to infer nothing of limiting to economic policies only as the more umbrella term of 'conservative' was used. Dividing the labels further enables better clarity of actual political positioning.

Critical Thinking

There have been multiple approaches to understanding critical thinking: the philosophical approach, the cognitive psychology approach, and the educational approach

(Lai, 2011; Sternberg, 1986). What these various approaches, and what has been found across studies are the following traits of critical thinking can be summarized: it is the mental processes and strategies used to solve problems and learn new concepts, it is purposeful and self-regulatory as well as inferential and contextual, for analyzing arguments, claims, and evidence (Facione, 1990; Halpern, 1998; Lai, 2011; Sternberg, 1986). Key points among the summarized definition are: self-regulatory, contextual, and analytical, for it is the individual perceiving and judging whether or not to question and further analyze or abdicate judgment and follow.

Bonnefon (2018) noted how closely tied critical thinking is to System 2 processing in Dual-Process Theory (DPT) in cognition. DPT in cognition deals with the two different types of mental processes of perception. There is type/System 1 processing which is intuitive, fast and unconscious, low-effort, and heuristic based; there is type/System 2 processing which is deliberative and logical, slow and conscious, high-effort and reason based (Gervais & Norenzayan, 2012; Kahan, 2013; Norman, 2009; Pennycook et al., 2015).

Further breaking down the components of critical thinking is needed for clarification. Facione et al. (1998) summarized critical thinking as: 1) interpretation, which is categorization, decoding, and clarifying, 2) analysis, which is examining, identifying, and analyzing, 3) evaluation, which is assessing, 4) inferences, which is querying, conjecturing, and drawing conclusions, 5) explanation, which is summarizing, justifying, and defending, 6) self-regulation, which is self-examination and self-correction. Some of these components blend or cross-over into one another, such as

interpretation, analysis, evaluation, and inferences can be grouped into a broader category of analytic thought. Some of these components can be further reviewed.

Analytic thought is not only not intuitive, but is counterintuitive for intuition follows what one already knows and expects (Pennycook et al., 2012). Analytic thought either is to try and understand something new, or to see something known in a new way or perspective. “Self-regulation is a multifaceted phenomenon operating through a number of subsidiary cognitive processes including self-monitoring, standard setting, evaluative judgment, self-appraisal, and affective self-reaction” (Bandura, 1991, p. 282). Contexts are when the points for review have aspects to them which show them to not share the same characteristics, or have the same characteristics applied to them as contrasted to when more commonalities exist (Boquet et al., 2004).

Combining the three facets as stated above (analytic thought, self-regulation, and context) from the fuller definition provided by Facione (1990) is trimmed and combined with System 2 processing from DPT, to get an individual who is not only capable but is active in controlling one’s own impulses, to get the necessary information and how it relates to others, even – and especially if – it goes against what one already believed. This summarized definition of the three aforementioned components along with System 2 processing from DPT will serve the purpose of this paper.

It is a false dichotomy to say that people are either System 1 processors or System 2 processors in DPT, as people use both, and both types can be subject to biases (Croskerry, 2009; Norman, 2009). But people do tend to favor one over the other. With the focus on critical thinking/System 2 in DPT, there are key characteristics and

behaviors one engaging in critical thinking be or perform. A critical thinker is inquisitive, trustful of reason, and open-minded (Facione, 1990). Critical thinkers also are willing to persist and plan, while not being impulsive, and willing to abandon the non-productive strategies (Croskerry, 2009). Croskerry (2009) summed up a key aspect of critical thinking with 'metacognition' which is to say 'how do we know what we know'?

Critical thinking is to be contrasted against abdicating to normative behavior. This is not a dichotomous division; to make it so would be a false dichotomy. However, though not dichotomous, there is where one may place more weight/value toward one or the other. For example, one who may normally not listen to any authority figure issue orders during daily life, may quickly follow orders from an authority figure during a time of crisis (e.g. will abdicate to obeying a firefighter during a fire). Collectives (therefore any society) is made of individuals. Individuals have shared interests and values and form various types of collectives (formal and informal); collectives both adopt and dictate normative behaviors.

As mentioned earlier, the behavior of people can be influenced by contextual factors (Greif, 1994; Li & Aksoy, 2006). In addition, authority figures may further affect the understanding of a given context (Sperber, 2010). Within that system where one is affected by the context and authorities, there is still the cultural base from which events and ideas are judged. Authority in a culture is granted for a key aspect of culture is the willingness to defer judgment and accept as a binding decision of those one deems as legitimate authorities (Hibbing & Alford, 2004). The more complex a society, the more

there will for one to defer judgment for one's mental resources and awareness will only extend so far.

In addition, in various scenarios humankind can be seen to not act in otherwise more rational ways (Sunstein, 1996). The Ultimatum game is a well-documented example of strict rationality not being implemented. People have motivated reasoning. Whether it is toward skepticism toward another individual, idea, or policy, or with confirmation bias toward another individual, idea, or policy. Motivated skeptics look for reasons not to believe (Taber & Lodge, 2006). Those enacting confirmation bias seek out the facets of a thing to justify a belief (Sperber, 2010). The range includes obsequious acceptance to uncritical and hostile rejection (Kohn, 1972). This affects all in a society, from laymen to the experts (Triandis, 1996).

However, it has also been found that cognitive style is secondary to cognitive ability (Razmyar & Reeve, 2013). In addition, when considering whether one is more analytical or intuitive in mental processing, it is that person's default mode of processing, but that does not mean that they cannot access the other style, or blend when needed (Razmyar & Reeve, 2013). Dawkins (2008) observed that people tend toward a belief system that matches their cognitive complexity.

When processing data taken in through perceptions or reviewing existing mental constructs with other constructs or perceptions, there are the options of critical thinking or heuristics. Crawford (2012) describes the cognitive styles: type 1) intuitive, fast, unconscious (like heuristics); type 2) time-consuming, deliberative, and requiring

conscious effort. There is context, and there is a base: is one more prone to critically review data, or intuitively process?

Religiosity

Religious orientation is kept as a variable for study, for unlike other categories such as race and sex, religious orientation is a mental model that is embraced or rejected from more cultural and mental influences, not a factor as heavily influenced by biological or genetic influences. Religiosity is a complex concept and its definition can vary according to the field studying it, and how that field isolates or blends the concept (Holdcroft, 2006). Though a complex concept, it can be reduced and tested through three dimensions: organizational religious activity, non-organizational religious activity, and intrinsic/subjective religiosity (Koenig & Büssing, 2010). Though expressions of various religious faiths exist, the general openness of the practices enables various religions to be included, with the needed modifications being terminological – that is changing terms like bible and church to koran and mosque, for the respective cultures, and so forth (Koenig & Büssing, 2010). Religiosity can exert a strong presence in an individual's life both internally (sense of meaning and purpose, base for understanding), as well as externally (social support) (Park, 2007).

As mentioned beforehand, there has been a relation seen between cognitive style (analytical or intuitive) and religious beliefs, and how they are maintained (Gervais & Norenzayan, 2012; Pennycook et al., 2012; Razmyar & Reeve, 2013; Shenhav et al., 2012). In particular, Pennycook et al. (2012) found that an analytical cognitive style was negatively related to a belief in the supernatural, regardless of demographics (sex or age),

as well as religious engagement or political beliefs. Furthermore, Pennycook et al. (2012) found that analytical cognitive style is related to less conventional types of god that may be believed. Justification in a supernatural belief, expected supernatural laws are held onto through a confirmation bias whereby anecdotal evidence of incomplete phenomena may be used to outweigh any potential contradictory evidence (Halpern, 1998).

People tend to believe in a god, by granting causation and meaning, anthropomorphizing things and events in existence (Shenhav et al., 2012). Some people are more of a rational capability in their mental processes, and those people tend to be less religious (Pennycook et al., 2012). However, it has also been found that people can be influenced to be prompted toward more intuitive or more analytical thought processes, though the effect is short-term on the primed intuitive or analytical processing (Razmyar & Reeve, 2013; Shenhav et al., 2012). In their initial bullshit study, Pennycook et al. (2015) indicated that those who hold religious and paranormal beliefs are more receptive to bullshit statements. At present, this is the only study that tested the relationship between religious beliefs and bullshit statements.

Need for Closure

A low tolerance for ambiguity, as well as a preference for a firm and understood answer are facets of cognitive closure (Kruglanski, 2004; Panno et al., 2018). The psychological need for avoiding ambiguity and uncertainty reduction is one's need for closure. Need for closure can be socially reinforced and be reinforcing as those who have a similar need for closure tend to group together (Kruglanski, 1990). Additionally, Kruglanski (1990) found that need for closure was more akin to bias usage, in that less

data is considered in making a judgment and more preconceived notions are used. Jost et al. (2003) found that need for closure is associated with conservative beliefs, which involves a tendency to favor the *status quo*.

Summary and Conclusion

Bullshit is a factor in communication and mental processing not only from the speaker's/initiator's origination, but also the listener/receiver. Bullshit is what is said, as well as what is believed [rationalized]. Bullshit, additionally, is to imply truth while not actually having anything to do with truth (Pennycook et al., 2015). However, bullshit is also not a lie (Frankfurt, 2005). Bullshit is what we tell others or ourselves when we try to convince ourselves or others, without argument or evidence.

In their study, Pennycook et al. (2015) found that some are more receptive to believing in bullshit than others. In particular, those more receptive to bullshit are those who are less-analytical, and less-educated. DPT has – true to its name – dual cognitive processing; System 1 is automatic, unconscious, low-mental effortful, and heuristic-based; System 2 is deliberative, conscious, high-mental effortful, and reason-based based (Gervais & Norenzayan, 2012; Kahan, 2013; Norman, 2009; Pennycook et al., 2015). With the two systems available, those who are more active in System 2 processing should have a higher resilience against believing in bullshit. Critical thinking is closely tied to DPT System 2 (Bonnefon, 2018). In addition, religiosity was also found by Pennycook et al. to be related to bullshit receptivity: religious beliefs are more intuitive in cognitive style. Those high in religious fundamentalist beliefs do not score high on analytic thinking (Antonenko et al., 2013).

Political ideology is traditionally divided between liberal and conservative, with liberal associated as ‘being generous and compassionate’, while conservative was associated with ‘being acceptable, and following rules’ (Gordon, 1972). There have been mental processing differences noted, such as conservatives being more intuitive and less reflective than liberals (Deppe et al, 2015; Kemmelmeier, 2010). There have also been brain structure differences between conservatives and liberals (Amodio et al., 2007). Though there has also been found to be no difference between liberals and conservatives on cognitive reflective ability (Kahan, 2013).

Related to political ideology are the variables of RWA and SDO which both have a strong effect upon personality and prejudice (Altemeyer, 2004). SDO refers to the penchant to see one as a member of their ingroup, and to be dominant or superior over other outgroups (Pratto et al., 1994). RWA reviews authoritarianism as having submission to established authority, aggression in the name of authority, and high levels of conventionalism (Altemeyer, 2006). In both RWA and SDO, there are differing ways – sometimes overlapping – of some form of a perceived authority (consensus within a group, formal, or traditional), that is to make the base from which to understand events and roles.

As a subset from the group-nature of RWA and SDO, there is the continuum of individualism-collectivism. Individualism refers to a preference for self-reliance, while collectivism refers to a preference for interdependence (Triandis, 1996). As with RWA and SDO, how individualist or collectivist one may be may affect how events and roles (own and others’) may be interpreted (Caparos et al., 2012). However, the differences

between individualism and collectivism are not affected the same as in the nature of collectivism is allowing more outside pressure to influence one's decisions (Park, et al., 2013). Finally, though there is a base for one's normative behavior, there are also contextual factors that may make one be more individualist or collectivist as perceived needed by the situation (Greif, 1994; Li & Aksoy, 2006).

These various variables have been studied on their own and paired. How this many variables of these types may interact with the variable of bullshit has not been reviewed. Bullshit itself, as defined by Frankfurt (2005), and operationalized by Pennycook et al. (2015), is a newer field of study itself. With the natures of authority and conformity, as well as there are both 'sacred and profane' influences in cognitive processing, which all combine to affect how each individual interprets, processes, and acts in their environments, we can see what factors contribute more on their own, as well as how they interact with one another to see how one may be more susceptible to bullshit.

Additionally, with seeing how, we might be able to see how to strengthen resilience against such receptivity. In the next chapter, I review the methodology to be implemented for the proposed study including participants, instruments, data collection, and statistical analyses.

Chapter 3: Research Method

Introduction

The purpose of this quantitative cross-sectional survey design study was to investigate whether critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure predict bullshit receptivity. This chapter includes a description of the research design, the study population, sampling method, sample size, and data analysis. The instruments of data collection I used to measure the variables under study are also described. The final section of the chapter includes the ethical considerations for dealing with potentially sensitive issues/topics.

Research Design and Rationale

In this study, I used a quantitative cross-sectional survey design to understand how the different variables predict an individual's bullshit receptivity. There was no experimental manipulation. Data were collected using survey research methods. Participants answered the instruments' items via an online survey. This type of research allows for collecting data from a large sample covering an extensive geographical area (Couper, 2017; Pallant, 2005). A cross-sectional design is associated with survey research as it examines the relation between variables (Frankfort-Nachmias & Nachmias, 2008). In this study, I used a convenience sample; however, random sampling could have provided a broader spectrum of responses more representative of the general population. This quantitative survey design allowed me to study the extent to which various predictor variables predict bullshit receptivity in a convenience sample of the adult population in the United States. The goal of the study was not to control, manipulate, or alter

participants' points of views, but instead to interpret and make conclusions based on findings to predict levels of bullshit receptivity. Studying bullshit receptivity is relevant given that those who score high on being receptive to bullshit stop the hypothesis generation early in the process, accepting statements without questioning their validity. The maintenance of order, civility, and justice within society depends on people's ability to dialogue and communicate while evaluating each other's statements, whether an open society relaying and explaining options available and choices made or an authoritarian society with options given and orders to be obeyed (Kahan, 2013; Kruglanski, 1990).

Survey research has advantages and disadvantages. The disadvantages include low response rate and the requirement of respondents' literacy. Additionally, internet surveys require respondents to have access to a computer and knowledge to navigate internet and access codes (Sue & Ritter, 2012). The advantages of survey research include the fact that an interviewer does not need to be present during the administration or completion of the survey, respondents are able to complete the survey at their convenience, biasing error may occur less often as respondents are not influenced by the presence of an interviewer or research procedures, and data collection can have a rapid turnaround (Fowler, 2009; Frankfort-Nachmias & Nachmias, 2008).

The predictor variables in this study were critical thinking, individualism–collectivism, political ideology, religiosity, RWA and SDO, and need for closure. The outcome variable was bullshit receptivity. Bullshit is a recently operationalized and studied concept (Frankfurt, 2005; Pennycook et al., 2015). The selected instruments for

this study measured thoughts and behaviors of interest. This investigation was not experimental and did not generate cause–effect conclusions.

The research question and hypotheses that guided this study are:

RQ: Do critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure or a subset of these variables adequately predict, when in linear combination, bullshit receptivity among adults in the United States?

H_0: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure or a subset of these variables will not adequately predict bullshit receptivity among adults in the United States.

H_1: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure or a subset of these variables will adequately predict bullshit receptivity among adults in the United States.

Methodology

Population

The participants of this study were gathered from a convenience sample of adults from MTurk (Bentley et al., 2017; Buhrmester et al., 2011). Criteria for inclusion were being at least 18 years or older, being able to speak and read English fluently, and living in the United States. Cross-national studies for bullshit receptivity will be left for future research.

Sampling and Sampling Procedures

A convenience sample of adult participants of this study was recruited from MTurk. A random sample from the general population in the United States was not feasible. Thus, I used a convenience sample. Convenience sampling is a nonprobability sampling approach in which participants are selected due to accessibility and proximity to researcher. Nonprobability sampling was the preferred sampling method for this study due to potential difficulty accessing larger segments of the population. Convenience sampling is recommended when there are limited resources allocated to the research study, such as time, money, or workforce (Etikan et al., 2016). Certain limitations are associated with convenience sampling. Selection bias can occur, and nonprobability convenience sampling does not allow statistical inferences to a broader population. By using MTurk as a means of recruiting participants, this population is biased toward those already enrolled in MTurk who are likely to have access to internet and a computer.

MTurk allows population criteria to be selected for participants and is considered an appropriate, but not ideal, tool for data collection in psychology. MTurk provides access to a large participant pool and a streamlined process of study design and participant recruitment (Bentley et al., 2017; Buhrmester et al., 2011). Buhrmester et al. evaluated the contribution of MTurk in the social sciences and concluded that studies using MTurk recruited participants more diverse than typical American college samples, and data obtained are at least as reliable as those obtained via traditional methods. The primary limiting factors for this approach are that participants are limited to those having

an MTurk account, availability of a computer with access to internet, and detection of the study once posted.

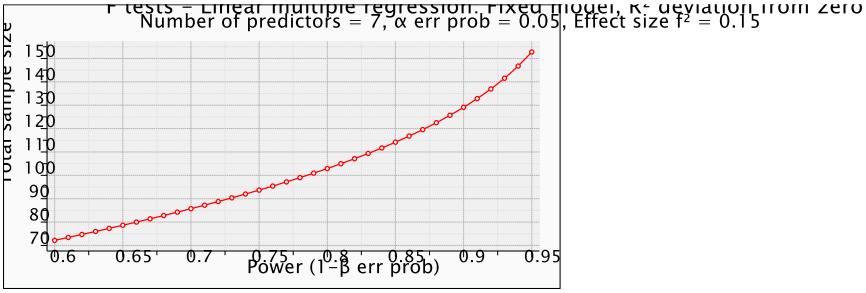
Sample Size

To determine an appropriate sample size for the study I conducted a power analysis using G*Power 3.1.9.4 software (see Faul et al., 2007). I conducted an a priori power analysis for a multiple linear regression with seven predictor variables. The parameters to calculate the number of participants (n) at a medium effect size (f_x) of .15, an error probability (α) of .05, and a power of .80 indicated that a minimum of 103 participants were needed to test the hypothesis.

In social sciences studies, .80 is generally an accepted power (Creswell, 2014). However, maintaining a medium effect size of .15, an alpha level of .05 and increasing the power level to .95, a minimum of 153 participants was needed to test the hypothesis. As the sample size increases, power also increases. I recruited 167 participants. Figure 1 shows the power analysis conducted.

Figure 1

Power Analysis as Function of Sample Size



Procedures for Recruitment, Participation, and Data Collection

Recruitment Procedures

Prior to recruiting participants for this study, I obtained approval from Walden University's Institutional Review Board (IRB). Upon receiving approval from the IRB 02-05-21-0133784, I began recruiting participants. As stated above, participants were recruited from MTurk. I created an account with MTurk that allowed me to post a brief research announcement describing the study along with notice of the compensation amount of $2.40 per participant who completed the survey. The amount of money offered was consistent with other payments to MTurk workers who completed similar types of surveys (Lu et al., 2022). Participants were paid through the MTurk payment system. Users of MTurk were able to read about this study from the list of available studies on MTurk. Interested potential participants were able to select a link bringing them to the study landing page.

Mode of Data Collection

MTurk users who selected the study link were taken to a landing page that provided further information about the study. Information on the landing page included details such as (a) the researcher conducting the study is a doctoral candidate in psychology, (b) Walden University provided IRB approval to conduct the study, (c) the study's purpose, (d) instructions for completing the study, (e) the voluntary nature of the study, (f) assurance of confidentiality, and (g) an explanation of risks. If potential participants were still interested in participating, they were prompted to select a continue button that took them to the informed consent form. If after reading the consent form,

potential participants were still interested in participating, they had to select the continue button to show they consented to participate in the study. If potential participants did not want to participate, they had the option of selecting a button to close the webpage to exit. Those who selected the continue button and consented to participate proceeded to the survey. The survey was hosted on SurveyMonkey. Participants first completed a demographic form, and then they proceed to complete the instruments. Detailed information about demographics and each instrument are provided in the instrumentation section.

Informed Consent

The informed consent form provided an overview of the benefits and risks of participating in this study. When the participants accessed the landing page of the study, they were directed to the informed consent webpage. Once participants reviewed the consent form, they were asked to either select continue button to proceed to the study's materials or to close the webpage to exit. In consonance with the American Psychological Association (2010) code of conduct, the informed consent process requires information on the purpose of the study, length of participation, individuals' right to decline participation in the study and the opportunity to withdraw from the study at any time, limits of confidentiality, compensation or incentives to participate where applicable, and whom to contact about questions regarding the research and/or participants' rights.

Instrumentation

Demographic Questionnaire

I created a basic questionnaire to gather demographic information. Factors on the demographic questionnaire included gender, sex, age, ethnicity, political orientation, level of education, relationship status, parental status, employment status, children (or lack thereof), location type, yearly income, and health status.

Bullshit Receptivity Scale

The bullshit receptivity scale (BSR) is a Likert scale originally created by Pennycook et al. (2015). With the understanding that Frankfurt (2009) had delineated, bullshit was further operationalized. The BSR was created to see how people assign meaning to statements that are pseudo-profound (Pennycook et al., 2015). The BSR is an evolved instrument originally created to measure how people assigned meaning to meaningless statements. In the first iteration, the BSR included 10 computer-generated statements that were syntactically correct, but with rearrangements of words that were from tweets from author Deepak Chopra. In the second iteration, Pennycook et al. added 10 unedited tweets from Deepak Chopra as well as 10 more items that measured analytic cognitive style. The instrument in this second iteration included 30 items. For the third iteration of the BSR, the authors added 10 more statements that were motivational quotations generally considered profound, while not containing the same terminology as the first two implementations. Pennycook et al. combined all 40 items into a single BSR, which I used in my study.

To determine whether respondents assign meaning to statements that are pseudo-profound, they were asked to respond to 40 apparent profound statements and rate each statement on a 5-point scale, ranging from 1 (not at all profound) to 5 (very profound). Responses ranged from a minimum score of 40 to a maximum score of 200. Each score was summed to determine the level of bullshit receptivity, with higher scores in the scale indicating higher bullshit receptivity and lower scores indicating lower bullshit receptivity. Examples of statements include: “We are in the midst of a self-aware blossoming of being that will align us with the nexus itself.” “Your movement transforms universal observations.” “The invisible is beyond new timelessness.”

As discussed by Pennycook et al., the 40-item instrument’s alpha coefficient was .96. Only few studies have used the instrument, but information on these studies revealed the instrument was consistently reliable. For example, the BSR had a Cronbach’s $\alpha = .87$ in Pfattheicher and Schindler’s (2016) study. This is a new and unique instrument, so there is a limited number of constructs to compare with to obtain validity information. Regarding convergent validity (the degree of correlation between measures of the same trait), Pennycook et al. reported in their initial validation study high correlation ($r = .89$) between the BSR and Deepak Chopra’s actual tweets.

Cognitive Reflection Test 7

Frederick (2005) created the original cognitive reflection test (CRT) to test how well people could differentiate and use System 1 (intuitive) processing against System 2 (analytical) processing. According to Frederick (2005), cognitive reflection was defined as “the ability or disposition to resist reporting the response that first comes to mind”

(p.35). Items in the CRT are not based on easily accessed rote learning. Impulsive cues make the intuitive answer incorrect, requiring deliberation and analysis; to reach the correct answer that deals with hypothetical and real potential rewards, more cognitive work and resources are needed. Frederick (2005) explained, "The three items on the CRT are 'easy' in the sense that their solution is easily understood when explained, yet reaching the correct answer often requires the suppression of an erroneous answer that springs 'impulsively' to mind" (p. 27). Doing better on the CRT is related to less reliance on heuristics or biases (Bialek & Pennycook, 2017).

The original CRT had three items, which were each in a fill-in-the-blank format. Expanding the CRT, Toplak et al. (2014) added four items to further test miserly information processing and to address the floor effect, whereby some participants did not get any of the original three items correct; more items provided more opportunities to get a correct response. Items in the CRT7 are fill-in-the-blank responses that involve a clear mathematical and logical answer. An example of one of the three original items from Frederick (2005) is: "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 [Correct answer 5 cents; intuitive answer 10 cents]." Among the new questions by Toplak et al. (2014): "If John can drink one barrel of water in 6 days, and Mary can drink one barrel of water in 12 days, how long would it take them to drink one barrel of water together? _____ days [correct answer 4 days; intuitive answer 9]." Each item, whether new or old, has a correct, counterintuitive answer. Each item is scored as correct/incorrect; a correct response is scored as 1, an incorrect as 0. Each item in the CRT7 has one specific correct answer and

the score on the scale would be equal to the number of correct answers given. Responses can range from a minimum score of 0 and a maximum score of 7. Because there is a total of seven items, the highest possible score is 7. Each score is summed to determine the level of cognitive reflection, with higher scores in the scale indicating higher reflective thinking and lower scores indicating lower reflective thinking (Frederick, 2005; Toplak et al., 2014).

Originally, the expansion was designed as a replacement, which showed a 0.58 correlation with Frederick's version, but when combining the two versions into a seven-item instrument, the new CRT had a Cronbach's alpha reliability of 0.72 (Toplak et al., 2014). Some have found that CRT7 better examines other variables, such as numeracy (Pennycook et al., 2015). However, there is also research that shows strong evidence that the CRT measures intuitive versus reflective thinking. The measure is moderately positively correlated with intelligence (r = 0.50) (Patel, 2017; Wilson, 2015) and need for cognition (r = 0.22 to 0.25; Frederick, 2005; Toplak et al., 2014). The need for cognition (NFC; Cacioppo & Petty, 1982) instrument is a self-report measure that assesses the motive to engage in effortful cognitive activities. The positive correlation between the NFC and the CRT provides some evidence for convergent validity, suggesting the CRT measures intuitive versus reflective thinking.

Political Ideology Measure

The instrument I used to measure political ideology was Poteat and Mereish's (2012a) adaptation of the original Liu and Latané's (1998) instrument. The adaptation consists of a three-item Likert scale continuous measure that looks at political, social, and

economic issues. This division was done as there may be differences between those who identify as conservative on fiscal issues as contrasted to those who identify as conservative on social issues (Poteat & Mereish, 2012b). To determine how people align themselves politically, the political ideology measure has three items. Each item is based upon a 7-point Likert scale ranging from 1 (very liberal) to 7 (very conservative). Responses can range from a minimum score of 3 and a maximum score of 21. Each score is summed to determine political ideology. Higher scores represent greater conservatism.

The three items separate different aspects of life for individual consideration: political, social, and economic issues. The questions follow a basic format: "1: Overall, how would you describe your political ideology? (1-very liberal to 7-very conservative)." "How would you describe your views on social issues?" "How would you describe your views on economic issues?" Convergent validity is shown by the high correlation between the political ideology scale and measures of SDO and RWA (Poteat & Mereish, 2012c). SDO reflects a person's endorsement of intergroup hierarchies and inequalities and typically correlates strongly with political conservatism (Sidanius et al., 1996). In a similar fashion, RWA, which is a personality and ideological variable that explores willingness to submit to authorities, support of social conventions and norms, has been associated with conservatism. In Poteat and Mereish's (2012c) study, both SDO and RWA showed significant correlation with political ideology. Additionally, items in the political ideology measure were internally consistent, demonstrating a Cronbach's alpha reliability of 0.92 (Poteat & Mereish, 2012c), 0.95 (Poteat & Mereish, 2012b), and 0.83 (Poteat et al., 2011).

Duke University Religion Index

To measure religiosity, I used the DUREL instrument. DUREL is a brief, five-item measure of religious involvement (Koenig & Büssing, 2010). The instrument was created to measure the three dimensions of religiosity: organizational religious activity, non-organizational religious activity, and intrinsic/subjective religiosity. The DUREL is an outgrowth from prior instruments created by the National Institutes of Health, studies from North Carolina (prior Duke University studies).

The dimension of organizational religious activity is measured with the first item of the DUREL, which is: How often do you attend church or other religious meetings? This item is responded on a scale of 1-6 ranging from never to more than once/week. The second dimension of the scale, non-organizational religious activity, is measured with the item: how often do you spend time in private religious activities, such as prayer, meditation or Bible study? This item is responded on a scale of 1-6 ranging from rarely or never to more than once a week. The third dimension of the scale, intrinsic or subjective religiosity, is measured with three items. An example of the item is: In my life, I experience the presence of the Divine (*i.e.*, God). The last three items are measured on a scale from 1-5 ranging from definitely *not* true to definitely true to me. Three different scores are obtained through the scale. In the first two items that are scored separately, the highest the score, the highest the involvement in organizational and non-organizational religious activity. In a similar fashion, highest scores in the last three items imply higher intrinsic or subjective religiosity.

The three-item subscale that measures intrinsic religiosity showed a Cronbach's alpha of 0.75, and it was moderately correlated with the first single item of the DUREL (r = 0.40), and with the second item (r = 0.42). This shows that three different dimensions are measured in the DUREL (Koenig & Büssing, 2010). The overall scale has high test-retest reliability (intra-class correlation = 0.91), high internal consistence (Cronbach's alpha's = 0.78–0.91), and high convergent validity with other measures of religiosity (r's = 0.71–0.86). Independent investigative teams have demonstrated and confirmed the factor structure of the DUREL (Koenig & Büssing, 2010). For the purposes of this study, the five items of the scale will be summed and a single score of religiosity will be obtained. The higher the score, the more religious the respondent is.

Horizontal and Vertical Individualism and Collectivism Scale

The horizontal and vertical individualism and collectivism (HVIC) scale was used to measure the individualism-collectivist variable. The individualism and collectivism scale has been modified from its original 32-item instrument (Singelis et al., 1995), down to 16 items to make the HVIC (Triandis & Gelfand, 1998a). Triandis's original Individualism and Collectivism Scale was a modification of prior scales (Triandis, 1996; Triandis & Gelfand, 1998a). This instrument measures the concept of self and the self's role within the society in which one lives: how independent or interdependent individuals are within the group in which they live. The newest version divides the results into quadrants of Horizontal Collectivism (HC), Vertical Individualism (VI), Horizontal Individualism (HI), and Vertical Collectivism (VC). HI refers to independence, yet still seeing people as equals; VI refers to independence, while seeing people as unequal; HC

refers to people being both equal and dependent upon one another; VC refers to people being dependent upon one another, but not equal (Li & Aksoy, 2007).

The 16 items that comprise the scale are rated on a 9-point Likert-type scale (1 = highly disagree, 9 = highly agree). The scale contains four subscales; each subscale contains 4 items. Responses in each subscale can range from a minimum score of 4 and a maximum score of 36. Each score is summed to determine a person's level of HC, VI, HI, and VC. Each quadrant has been found to be reliable with Horizonal Individualism (HI; alpha = .67), Vertical Individualism (VI; alpha = .74), Horizontal Collectivism (HC; alpha = .74), and Vertical Collectivism (VC; alpha = .68; Triandis & Gelfand, 1998a). The four items in each quadrant are aggregated to determine the value of each subscale. Examples of the items are: "I rely on myself most of the time; I rarely rely on others" (horizontal individualism), "It is important that I do my job better than others" (vertical individualism); "I feel good when I cooperate with others" (horizontal collectivism); and "Family members should stick together, no matter what sacrifices are required" (vertical collectivism).

Singelis and colleagues (1995) suggested the instrument has good convergent validity. In a subsequent study, Triandis and Gelfand (1998b) also reported good convergent and divergent validity. The instrument showed high reliability Cronbach's α across studies and populations. For example, Komarraju and Cockley (2008) surveyed 290 African American and European American college students obtaining Cronbach alpha reliabilities of .82 (HI), .83 (VI), .75 (HC), and .66 (VC); Komarraju et al. (2008) obtained reliability coefficient values of .85 (HI), .81 (VI), .73 (HC), and .66 (VC); and

Györkös and colleagues (2013) compared Switzerland and South African populations indicating internal reliability ranging from .83 to .64 in the four quadrants across the two groups.

Right-Wing Authoritarian Scale

The RWAS (Altemeyer, 2006) consists of 22-items capturing three broad attitudes: authoritarian submission, authoritarian aggression, and conventionalism. The scale consists of 22 statements rated on a 9-point Likert-type scale ranging from 1 (Very Strongly Disagree) to 8 (Very Strongly Agree). The option of '0' is available for those who feel completely neutral. For the purpose of scoring, the range is transformed on a scale of 1 (strongly disagree) to 9 (strongly agree). The first two items are used as fillers and do not count towards the full- scale score. Scores are aggregated and interpreted as a full-scale score; with a minimum score of 20 and a maximum of 180 (Altemeyer, 2006). High scores represent a high degree of authoritarianism and low scores low levels of authoritarianism. The scale reports on a single, composite score of authoritarianism.

Examples of the items include "There are many radical, immoral people in our country today, who are trying to ruin it for their own godless purposes, whom the authorities should put out of action," and "Our country needs free thinkers who have the courage to defy traditional ways, even if this upsets many people." A wide variety of studies used this scale indicating internal consistency of scale items as measured by alpha coefficients, ranging from .85 to .94 (Altemeyer, 1996). The RWAS is psychometrically sound (Duckitt, 1991); with good convergent validity. Duckitt indicated the RWAS powerfully correlated with the validity criteria of authoritarianism, such as civil liberties

stance, anti-black prejudice, and discrimination. It also correlated with measures of racial prejudice (Duckitt, 1993). The use of the scale in other languages and countries provided support for construct validity of the RWAS (Rubinstein, 1996).

Short Social Dominance Orientation

The original Social Dominance Orientation Scale has been shortened to Short Social Dominance Orientation Scale (Pratto et al., 2012). This shortened version was used in this study. Like the original, it was created to measure a person's propensity for prejudice and preferences for group dominance versus equality. The number of items to test these factors has been reduced to four items; the original scale had 16 items. To determine respondent's level of SDO, respondents are asked to respond to four items. The items are scored on a Likert scale ranging from 1 (extremely oppose) to 7 (extremely favor). Items 1 and 3 should be reverse coded before summing the scale. Responses can range from a minimum score of 4 and a maximum score of 28, with higher scores in the scale indicating higher levels of social dominance orientation, and lower scores indicating a preference for group inclusion and equality to dominance. Examples of items in the instrument include "1. In setting priorities, we must consider all groups" and "2. We should not push for group equality."

Pratto et al. (2012) conducted an extensive study of the SSDO short version. They tested internal reliability and predictive validity of the short 4-iem version of the SSDO scale in 20 countries and using 15 languages. Results of the psychometric evaluation of the SSDO indicated that cross-nationally, the lower people were on SSDO, the more they endorsed more women in leadership positions, protecting minorities, and support to the

poor. The scale's mean inter-item correlation ranged from .18 to .53 with most of them in the range .20-.29. These results indicate the items are tapping the same construct. SSDO showed good internal reliability for a short scale. The weighted average Cronbach's alpha coefficient across samples in 20 countries was .65 (Pratto et al., 2012). In the sample surveyed in the United States, the Cronbach's alpha coefficient of the SSDO short version was .80.

Need for Closure Scale

Webster and Kruglanski (1994) originally developed the need for closure scale. Roets and Van Hiel (2011) developed a 15-item short version of the original scale that will be used in this study. This scale attempts to measure the need for cognitive closure. According to Kruglanski (2004), the need for closure is understood as the "desire for a firm answer to a question, any firm answer as compared to confusion and/or ambiguity" (p. 6). Thus, individuals with high need for closure, may respond quickly instead of delaying response and tolerate ambiguity. The NFC scale was developed as a one-dimensional measure of the NFC construct (Webster & Kruglanski, 1994; Roets & Van Hiel, 2011).

To determine respondent's level of need for cognitive closure, respondents are asked to respond to 15 items. The items are scored on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Responses can range from a minimum score of 15 and a maximum score of 105. Each score is summed to determine the level of cognitive need for closure, with higher scores in the scale indicating higher need for cognitive closure and lower scores indicating lower need for closure. Examples of items

to be rated include “I dislike questions which could be answered in many different ways” and “When I have made a decision, I feel relieved.”

In creating the shortened NFC version, Roets and Van Hiel (2011) analyzed multiple data sets. They used a sample set of N = 1584, with an average age of 34, and an age range of 16 to 86, and a division of 36% male, 64% female. They confirmed good convergent and divergent validity by computing the correlations of the 41-item version of the NFC and the 15-item version of the NFC with variables that were previously linked to NFC (i.e., RWAS, SDO, racism, essentialism, psychological distress, and a personality inventory) and with variables that allowed testing convergent and divergent validity (Need for Structure, Need for Cognition, and Need for Affect). Additionally, the 15-short version obtained test-retest stability showing r = .79, and an internal Cronbach’s alpha coefficient of α =.87.

Data Analysis

A stepwise multiple linear regression analysis was used to test the proposed hypothesis. Stepwise regression is typically used to maximize prediction and it helps in determining which variable or set of variables have the greatest predictive power in a model (Tabachnick & Fidell, 2013). In this analytical approach, the bivariate associations of each predictor or independent variable with the criterion or dependent variable are explored, and the variable with the greatest predictive power is entered first. In a subsequent step, the rest of the predictors are examined for their incremental predictive validity, and the one that explains the most additional criterion variance is added to the model. For example, the variable that shows the largest R^2 is added second. This method

is reiterated until no further predictors would result in a significant $R.^2$ At this point, a final set of variables that will be entered in the regression equation is identified and considered definitive (Hoyt et al., 2006).

In sum, in stepwise multiple linear regression, the model starts out empty and the predictor variables are added one at a time if they meet statistical criteria; however, they may be deleted at any step if they no longer contribute in a significant way to the regression (Tabachnick & Fidell, 2013). Stepwise multiple regression is a good fit for this study considering its proven efficacy in determining which predictor variable or variables contribute to the investigated impact or effect (Tabachnick & Fidell, 2013).

Steps in Data Analysis

Once all instrument information and participants' responses were collected, a computer file was created in preparation for analysis. The information was entered in the Statistical Package for the Social Sciences (SPSS-27) software, which was used for all data analyses. The data collected were inspected to eliminate coding errors, inaccuracy, and outliers (Finch, 2012). Multiple regression is very sensitive to very high or very low scores (Pallant, 2005). Thus, the initial inspection of data involves checking for extreme scores. A decision was made about each outlier.

Descriptive statistics were then obtained from the data. Measures of central tendency and variability were calculated for all demographic and study variables. Outcome and predictor variables were inspected for normalcy; they were also assessed to determine whether they met all statistical assumptions required to implement a multiple linear regression analysis. In using multiple regression, data need to be inspected to

verify that statistical assumptions of multicollinearity, normality, linearity, and independence of residuals (homoscedasticity) are not violated (Pallant, 2005). A correlation matrix in SPSS was created to inspect multicollinearity. The bivariate correlation coefficients were examined. Multicollinearity exists when the independent variables are highly correlated (for example, r=.9 and above). To examine that normality, linearity, homoscedasticity, and independence of residuals are not violated, visual inspection of the normal probability plot (P-P) of the regression standardized residual and the scatterplot of the standardized residuals were examined. Residuals are the differences between the obtained and the predicted dependent variable scores. It is assumed that the statistical assumption of normality is not violated when the residuals are normally distributed about the predicted dependent variable scores. To show that the statistical assumption of linearity is not violated, the residuals should have a straight-line relationship with predicted dependent variable scores; and to test the assumption of homoscedasticity, the variance of the residuals about predicted dependent variable scores should be the same for all predicted scores (Pallant, 2005).

Once the data were verified for statistical assumptions, a reliability analysis to explore the internal consistency of the scales was conducted. The scales' Cronbach's alpha coefficients will be obtained. After this, a stepwise multiple regression analysis was conducted to assess the efficacy of selected predictor variables in predicting bullshit receptivity.

Ethical Considerations and Human Rights Protection

Privacy and Confidentiality

This study followed the highest ethical standards set forth in the APA ethics code (APA, 2002), which not only dictates non-malfeasance and integrity in conducting research, but also directs those conducting research to protect the privacy and confidentiality of their participants. Accordingly, only non-identifiable raw data were collected for this study and all surveys were filled out anonymously. Approval from the Walden University IRB was sought for the research design and ethical practices of this study prior to initiating data collection.

Informed Consent

As data collection is based through Amazon (*n.d.*) and is a participant pool whereby respondents have to join, respondents have to complete forms filling in necessary data to create an account. The privacy notice and participation agreements are hyperlinks available through account creation.

Risk to Participants

While significant harm as a result of participating in the study was not anticipated, it might have been possible that participants might have experienced some discomfort or unease when answering survey questions. No discomfort from participants was revealed during data collection. Included with the informed consent form was my contact information should any questions or concerns develop during or after participation and could be used if debriefing was needed. Participants were informed of this risk and

recommended to stop participation at any time if they experienced any significant level of distress.

Treatment of Data

Amazon's privacy notice and participation agreement have notices that states respondents authorize collection of data that will not be sold. The data were stored on Amazon servers and were transmitted with Secure Sockets Layer (SSL) software for encryption. The data was received holding the participants being kept confidential. The electronic data from the online version was stored electronically on a password-protected flash drive and locked away in a safe. Following completion of data analysis, all data were stored in a bank safety deposit box for a period of 5 years, after which they were destroyed.

Summary

This quantitative research project examined how the outcome variable of bullshit receptivity was affected by the predictor variables of critical thinking, individualism-collectivism, political ideology, religiosity, RWA, SDO and need for closure. Demographic data were collected including gender, sex, age, ethnicity, political orientation, level of education, relationship status, parental status, employment status, children (or lack thereof), location type, yearly income, and health status. The participants were recruited through Amazon's Mechanical Turk, which enabled a diverse and representative group. The extent of parameters for the population was to be a U.S. citizen and English speaking. Data collected were analyzed using stepwise multiple linear regression. In the following chapter, results of the data analysis are presented.

Chapter 4: Results

Introduction

The purpose of this study was to investigate the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and individualism–collectivism value orientation predict bullshit receptivity among adults. The dependent variable in this study was bullshit receptivity and the independent variables were critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure. The research question and hypotheses that guided this study were:

RQ: Do critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure, or a subset of these variables, adequately predict when in linear combination bullshit receptivity among adults in the United States?

H_0: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure, or a subset of these variables, will not adequately predict bullshit receptivity among adults in the United States.

H_1: A linear combination of critical thinking, individualism–collectivism, political ideology, religiosity, RWA, SDO, and need for closure, or a subset of these variables, will adequately predict bullshit receptivity among adults in the United States.

In this chapter, I present the results of the study. The chapter begins with a description of the data collection procedures, followed by a detailed report of the findings of the

statistical analyses as they pertain to the research question and hypotheses, including tables and figures for further clarification of the results.

Data Collection

Before any data were collected, I obtained approval from Walden University's IRB. I collected data from MTurk participants via SurveyMonkey from April 26, 2021, through May 3, 2021. MTurk participants are paid for completing surveys. For completing my study's surveys, each participant was paid $2.40. A total of 170 respondents participated in my study. However, data from 167 respondents were used for the statistical analysis because three did not complete all the items. There was a completion rate of 98.2%. There were no missing data in the 167 surveys.

Results

Descriptive Statistics of Demographic Variables

A review of the participants shows an almost equal division of self-identified biological men and women: 49.1% male and 50.9% female. Table 1 summarizes the collected demographic data. The youngest participant was 28 while the oldest was 70 years old. Regarding political orientation, there was a skewed distribution toward the left or liberal side; 21.6% selected very conservative or conservative orientation, 23.4% self-identified as moderate, and 47.3% indicated liberal or very liberal. Other options included socialist at 5.4%, communist 0.6%, libertarian, 1.2%, and anarchist at 0.6%. Although *other* was an option, it was not selected by any participants.

Education level was spread out without a trend. Most participants had earned a bachelor's degree (42.51%), with some college being the second highest response

(19.76%). High school diploma or GED, associate degree, and graduate/master's degree were selected by 12.57%, 11.38%, and 11.38%, respectively. Some graduate school and doctoral/professional degrees were selected by 1.2% of the sample, with no respondent marking the *less than high school* option. With regards to ethnicity, 76.65% selected White/Caucasian, 9.58% Black/African American, 7.19% Asian/Asian American, 5.39% Hispanic/Latino, 0.6% for both Native Hawaiian/other Pacific Islander and other. Income was divided into seven categories and can be represented in a standard distribution, with the range 4 (middle), the highest at 25.1% ($50,000–$74,999), then decreasing representation as income decreased with 22.8% ($30,000–$49,999), 14.4% ($15,000–$29,999), and the lowest of 9% (under $15,000) or with income increased with 13.2% ($75,000–$99,999), 11.4% ($100,000–$149,999), and 4.2% ($150,000+).

Another belief metric collected was religion. There were 12 options to choose: Protestantism, Catholicism, Christianity, Judaism, Islam, Paganism, Buddhism, Hinduism, Native American, inter/nondenominational, no religion, and other. There were no respondents for either Islam or Paganism. The remaining division of religious faith was 15.6% for Christianity, 13.8% for Protestantism, 10.2% for Catholicism, 4.2% for Judaism, 2.4% for inter/nondenominational, 1.8% for Buddhism, 0.6% for both Hinduism and Native American, with almost half at 49.1% as no religion.

Table 1

Demographic Variables

Variable	*N*	*%*
Sex		
Male	82	49.1%
Female	85	50.9%
Age	*M* = 43.83, *SD* = 11.303	*Range* = 26–74
Political orientation		
Very conservative	9	5.4%
Conservative	27	16.2%
Moderate	39	23.4%
Liberal	55	32.9%
Very liberal	24	14.4%
Socialist	9	5.4%
Communist	1	0.6%
Libertarian	2	1.2%
Anarchist	1	0.6%
Level of formal education		
High school diploma	21	12.6%
Some college	33	19.8%
Associate degree or vocational	19	11.4%
Bachelor's degree	71	42.5%
Some graduate school	2	1.2%
Master's level degree	19	11.4%
Doctoral/professional	2	1.2%
Ethnic background		
Asian/Asian American	12	7.2%
Black/African American	16	9.6%
Hispanic/Latino	8	5.4%
Native Hawaiian/Pacific	1	0.6%
White/Caucasian	128	76.6%
Other	1	0.6%
Annual household income		
Under $15,000	15	9.0%
$15,000–$29,999	24	14.4%
$30,000–$49,999	38	22.8%
$50,000–$74,999	42	25.1%
$75,000–$99,999	22	13.2%
$100,000–$149,999	19	11.4%
$150,000+	7	4.2%
Religious orientation		
Other	3	1.8%
Protestantism	23	13.8%
Catholicism	17	10.2%
Christianity	26	15.6%
Judaism	7	4.2%
Buddhism	3	1.8%
Hinduism	1	0.6%
Native American	1	0.6%
Inter/nondenominational	4	2.4%
No religion	82	49.1%

Note. $N = 167$

Descriptive Statistics of Quantitative Variables

Presented in Table 2 are the mean and standard deviations for all variables in this study including bullshit, critical thinking, political ideology, religiosity, RWA, SDO, need for closure, and individualism–collectivism. The variable individualism–collectivism was broken down into two major subscales: individualism and collectivism. Each of these subscales were broken down into two other subscales, resulting in the quadrant combination of horizontal individualism, horizontal collectivism, vertical individualism, and vertical collectivism.

Table 2

Means and Standard Deviations for Quantitative Variables

Variable	*M*	*SD*
Bullshit	89.54	27.92
Cognitive reflection test/critical thinking	4.17	2.16
Duke University religion index/religiosity	11.17	7.12
RWA	41.77	19.70
Horizontal collectivism	15.09	2.74
Vertical collectivism	13.90	3.47
Horizontal individualism	16.53	2.48
Vertical individualism	11.03	3.64
Political ideology	9.92	5.37
SDO	10.24	7.43
Need for closure	52.65	11.86

Note. $N = 167$

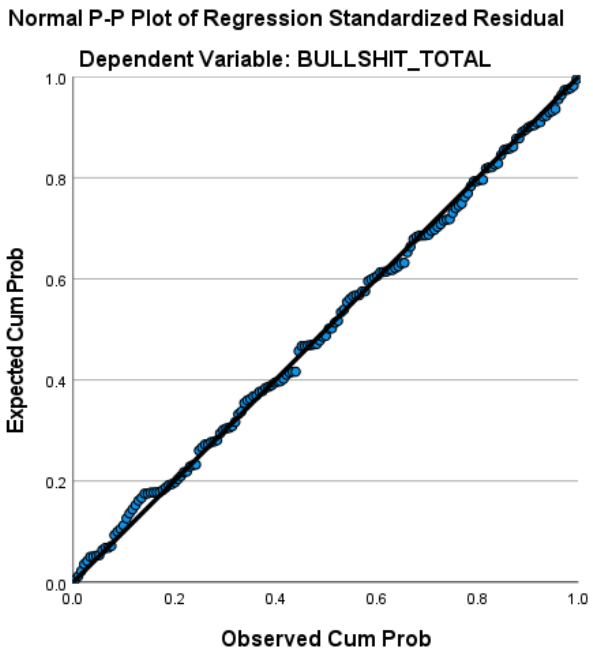
Tests of Assumptions and Reliability

Statistical assumptions of independence of homoscedasticity, independency of residuals, linearity, normality, and multicollinearity were analyzed to ensure they were not violated. To examine that normality, linearity, and homoscedasticity were not violated, visual inspection of the normal probability plot (P–P) of the regression

standardized residual and the scatterplot of the standardized residuals were examined. Visual inspection of the normal P–P of the regression standardized residual (Figure 2) and the scatterplot of the standardized residuals (Figure 3) indicated normality, linearity, homoscedasticity, and independence of residuals were not violated. Linearity was not violated as shown by the residuals depicting a relatively straight-line relationship with predicted dependent variable scores. Normality was not violated as the residuals seem normality distributed about the predicted dependent variable scores.

Figure 2

Normal P-P Plot of Regression Standardized Residual

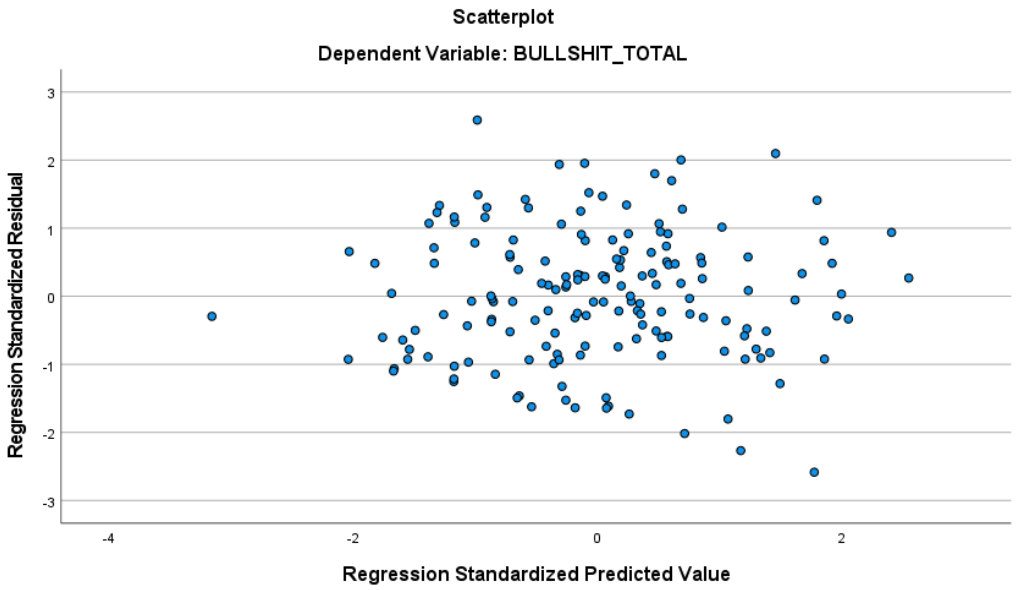


Homoscedasticity can be seen in the scatterplot of Figure 3. Violations of homoscedasticity are revealed by patterns emerging in how the data are displayed. If homoscedasticity is not violated, there is no pattern; if there is a violation of

homoscedasticity, a pattern can be seen. Most often, the pattern in data may resemble a fan or have clusters that, if outlined, resemble a cone. The lack of a pattern for homoscedasticity not being violated resembles a shotgun blast of non-linked peppering of data points, which if outlined resembles a rectangle or oval. The output shown in the scatterplot below does not show a clear pattern.

Figure 3

Scatterplot of the Standardized Residuals



Multicollinearity exists when the predictor variables are highly correlated. A correlation of .7 or more usually indicates that this assumption has been violated (Pallant, 2015). There is no correlation of .7 or more between the predictor variables. These results indicate that the assumption regarding absence of multicollinearity was met. Table 3 reports the intercorrelations for predictors of bullshit scores.

Bivariate Correlations

Bivariate correlations among the key variables of the study are presented in Table 3. Bullshit was correlated with all variables with the exception of political ideology, social dominance, and horizontal individualism. More specifically, bullshit receptivity was negatively associated with critical thinking but positively associated with religiosity, authoritarianism, need for closure, vertical individualism, horizontal collectivism, and vertical collectivism. Moderate to high associations were noted between political ideology and authoritarianism, political ideology and social dominance, and authoritarianism and social dominance.

Table 3

Correlation Matrix of Study Predictor Variables

	1	2	3	4	5	6	7	8	9	10
1. Bullshit	–									
2. Critical thinking	–.300**	–								
3. Political ideology	.048	.001	–							
4. Religiosity	.217**	–171*	.324**	–						
5. Authoritarianism	.181*	–210**	.744**	.536**	–					
6. Social dominance	.056	–.081	.636**	.169*	.626**	–				
7. Need for closure	.132*	–.010	.124	.154*	.240**	.110	–			
8. Horizontal individualism	.088	.029	.113	–.177	–.020	.081	.146*	–		
9. Vertical individualism	.129*	–.021	.224**	–.028	.137*	.269**	.213**	.221**	–	
10. Horizontal collectivism	.182**	–.017	–.042	.208**	.014	.084	.080	–.052	–.019	–
11. Vertical collectivism	.258**	–.164*	.211**	.324**	.332**	.420**	.420**	.049	.254**	.372**

Note. *p < 0.05. **p < 0.01, *N* = 167

Reliability of Study Scales

I ran Cronbach's alpha reliability coefficients to test the internal reliability of the study scales. Table 4 depicts reliability coefficients for all the scales. These results are considered acceptable reliability according to commonly accepted thresholds (Pallant, 2015).

Table 4

Reliability Coefficients for Study Instruments

Study instruments	Cronbach's alpha
Bullshit	.95
Cognitive reflection test/critical thinking	.78
Duke University religion index/religiosity	.94
RWA	.97
Horizontal collectivism	.78
Vertical collectivism	.81
Horizontal individualism	.73
Vertical individualism	.79
Political ideology	.94
SDO	.89
Need for closure	.92

Note. $N = 167$

Stepwise Multiple Linear Regression

Following the review of the assumptions of regression, a stepwise multiple linear regression was used to generate an initial predictive equation based on the statistical contribution of one or more of the predictor variables. Stepwise multiple linear regression was conducted to assess the efficacy of selected predictor variables in predicting bullshit receptivity, as measured by the BRS among adults. The predictor variables in this study

were critical thinking, individualism-collectivism, political ideology, religiosity, RWA and SDO, and need for closure. The criterion variable was bullshit receptivity.

Results of the stepwise multiple regression rendered a reduced model $F(2,164) = 12.80$, $p = .001$, being critical thinking and vertical collectivism the only predictors retained in the model (Table 5). All other variables were excluded by the stepwise model based on their significance level ($p > .05$). The total variance explained by the model was 13.5% ($R^2 = .135$). In this final model, critical thinking accounted for 9% and vertical collectivism for 4.5 %. Critical thinking recorded a higher beta value (beta = -.27, $p < .001$) than vertical collectivism (beta = .22, $p < .004$). Based on these results the null hypothesis is rejected. A subset of the proposed predictors (critical thinking and vertical collectivism) made a significant contribution to the variance in bullshit receptivity; thus, the research hypothesis is accepted.

Table 5

Stepwise Multiple Regression Analysis Showing the Predictors Most Closely Associated with Bullshit Receptivity

	R	R^2	Adj. R^2	R^2 change	SE of estimate	Sig.
Critical thinking	.300	.090	.085	.090	26.71	.000
Vertical collectivism	.368	.135	.125	.045	26.12	.004

Summary

The purpose of this quantitative exploratory study was to investigate the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and

individualism-collectivism value orientation predicted bullshit receptivity among adults. The criterion variable in this study was bullshit receptivity and the potential predictor variables were critical thinking, individualism-collectivism, political ideology, religiosity, RWA, SDO, and need for closure. The assumptions of independence of residuals (homoscedasticity), independency of residuals, linearity, normality, and multicollinearity were assessed, and the assumptions were not violated. A model $F(2,164) = 12.80$, $p = .001$ was produced with bullshit receptivity being critical thinking and vertical collectivism the only predictors retained in the model. Chapter 5 will include the interpretation of results, implications for social change, study limitations, recommendations, and conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to investigate the extent to which political ideology, religiosity, RWA, SDO, critical thinking, need for closure, and individualism–collectivism value orientation predict bullshit receptivity among adults. The concept of bullshit and related topics have been known and philosophized about for a long time. However, the scientific investigation of operationally defined bullshit is a more recent endeavor. In previous research, researchers found some variables that correlated with bullshit susceptibility (Pennycook et al., 2015; Sterling et al., 2016); this study was a continuation and broadening of that prior research.

Bullshit does not emerge from a vacuum. There are factors that prompt bullshit's formation or denial and how it is modified. The intended review of real-life variables is because bullshit can have a profound impact upon individuals and societies because its sources are potentially ubiquitous. As Carlin (2017) stated:

> America's most profitable business is still the manufacture, packaging, distribution, and marketing of bullshit… high quality, grade-A, prime cut, pure American bullshit, and the sad part is … that most people seem to been indoctrinated to believe that bullshit only comes from certain places, certain sources; advertising, politics, salesmen… not true, bullshit is everywhere, bullshit is rampant, parents are full of shit, teachers are full of shit, clergymen are full of shit, and law enforcement people are full of shit.

I believe the sardonic wit of Carlin would not limit the claim of bullshit to just American life and history; any culture either has or has facsimiles of each of the origins of bullshit. For example, as a formal field of study, propaganda (later relabeled *persuasion*) researchers have been reviewing the different methods of rousing spirited participation by the citizenry by blending truth with lies even at an increased cost for the citizenry from different countries since the 1920s (Jowett & O'Donnell, 2014).

Not all real-life variables have the same influence on bullshit susceptibility or resilience. As reviewed in Chapter 4, stepwise lineal multiple regression analysis identified critical thinking and vertical collectivism as predictors of bullshit susceptibility. Critical thinking is an a priori variable associated with resistance to bullshit as prior studies have found (Pennycook et al., 2015). Factors related to bullshit susceptibility may be as important as those associated with protection against bullshit.

Interpretation of the Findings

In Chapter 2, I reviewed the origin of bullshit and provided an operational definition as well as a description of the early investigation about factors that influence susceptibility or resilience against such receptivity. In addition, lay epistemic theory describes how knowledge acquisition's first step is hypothesis generation, and bullshit makes for a quick stop and acceptance of a hypothesis. Additionally, knowledge acquisition is part of forming assumptions. Bullshit is problematic as it is an attempt to convince without relation to the truth of an issue. Bullshit is not a lie, as a lie involves a recognition of truth and is an intentional redirection or avoidance from that truth; bullshit disregards any relation to the truth (Frankfurt, 2005). Even though it does not contain nor

is related to truth, bullshit is to imply truth to convince (Pennycook et al., 2015). Similarly, wishful thinking is more singular-directional than bullshit in that it is not a conscious lie or misrepresentation but a disregard for the reality of things favoring a specific interpretation (Dunning & Balcetis, 2013). As part of a society or as a member of a social species, it is difficult if not impossible to engage in a review of a subject if people cannot critically evaluate statements (Sperber, 2010).

The following sections are organized based on the relevance of the variables in the prediction of bullshit receptivity as identified in the present study. Critical thinking and vertical collectivism were the only variables to significantly contribute to the variance in bullshit receptivity scores, and thus these variables are discussed first. Following, I discuss four variables that, although excluded from the stepwise regression analysis model, were found to correlate with bullshit receptivity in the bivariate correlation analyses. Finally, political ideology, SDO, and horizontal individualism, which did not enter the regression model nor were significantly associated with bullshit receptivity in the bivariate correlation analyses, are discussed.

Critical Thinking and Vertical Collectivism

In the present study, I found critical thinking and vertical collectivism as the only variables to predict bullshit receptivity based on the stepwise lineal multiple regression analysis. Each of these variables was positively correlated with being more receptive to bullshit. Prior research is consistent with these findings. Shenhav et al. (2012) found that an intuitive cognitive style was linked with being more susceptible to bullshit. A more

analytical cognitive style has been linked with being less susceptible to bullshit (Antonenko Young et al., 2013; Gervais & Norenzayan, 2012; Pennycook et al., 2012).

Critical thinking has been associated with mental processes and strategies used to solve problems and learn new concepts (Facione, 1990; Halpern, 1998; Lai, 2011; Sternberg, 1986). Critical thinking involves self-regulatory, contextual, and analytical processes, the individual perceiving and judging whether to question and further analyze or abdicate judgment and follow. Critical thinking has also been defined as a mode of thinking in which intellectual standards are used in understanding and solving a particular problem (Paul & Elder, 2006). A critical thinker formulates questions with clarity and precision, gathers and evaluates relevant information, assumes an open and flexible approach in considering alternative thinking modes, and analyzes potential conclusions by testing these against relevant criteria (Paul & Elder, 2006). In short, critical thinking involves a lot of cognitive effort. Compared with critical thinking, bullshit receptivity seems likely to involve less complex and elaborate belief validation processes. This distinction between critical thinking and bullshit receptivity is consistent with dual models of social cognition and with critical thinking associated with explicit, deliberate and controlled cognitive approach, while bullshit receptivity related to spontaneous, automatic, unconscious belief evaluation (Bonnefon, 2018).

In addition to critical thinking, the stepwise multiple regression analysis identified vertical collectivism as a predictor of bullshit receptivity. Vertical collectivism assumes that individuals are unequal, yet interdependent (Triandis, 1996). This contrasts with a horizontal collectivism approach in which individuals are assumed equal. Thus,

individuals who endorse a vertical–collectivist value orientation prioritize a hierarchical approach to human relations. Translated to belief evaluation and validation processes, individuals who endorse a vertical–collectivist value orientation are likely to place much more importance on who the communicator is. Thus, messages from communicators of a higher status are likely to be considered more credible, regardless of the merits of the arguments presented.

Furthermore, individualism is associated with self-reliance, while collectivism with interdependence (Triandis, 1996). One's individualist–collectivist base affects how perceptions are processed, with collectivism leading one to disregard critical thought for a social norm (Caparos et al., 2012; Park et al., 2013). In a recent publication, Lin et al. (2022) found that endorsement of collectivistic values is related to an increase in bullshit receptivity and pseudo-scientific beliefs. To explain this connection, the authors stated that people higher in collectivism are more likely to value connecting and fitting in with others, which motivate them to seek a common ground of communication and generate explanations for how claims might make sense. However, it was vertical collectivism that predicted bullshit receptivity, and thus the differences between vertical and horizontal collectivism must be considered. People higher in vertical collectivism are likely to prioritize finding common ground with those higher in the sociopolitical hierarchy and thus will likely endorse their claims, even if bullshit claims. They may display a human sensitivity to the communicative intent of others in leadership roles. In this attempt, they self-convince and fall prey to conspiracy theories, fake news, or bullshit claims.

Religiosity, RWA, Need for Closure, Vertical Individualism, and Horizontal Collectivism

Religiosity, RWA, need for closure, vertical individualism, and horizontal collectivism were all positively associated with bullshit receptivity in the bivariate correlational analyses but did not enter the lineal stepwise multiple regression model. We begin the discussion with religiosity. Religiosity had been found to be related to bullshit susceptibility (Pennycook et al, 2015). The same results were replicated in this study, although the predictive power was not such as to enter the stepwise model. Part of the reason for this incongruence of findings between prior and this research was that Pennycook et al. (2015) paired religiosity with paranormal beliefs. Shenhav et al (2012) found that religiosity was related to more intuitive thinking, but that religiosity was not related to education, income, politics, or demographics; those findings align with the findings of this study. Shenhav et al. (2012) linked religious beliefs with an intuitive cognitive style, and the more fundamentalist, the more intuitive was linked with being more susceptible to bullshit; having a more analytical cognitive style was linked with being less religious, and less susceptible to bullshit (Antonenko Young et al., 2013; Gervais & Norenzayan, 2012; Pennycook et al., 2012).

RWA as measured by Altemeyer's RWAS is comprised of three core ideas: traditional social values, aggressive attitudes toward those fighting against the status quo, and obedience towards competent authorities which uphold traditional social values and the status quo (Altemeyer, 2004). The hypothesized link between RWA and bullshit receptivity could be explained by cognitive/thinking style. While the RWAS items have

themes that are clearly political or ideological, the BRS does not. However, it can be assumed that there is a cognitive style connection between endorsing strongly worded ideological statements and meaningless statements presented as profound. The correlation between RWA and BR was weak but significant, in the positive direction. These constructs were negatively associated with critical thinking. That is, both authoritarians and bullshitters have lower critical thinking skills as compared with those lower on authoritarianism and bullshit receptivity. However, the lack of significant findings for RWA in the multiple regression analysis suggest bullshit receptivity has less to do with politics and ideology and more with thinking style. This is further evidenced by lack of association between BR and social dominance, and BR and political ideology, as we will discuss later in this chapter.

Need for closure has been found to be associated with multiple other factors which have been found to be related to bullshit susceptibility, such as cognitive styles and rigidity, and over-reliance on heuristic usage (Caparos et al., 2015; Kruglanski, 1990; Webster & Kruglanski, 1994). However, the linkage between need for closure and bullshit susceptibility had not been directly reviewed. In this study, need for closure was not a significant variable in bullshit susceptibility based on the multiple regression analysis. However, there was a weak (statistically significant) positive association between need for closure and BR as indicated by the bivariate correlation analyses. The instrument used was the full version. How various components of need for closure have been found to be related to bullshit susceptibility but not need for closure itself would be a subject for future review. Based on the current study's findings, it appears that need for

closure is a relevant variable to consider, but its predictive power is not considerable as compared with critical thinking and vertical collectivism.

The last two variables which were associated with BR at the bivariate correlations level but did not enter the multiple regression equation are vertical individualism, and horizontal collectivism. Vertical individualism refers to prioritizing interpersonal relations in which we are unequal and independent of others, while the horizontal collectivism orientation considers individuals as equal and interdependent. The relevance of these variables in the prediction of BR is limited, particularly when compared with the vertical collectivism orientation. A rationale for the relevance of vertical collectivism in the prediction of bullshit receptivity, as compared to other dimensions of the individualism-collectivism value orientation was presented in the previous section.

Political Ideology, Social Dominance Orientation, and Horizontal Individualism

Political ideology, SDO and horizontal individualism were the only variables in the study not associated with bullshit receptivity. These findings were consistent across bivariate correlation and multiple regression analyses. These findings are discussed in this section.

Regarding political ideology, there are previous studies showing that conservatives were more susceptible to believing in bullshit claims. Among these include that, at base, liberals and conservatives process information differently (Eidelman et al., 2012), and conservatives are less reflective than liberals (Deppe et al., 2015). Further among these differences are that conservative political ideology is correlated more with intuitive thinking (Kemmelmeier, 2010), a higher need for closure, lower tolerance for

ambiguity, and avoidance of cognitive complexity (Jost et al., 2003), which overall shows a diminished cognitive need (Sargent, 2004). Prior research points out to a clear correlation between conservative ideology and variables that make one more susceptible to bullshit receptivity. However, based on results of this study, not all the data in prior research support such a division in bullshit receptivity between conservatives and liberals.

There could be some explanations for failing to identify a relationship between political ideology and bullshit receptivity, beginning with methodological shortcomings. Political ideology was measured with Poteat and Mereish's (2012a) three-item scale. Previous studies that tested the relationship between bullshit receptivity and political ideology used various instruments to measure this variable. For example, Sterling et al. (2016) used three measures of political ideology. One of the instruments participants completed in that study asked them to report their levels of trust in the government, a Republican-led government, and a Democratic-led government. A second instrument was a five-item scale targeting endorsement of free market ideology, and the third one measured social and economic dimensions of ideology. In a similar fashion, Deppe et al. (2015), Nilsson et al. (2019), and Petrocelli (2022) used a battery of several separate instruments to measure political ideology. Another explanation for the lack of connection between bullshit receptivity and political ideology could be the sample drawn in this study. As Petrocelli (2022) mentioned, MTurk participants are unlikely to accurately represent the political ideologies of the U.S. population. Most relevant, liberal MTurk

workers may not be considered representative of liberals in the broader U.S. population, and a similar, if not greater discrepancy may exist for conservative MTurk workers.

The correlation with RWA and SWO is also relevant for why political ideology may not be significant. To further consider why political ideology was not significant, a look at related variables and factors is needed. When creating the RWA scale decades ago Altemeyer (2006) recognized 'left' authoritarianism, but it was not as prominent so the more prominent 'right' became the subject of focus for proper behavior as recognized by authorities. However, as will be reviewed more later with societal evolution, what was perceived as 'right' and 'left' (or conservative and liberal) in addition to what was recognized as proper behavior deemed by authorities can change over time: who had power and what became the norm for a society can change over time. In related findings, Crawford (2012) and McFarland et al. (1992) found motivated political reasoning is not generally limited to a side, but the different sides have their respective areas of interest that allows for contextual authoritarian or dismissive behavior: double standards are easy to activate regardless of side. For the aforementioned reasons, for the variable of political ideology, RWA may not be significant in this study. This leaves the RWAS and political scale as used for this study as things for potential revisions or updating for newer political nuance: a subject for future study.

The SDOS is like the RWAS with this study having as many variables for review and trying to combine efficiency, truncated lists may not allow for as much nuance as the full version. Furthermore, SDO, RWA, and need for closure have aspects that overlap. Those high in RWA and in SDO both have areas that they are more likely to submit to,

but those areas and to which authorities are generally different (Altemeyer, 2006; Crawford, 2012). As shown in Chapter 2, there has been research which showed conservatives and those higher in RWA tend to be needing more cognitive closure and being less reflective (Deppe et al, 2015; Jost et al, 2003; Sargent, 2004). However, Kahan, (2013) found no substantive difference in the reflective or critical thinking ability between conservatives and liberals. Yet, bullshit susceptibility is assumed to be tied to cognitive styles of which are not different between conservatives and liberals (Pennycook et al., 2015).

The difference in the SDO and RWA concepts should be briefly discussed to further understand the lack of association between SDO and bullshit receptivity. SDO has been described as dominant authoritarianism and RWA as an obedience and submission authoritarianism (Altemeyer, 1998). Individuals high in SDO are motivated for power and dominance (Duckitt & Sibley, 2009). They believe the world is a competitive jungle in which powerful groups in society will strive and dominate over less capable groups. Submissive authoritarians (RWA), on the other hand, are fueled by fear of social and political instability. They are afraid of change and thus they tend to place their faith in God and social dominant leaders. Bullshit claims may somewhat appeal to submissive authoritarians to the degree these reduce their fears of social instability and danger. That is, bullshit statements may sooth their anxiety. Social dominants, on the other hand, are less susceptible to bogus claims as their belief in these is likely to dampen their control and dominance over the situation. That does not mean that bullshit claims may not be of use or interest to social dominants. If publicly advancing or endorsing bogus claims will

result in gain of power and control over others, social dominants are likely to use these statements. However, they are likely not believing in these claims. They are simply using them as a means to an end. Authoritarian submissives, however, are more likely to buy into these claims. Their belief in the world as a dangerous, unsafe, unstable place (Duckitt & Sibley, 2009) makes them vulnerable. Nevertheless, as previously discussed, it is ultimately lack of critical analysis which better predict bullshit receptivity.

Horizontal individualism was not associated with bullshit receptivity. It was not associated with critical thinking either. Horizontal individualism refers to the belief in a society in which individuals are equal yet independent from each other. This differs drastically from a vertical collectivism perspective in which we believe in individuals as unequal and interdependent. Vertical collectivism has been discussed above. It positively predicted bullshit receptivity. It appears that horizontal individualism lacks predictive power in understanding bullshit receptivity to the degree that vertical collectivism does contributes to its prediction – as these are clear opposites in the interpersonal value orientation spectrum.

Limitations of the Study

The limitations of the current study are worth noting and considering in interpreting the findings. The data for this study were obtained from a MTurk recruited convenience sample. Collecting data from a convenience sample and MTurk could have been a limitation. By recruiting via MTurk, participants were limited to those enrolled in MTurk and who had access to Internet and computer. While MTurk is considered a reliable source of recruitment (Bentley et al., 2011; Buhrmester et al., 2011; Lu et al.,

2022), it has not been exempted from criticism. The possibility for skewed demographics (Berinsky et al., 2012), high rate of respondents' inattention (Harms & DeSimone, 2015), or lack of data quality (Houser et al., 2018) have been the target of MTurk criticism. Selection bias and other less visible constraints inherent to MTurk could have occurred in this study, thus limiting statistical inferences to a broader population.

Another limitation of the study is related to the choice of instruments. While being mindful of participants' time in completing the survey, several abbreviated versions of the instruments were selected. For example, as discussed in the previous section, the political ideology variable was measured with only three items. A longer set of items measuring political ideology from various angles could have rendered a different result.

The study used a quantitative correlational cross-sectional survey design to test its hypotheses. There are several limitations associated with the selected design. Although two variables were found as predictors of bullshit receptivity, this result does not imply a causal relationship between these variables. Causal inferences cannot be made based on correlational studies. Furthermore, since self-report measures were used to assess respondents' attitudes and beliefs about the relevant constructs, the possibility of social desirability and related response-biases needs to be considered as well.

Recommendations

Future research should collect data from a broader range of participants located in different contexts and settings. This would attempt to solve the problem related to collecting data via MTurk. Future research using variables that were not significant in

this study such as political ideology, religiosity, RWA, SDO, and need for closure should be careful in selecting the instrument to be used to test the hypothesis.

The bullshit scale as originally created was designed to test pseudo-profundity, not susceptibility to political bullshit specifically. The correlations between political and ideological variables and that pseudo-profound base were tested. The most obvious direction for future research would be to first create an instrument designed to test political bullshit. That instrument would provide more refined data for review. In addition, and as furtherance of the focus of this study, after that political bullshit instrument has been created, repeat design studies that include manipulation of variables amongst different groups and a control group, would show which techniques are better in promoting resilience and decreasing susceptibility to political bullshit.

Implications

> Kids have to be warned that there's bullshit coming down the road. That's the biggest thing you can do for a kid. Tell them what life in this country is about. It's about a whole lot of bullshit that needs to be detected and avoided. That's the best thing you can do. No one told me. No one told me a thing like that. I was never warned about any of this. I had to find all of it out for myself (Carlin, 2019).

Notwithstanding its limitations, this study has contributed to the emerging empirical literature on the newer, operationally-defined concept of bullshit receptivity. The study has expanded upon how various other well-reviewed factors contribute to bullshit receptivity. Specifically, it has identified critical thinking and vertical collectivism as key constructs associated with bullshit receptivity. Furthermore, the

study's findings strongly suggest that ideological and political factors may not be as relevant as initially hypothesized; at least not based on how the bullshit construct is currently operationalized.

Kruglanski's lay epistemic theory (1990) formed the base theoretical framework for this study. This theory was presented as a framework for understanding the relationship among socio-ideological constructs (e.g. authoritarianism, political orientation, social dominance orientation), critical thinking, and bullshit receptivity. Knowledge and beliefs are often used interchangeably, though knowledge is more often associated with testable ideas, while beliefs are not testable. Dual processing is part of lay epistemic theory in that there is the quick, superficial, and heuristic-level of processing, and there is the slow, in-depth, and analytical-level of processing. The individual who perceives and interprets blends heuristic and systematic processing to enact pre-existing inference rules and generate hypotheses (Kruglanski, 1990). Heuristics are for speed, not infallibility (Taleb, 2016). Extended toward group-centrism, these factors help form how groups gain norms, deal with uniformity and violations, accept leaders, and deal with perceptions of a changing world (Chiu et al., 2000; Kruglanksi et al., 2006). While the theory has strong implications, the theory's potential explanatory power was somewhat dampened by the lack of significant results in the multiple regression analysis. Dual process models of cognition may present with an alternative framework to understand bullshit receptivity.

The study's findings have substantial implications for effective positive social change in our communities. It could be argued that the maintenance of order, civility and

justice within our society depends upon our ability to dialogue and communicate while evaluating each other's statements, whether it is an open society relaying and explaining options available and choices made, or an authoritarian society with options given and orders to be obeyed (Kahan, 2013; Kruglanski, 1990). It is difficult to maintain dialogue or engage in open debates when people are not critical about evaluating statements (Sperber, 2010). Thus, the identification of critical thinking and vertical collectivism has clear implication for the development of actions aimed at advancing just society. Each of these factors may affect receptivity to bullshit on their own and may have compounding effects. In a world that has quickly adapted the Internet and the speed of information sharing that is possible with it, in addition to the expanded division in some areas (tribes/collectives being antagonistic), the level of power given or taken by various groups or individuals in positions of authority, it is quite important to see how one may fall for bullshit, and how to be resistant against it. The development of critical thinking skills must be prioritized in our education system as failure to do this place our communities at risks not only for receptivity of bullshit statements but also acceptance of extremist demagogue leaders.

Conclusion

> That it is possible for someone to find meaning in a statement does not prevent it from being bullshit. Indeed, bullshit that is not found at least somewhat meaningful would be rather impotent. Consider the evangelizing of politicians and so-called spin-doctors, for example. Often, their goal is to say something without saying anything; to appear competent and respectful without concerning

> themselves with the truth. It is not the understanding of the recipient of bullshit that makes something bullshit, it is the lack of concern (and perhaps even understanding) of the truth or meaning of statements by the one who utters it. (Pennycook et al., 2016, p. 125)

The relevance of developing critical thinking skills among our citizens must be underscored in considering the findings of this study and that other literature on bullshit receptivity. Skepticism is good, not blind obedience but education itself is not enough to inoculate against vested interests (Shermer, 2017; Sokal, 1996). Marxists to libertarians, and so on, each have their norms which come with punishments for violations of what is deemed a 'collective good' (Tetlock et al, 2000). It is naïve realism to consider oneself as objective and others as uninformed, irrational, and biased (Van Bavel & Pereira, 2018). Education means teaching critical thinking. Critical thinking creates patterns of thinking that are valued in professional areas and, in general, helps people learn more, live better, and make better decisions (Murawski, 2014). However, critical thinking is not necessarily taught equally or sufficiently. What is considered education itself can change with assumptions and norms in societies. In secondary education, not all fields have the same level of focus on critical thinking (Huber & Kuncel, 2016). The trend in education has been to go away from the more difficult higher order/critical thinking, in favor of easily measurable lower order thinking: the focus has been trending from analysis and application to repetition (Smith & Szymanski, 2013).

This trend has huge implications for education and, in general, for society. Generations who were taught critical thinking and were still subject to biases, are getting

systematically replaced with new generations that are not taught to question as well and are taught primarily to repeat. Furthermore, not knowing critical thinking, they will intuit more which includes an emphasis on emotionalism and bullshit susceptibility. Combine this with the rest of the aforementioned, and we get a society that uses less critical thinking, responds more (in style and numbers) to emotionalism and intuition, and gets more of a political say by din of numbers. That all has cultural evolutionary impact.

Stewart-Williams (2020) advised that those successful at evolution are those who continue on to have grandchildren – not just spilling own seed, but having the genes continue beyond that spill; Murray (2021) advises perspective with the awareness of context of the time, and to think about what our progeny will think about what we were thinking of when they look back at us in 50 years. Not only will their perspective be influenced by what we directly passed on through our intent, but they will have distance to be more objective and aware of more complexity in bigger schemes and connections beyond our mundane, daily lives that took some of our precious mental resources. What will they think about what we know, what we did, and what we allowed to influence their worlds? The effect of bullshit has affected our history and will continue to affect our future. That is, unless we can counter its effects with a strong and healthy dose of critical thinking and high-quality education.

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