The University of Southern Mississippi

The Aquila Digital Community

Dissertations

Fall 12-1-2019

Person-Level Sources of Continued Influence Effect: The Roles of Attention Control, Intolerance of Ambiguity and Conservatism

Jinhao Chi
University of Southern Mississippi

Follow this and additional works at: https://aquila.usm.edu/dissertations

Part of the Cognitive Psychology Commons, Personality and Social Contexts Commons, and the Social Psychology Commons

PERSON-LEVEL SOURCES OF CONTINUED INFLUENCE EFFECT:
THE ROLES OF ATTENTION CONTROL,
INTOLERANCE OF AMBIGUITY
AND CONSERVATISM

by

Jinhao Chi

A Dissertation
Submitted to the Graduate School,
the College of Education and Human Sciences
and the School of Psychology
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Approved by:

Dr. Elena Stepanova, Committee Chair
Dr. Mark Huff
Dr. Lucas Keefer
Dr. Richard Mohn
Dr. Hans Stadthagen

_____   _____   _____
Dr. Elena Stepanova   Dr. Sara Jordan   Dr. Karen S. Coats
Committee Chair   Director of School   Dean of the Graduate School

December 2019

Published by the Graduate School

THE UNIVERSITY OF
SOUTHERN
MISSISSIPPI.

ABSTRACT

People continually rely on disinformation to make judgments after it is corrected or

discredited. This phenomenon is termed the continued influence effect (CIE). Using a

sample of 152 participants, the current study examined whether the CIE can be explained

by a person's political orientation, attention control (AC) levels, intolerance of ambiguity

(IA) and need for specific closure (NSC). It was found that when political orientation was

based on self-reports, the overall political conservatism did not predict the CIE ($r = .13$, p

$= .09$) but economic conservatism did ($r = .19$, $p < .05$), suggesting that those with higher

self-reported fiscally conservative attitudes may show more prolonged influence of

disinformation. In addition, the overall AC levels did not predict the CIE ($r = .08$, $p =$

$.30$), but the antisaccade scores reflecting the ability to inhibit automatic responses were a

significant positive predictor of the CIE ($r = .18$, $p < .05$). Lastly, neither IA nor NSC

significantly predicted the CIE (ps $> .05$). These findings were obtained with only one of

two measures of the CIE employed, the warehouse fire paradigm (Johnson & Seifert,

1994). Limitations of both the CIE and political orientation measures are discussed. One

important implication of this work is that previous research may have depicted an

incomplete picture of political orientation, and future studies should aim to capture

various aspects of political orientation to further examine the association between various

facets of conservatism and the CIE. In addition, more experimental studies should be

adopted to better uncover the causal links proposed in this study. These findings may

facilitate further exploration and understanding of the sources of the CIE.

Keywords: continued influence effect; disinformation; conservatism; attention control;

intolerance of ambiguity; need for specific closure

ACKNOWLEDGMENTS

DEDICATION

To my grandmother, who has been loving and supporting me unconditionally and exemplifying the beauty of a soft, kind, understanding yet tough and honest, hardworking, generous yet frugal person.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

CIE	Continued Influence Effect
CIE_fire	Continued Influence Effect Based on Warehouse Fire Story
CIE_theft	Continued Influence Effect Based on Jewelry Theft Story
CMP	Correct Memory Proportion
AC	Attention Control
IC	Inhibitory Control
OSPAN	Operation Span
IA	Intolerance of Ambiguity
NSC	Need for Specific Closure
SEPO	Social and Economic Political Orientation
SEPO_SC	Social and Economic Political Orientation- Social Conservatism Subscale
SEPO_EC	Social and Economic Political Orientation- Economic Conservatism Subscale
SECS	Social and Economic Conservatism Scale
SECS_SC	Social and Economic Conservatism Scale-Social Conservatism Subscale
SECS_EC	Social and Economic Conservatism Scale-Economic Conservatism Subscale

CHAPTER I - INTRODUCTION

Information in our era spreads quickly and widely but disinformation, false information that is accepted as true (e.g., fake news or false claims on the internet), spreads even more quickly than true information (Vosoughi, Roy, & Aral, 2018), misleading the citizens and hampering their ability to make informed decisions. One characteristic of disinformation is that it is resistant to corrections and retractions (Carretta & Moreland, 1983; Ross, Lepper, & Hubbard, 1975; Wilkes & Leatherbarrow, 1988; Wyer & Budesheim, 1987). Uncovering the possible reasons of persistent influence of disinformation may help more effectively reduce its influence. The current study examined intolerance of ambiguity, need for specific closure, and attention control as factors contributing to the continued influence of disinformation and its higher prevalence among conservatives than liberals.

Continued Influence Effect (CIE)

Memory literature on primacy effect (e.g., Asch, 1946; Luchins, 1957) illustrated the persistent effect of earlier information on judgments trumping the later information. The proactive interference (e.g., Keppel & Underwood, 1962) also showed how prior information may interfere with the later information. The study of disinformation as this type of prior information is crucial due to serious implications of disinformation. One common type of disinformation is fake news and its amount and influence have increased remarkably. For example, fake news is considered to have contributed to the outcome of Brexit and the U.S. presidential campaigns in 2017 (Feingold, 2017; Lewandowsky, Cook, & Ecker, 2017).

Even more concerning is that disinformation keeps influencing people's further judgments in the future after corrections and retractions. Research suggests that disinformation often (but not always) shows a continued influence on decision-making even after the disinformation is discredited (Carretta & Moreland, 1983; Ross et al., 1975; Wilkes & Leatherbarrow, 1988; Wyer & Budesheim, 1987), and even when explicit warnings about misleading information are given on the onset (Ecker, Lewandowsky, & Tang, 2010). Johnson and Seifert (1994) coined the term "continued influence effect (CIE)" to describe this phenomenon. They developed a unique paradigm to assess the CIE and reported that when disinformation (e.g., "…volatile materials such as cans of oil paint and gas cylinders were reportedly stored in a closet where a warehouse fire occurred") was corrected (e.g., "…reported volatile materials were removed from the closet before the fire"), participants continued to report disinformation-based inferences on a final test. For example, when they were asked why the fire spread so quickly, they answered that oil fires were hard to put out, using details that were already corrected.

<div style="text-align:center">Disinformation, Misinformation and Misinformation Effect</div>

Before further exploration of the CIE, the clarification of the terminology is warranted. Most researchers studying the CIE have conflated the colloquial meaning of "misinformation" and the specific use of this term by cognitive psychologists. In cognitive psychology, the misinformation effect refers to the phenomenon in which misleading post-event information may make the observer report misleading details that were not in the original event (Zaragoza, Belli, & Payment, 2007). The misinformation effect and the CIE are two fundamentally different phenomena because in the

misinformation effect, the new information provided later changes the memory of the past, while in the CIE, the memory of the past is resistant to the new corrective information. For these two reasons, the current study uses the term "disinformation" to represent false information resistant to corrections provided later.

<div align="center">Examples and Harms of the CIE</div>

The CIE can be very costly to the society. For example, there are still many individuals believing in the myth that vaccines cause autism despite numerous corrections (Kull, Ramsay, & Lewis, 2003). Due to the continued influence effect of this myth, many parents refuse to vaccinate their children. As a result, vaccination rates decreased while the rates of vaccination-preventable diseases noticeably increased, which required considerable expenditure to overcome (Poland & Jacobsen, 2011). Refusal to vaccinate does not only put children's lives in peril, but also poses great risk to the society as a whole. Another example is global warming. Despite the undeniably strong evidence for climate change and its causes, there are still about 16% and 21% of people in America who do not believe it or are unsure about it correspondingly (Leiserowitz, Maibach, Roser-Renouf, Feinberg, & Howe, 2013). Other examples of the CIE include Brexit, with one of the contributing factors being the misinforming (or a misleading claim) that Great Britain was paying 350 million euros per week for EU membership, still common beliefs about presence of pre-war WMDs in Iraq or President Obama's Muslim religion and birthplace in Kenya (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012) despite numerous retractions and corrections.

Unsupported Accounts for the CIE

Two simple explanations for the continued influence of disinformation were that participants do not notice or remember the correction or they do not make the connections between the initial information and the correction, but they were not supported (Carretta & Moreland, 1983; Johnson & Seifert, 1994; Ross et al., 1975; Wilkes & Leatherbarrow, 1988). Past research (Carretta & Moreland, 1983; Ross et al., 1975; Wilkes & Leatherbarrow, 1988) has shown that participants do recollect the correction or the instruction to ignore previously shown messages when they were asked about the corrections directly. For example, Johnson and Seifert (1994) reported that 90% of the participants recalled the correction. This means that the account that participants do not remember correction is not sufficient to explain the CIE.

In addition, Wilkes and Leatherbarrow (1988) forced the participants to make the connection between the correcting information and the disinformation by instructing the participants to infer what they should disregard. They found that the influence from disinformation in this condition was similar to the condition in which the participants were explicitly instructed what to disregard. Thus, the continued influence effect does not seem to derive from the failure to make connections between corrections and disinformation either.

Another explanation was that the CIE occurs because disinformation produced inferences and judgements and thus when disinformation is corrected, the already generated inferences were not corrected and still influence future judgements (Graesser, 1981; Hastie & Park, 1986). However, Johnson and Seifert (1994) found that when the information is corrected immediately after the presentation of disinformation, leaving

4

little time for the generation of inferences, influence from disinformation still existed and the CIE level was similar to the condition where the correction was delayed. Thus, this explanation was not supported either.

Lastly, some researchers proposed that the CIE occurs because disinformation was more available compared to other information (Johnson & Seifert, 1994; Tversky & Kahneman, 1973). This account was not supported either because Johnson and Seifert (1994) found that mere mentioning of some information that does not play a causal role in the scenario, or the priming of this information, did not lead to inferences based of it.

Causal Role Account

One explanation did receive some empirical support, which is called the causal role theory (Johnson & Seifert, 1994). Also referred to as the mental model account (Lewandowsky et al., 2012), the theory claims that people prefer to structure a coherent scenario or mental model of an event. The disinformation plays a key role in such structuring and thus difficult to get rid of (Johnson & Seifert, 1994). In other words, participants fail to incorporate the correction into the mental model because a coherent mental model of the event is difficult to build without that specific piece of disinformation. Other pieces of information in the story may become fragmented without the disinformation connecting other pieces of information together (Johnson & Seifert, 1994). Johnson and Seifert (1994) provided evidence for this theory by showing that when the correction provided an alternative cause, instead of simply discrediting the disinformation, the CIE decreased.

The causal role explanation is also consistent with an earlier finding by Anderson, Lepper and Ross (1980). In this study, participants were given two case studies

suggesting that risk taking and success as a fire fighter have a positive or a negative

relationship. Then some of the participants were asked to generate possible reasons why

such relationship exists while other participants were not given this task. Afterwards,

participants were debriefed that the two case studies were actually bogus. However, when

personal beliefs about the relationship were assessed, those participants who generated

possible reasons for the relationship showed stronger beliefs about the relationship in the

case studies than those who did not go through such a task. The results indicate that when

pieces of information are incorporated into a causal structure, they may become

particularly resistant to correction. A more recent study (Gerrie, Belcher, & Garry, 2006)

also showed that people make up memories to fill the gaps so that a coherent scenario can

be established, suggesting the cognition is susceptible to disinformation when that piece

of disinformation is needed to build a coherent mental presentation. While the causal role

explanation illustrated a situational factor contributing to the CIE, the current study

proposed three person-level factors causing the CIE, which are intolerance of ambiguity,

need for specific closure and attention control.

<div align="center">Intolerance of Ambiguity (IA): A Potential Cause of the CIE</div>

Explicit corrections create gaps in the scenario, which may make people so

uncomfortable that they go for the wrong but coherent model rather than the correct but

incomplete model (Lewandowsky et al., 2012). When a readily available piece of

information providing a reasonable explanation for an event was discredited, an easy way

to solve this conflict may be to ignore the correction and stick with the original scenario

(Lewandowsky et al., 2012). Following this logic, those who have low tolerance of

incomplete or ambiguous scenarios may prefer a more complete story with

disinformation in. Consequently, people who are less tolerant of ambiguous situation may be more susceptible to the CIE.

This tendency depicted above is referred to as intolerance of ambiguity. Coined by Frenkel-Brunswik (1948), intolerance of ambiguity (IA), refers to a general preference for unambiguous situations (Budner, 1962). The IA is generally considered as a characteristic adaptation today, but, originally it was considered as an attitudinal variable (Frenkel-Brunswik, 1948) encompassing one's perception, emotion and cognition, and describing denial of ambivalent feelings and intolerance of ambiguous cognitive patterns. In her study of children with high and low prejudice, Frenkel-Brunswik (1948) observed that ethnocentric children prematurely reduced ambiguous cognitive stimuli, an ambiguous figure with a shape of a disk, to certainty or distorted the stimuli to more simple and stereotyped form, probably to make them more manageable. Frenkel-Brunswik (1951) further described that those with high IA tend to prefer certainty, resist alternating stimuli, and select a solution prematurely and stick with it in ambiguous situations. They also prefer rigid dichotomizations into fixed groups, see things in a black and white manner and find it difficult to allow both good and bad characteristics in a person.

Later research following Frenkel-Brunswik (1948)'s work generally suggests that IA is a stable, dispositional and unidimensional variable underlying various reactions to ambiguous situations (Furnham & Marks, 2013). Some researchers argue that IA taps into several dimensions (Durrheim, 1998) but the vast majority of studies suggests that it is a unidimensional construct overall (Furnham & Marks, 2013). Although it is common for people to desire to resolve uncertainties, the extent of such desire differs among

individuals, and evidence suggests that IA is consistently related to various personality variables. For example, it is positively related to authoritarianism, dogmatism and ethnocentrism, and negatively related to openness, novelty seeking, enjoyment and need for cognition (for review, see Furnham & Marks, 2013).

Ellsberg (1961) defined one of the ambiguous situations as one where the required key information to make sense of circumstances or predict future outcomes is absent. This ambiguous situation resembles one where correction of the disinformation creates a fragmented scenario after the disinformation is discredited. Thus, compared to the scenario with disinformation in it, the corrected scenario can be more ambiguous if no alternative cause is given because the key information is no longer valid and usable. In addition, the corrected scenario can still be more ambiguous even when an alternative cause is provided because it is new to the person. The correction alternates the familiar situation with extra, new and contradictory information, and inevitably makes it more complex, unfamiliar and consequently more ambiguous (Budner, 1962). This idea is consistent with the finding that when an alternative cause was provided during correction, the CIE decreased but still was not completely eliminated (Johnson & Seifert, 1994).

<center>Need for Specific Closure (Closed Mindedness)</center>

Following the research on IA**,** researchers made further efforts to better identify, understand and measure additional personality variables similar and related to but slightly different from IA, such as need for certainty (Kagan, 1972; Sorrentino & Short, 1986), need for structure (Neuberg & Newsom, 1993) and need for closure (Kruglanski, Atash, De Grada, Mannetti, & Pierro, 2013). Among these variables, need for closure (NC) might be more closely related to CIE than others. Kruglanski defined NC as need for "*an*

<center>8</center>

answer on a given topic, any answer, as compared to confusion and ambiguity

(Kruglanski, 1990, p. 337, italics in original)." The definition indicates that the dislike of

ambiguity is a part of the conceptualization of need for closure and thus it should be

related to intolerance of ambiguity. Later research indicates that they indeed are

correlated at around .29 magnitude (Webster & Kruglanski, 1994). In addition, the term

"closure" originated from Gestalt theories and refers to the "subjective closing of gaps (in

percepts, memories and actions), or the completion of incomplete forms, so as to

constitute wholes (Drever, 1963, p. 40)." The causal role explanation for the CIE states

that corrections create gaps in the scenario and in the context of gestalt theory, that

explanation can be understood as that corrections lead to gaps and disturb the closure.

Thus, those high in need for closure may ignore the correction and stick with the original

information, especially those high in specific closure.

Need for closure is considered to originate from two tendencies, need for non-

specific closure and need for specific closure (Webster & Kruglanski, 1998). Need for

non-specific closure (also referred to as seizing or urgency) refers to a preference to

obtain any closure as quickly as possible while need for specific closure (NSC, also

referred to as freezing, permanence or closed-mindedness) refers to the tendency to

maintain the closure by ignoring the new information, which is very similar to the

phenomenon of CIE. Thus, conceptually, specific closure seems more closely related to

the CIE than non-specific closure. In addition, research shows that person with stronger

tendency to stick to the past closures may less likely to assimilate new information to

existing beliefs (Ford & Kruglanski, 1995), more likely to resist persuasion and maintain

beliefs when presented with new information (Kruglanski, Webster, & Klem, 1993; Rice,

Okun, Farren, & Christiansen, 1991). Thus, NSC (i.e., the permanence tendencies) is

considered to lead to the inclination to "freeze" the past established closures. Based on

both conceptual and empirical evidence, the current study also examined whether NSC

and the CIE are positively related.

In summary, those with higher IA may prefer the disinformation-based mental

model since it is more coherent, familiar and thus less ambiguous. In addition, those with

higher NSC may also prefer the disinformation-based mental model because it creates

fewer gaps in the mental model and provides more closure. Thus, the first hypothesis of

the current study was that higher IA (H1a) and NSC (H1b) would lead to more CIE and

thus both would be positively related to the CIE (Figure 1&Figure 9). Although the

hypotheses would not be tested based on true experimental manipulations, causal

statements were still included to better explain the rationality behind the hypotheses.

Figure 1. *Hypothesis 1.*

IA = Intolerance of Ambiguity, NSC = Need for Specific Closure, CIE = Continued Influence Effect

IA and NSC as Confounding Factors behind the

Relationship between Conservatism and CIE

Past research suggests that conservatism and the CIE could be related (Kull et al,

2003; Travis, 2010) but this may not be a causal relationship and instead a spurious

relationship due to influences of third variables such as IA and NSC on both

conservatism and the CIE. Researchers (Kull et al, 2003; Travis, 2010) found that the

beliefs in incorrect information such as "President Obama is Muslim / was born in Kenya," "There were WMD in Iraq before Iraq war," "Vaccination causes autism," "Global warming is a hoax" are more prevalent among conservatives after many years of correction of such disinformation. However, it is difficult to draw the conclusion that conservatives are more vulnerable to the CIE because there are some confounding factors in this phenomenon.

Firstly, conservatives are, in general, more susceptible to disinformation and thus the higher rates of the CIE in conservatives may be a byproduct of bigger base rate of disinformation in the first place (Pennycook & Rand, 2017). As such, maybe corrections do reduce disinformation's influence to the same extent or in the same proportion among conservatives as in liberals, but because more conservatives believed the disinformation before correction, there are still more conservatives than liberals believing the disinformation after correction.

Secondly, higher rates of the CIE among conservatives may be due to a match between the type of disinformation and their specific worldviews (for review, see Lewandowsky et al., 2012). Worldviews of conservatives and liberals differ in many aspects, such as beliefs about threat, equality and government regulation (Jost et al., 2007; Tetlock, 1983). For example, conservatives are more likely to believe that the world is a dangerous and threatening place than liberals (Altemeyer, 1998; Duckitt, 2001). It's possible that recent spreading of disinformation such as threats of WMDs in Iraq or a foreign-born Muslim president happened to match conservatives' worldviews, causing the asymmetries of the CIE among conservatives and liberals (Lewandowsky, Ecker, & Cook, 2017).

11

However, the findings above do not warrant change of certain worldviews. On the contrary, researchers suggest that because the CIE may have originated from distrust of the sources of correction, a more effective correction strategy would be delivering corrections through worldviews congruent sources or messengers to reduce resistance to worldview-inconsistent corrections (Lewandowsky et al., 2017). For example, evidence shows, unlike liberals and moderates, conservatives' trust in science has been decreasing since 1970s (Lewandowsky, Gignac, & Oberauer, 2013), especially trust in scientists who advocate for environmental protection (McCright, Dentzman, Charters, & Dietz, 2013). Thus, it is possible that the CIE is observed more often among conservatives because correction did not come from more trusted sources. As such, a scenario-based study with novel, neutral disinformation and credible correction source to control the influence from these confounders (prior disinformation base rate, worldviews and source credibility) may help clarify whether conservatism is truly related to the CIE. But if the influence of all the confounders are controlled, why would conservatism still be related to the CIE? One possible answer is the third variable, IA.

Existent research suggests that conservatism is positively related to IA and NSC and each may be one of the underlying epistemic motives that contribute to conservatism as a motivated social cognition (Jost, 2017; Jost, Glaser, Kruglanski, & Sulloway, 2003). The conservatives prefer traditional and familiar social structure and this preference may stem from the psychological need to attain certainty, simplicity and closure and avoid uncertainty, novelty, complexity and ambiguity. These central values distinguish political conservativism from political liberalism, along with other values such as need for security (Jost et al., 2007). In addition, as Russell (1950) pointed out, liberals and

conservatives differ not only in what they believe in, but also how they hold their beliefs. Conservatives tend to hold their beliefs in a closed-minded and dogmatic manner while liberals tend to hold their beliefs tentatively and ready to change their beliefs in the face of new evidence. Thus, IA and NSC (closed-mindedness) may give rise to conservative attitudes and should be positively related to conservatism.

Researchers have examined the relationship between conservatism and these epistemic motives. For example, a meta-analysis by Jost (2017) found that the overall magnitude of the relationship between IA and conservatism is at .26 (unweighted) and .20 (weighted) and between NC and conservatism is at .23 (unweighted) and .19 (weighted). Although no meta-analyses examined the relationship between NSC and conservatism as one of the two motives underlying NC, it seems reasonable to infer that NSC may positively relate to conservatism. Thus, higher IA and NSC may lead to more conservative attitudes. As such, if, as hypothesized in H1, higher IA and NSC also lead to more CIE, then it is reasonable to infer that the conservatives show more CIE than liberals as a result of higher level of IA and NSC causing more conservative attitudes and more CIE. Thus, it was hypothesized that (H2) conservatism and the CIE would have a positive relationship (Figure 2 and Figure 9) but the relationship exists not because conservatism causes the CIE. Instead, (H3) this relationship (Figure 3 and Figure 9) exists because IA and NSC cause increase in both conservatism and the CIE, leading to a spurious relationship between conservatism and the CIE. Note that conservatism was treated as a bi-directional construct in this model. More specifically, low conservatism was considered as high liberalism and vice versa.

13

Figure 2. *Hypothesis 2.*

CIE = Continued Influence Effect
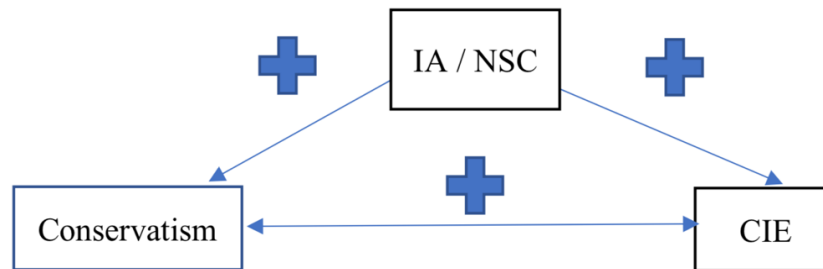
Figure 3. *Hypothesis 3.*

IA = Intolerance of Ambiguity, NSC = Need for Specific Closure, CIE = Continued Influence Effect

Attention Control as a Possible Cause of CIE

Besides IA, previous research suggests that individual differences in attention control (AC) may lead to different levels of susceptibility to the CIE (Hasher, Zacks, & May, 1999; Zaragoza & Lane, 1991). Firstly, AC likely plays a role in the CIE because attention is an essential component for encoding and retrieval processes of conscious recollection (Zaragoza & Lane, 1991). Research shows that diminishing attention through use of a secondary task at encoding or retrieval reduces participants' correct recognition (Jacoby, Woloshyn, & Kelley, 1989; Kelley & Lindsay, 1993; Zaragoza & Lane, 1991). For encoding, greater AC may lead to the creation of stronger and more diverse cues that can be used at test. For retrieval, greater AC may lead to an enhancement of source-monitoring ability to more accurately discern where contradictory information is presented. In this context, source monitoring refers to the discrimination of different

14

memories based on available contextual details (Johnson, Hashtroudi, & Lindsay, 1993). Thus, the greater availability of attentional processes, as indexed by greater levels of AC, may consequently lead to the reduced CIE by strengthening encoding processes, increasing recollection of correct source information, or some combination of the two.

In other words, incorrect recall of source information may lead to source misattribution or confusion, which then lead to the CIE. When tested on an event, both disinformation and actual facts can be activated, and one needs to rely on source monitoring to organize and evaluate the information based on their characteristics (Ayers & Reder, 1998; Johnson et al.,1993). For example, a person may remember contextual details of both disinformation and the correction but confuse the sources and falsely attribute the information that was discounted as fact. When incorrect information is retrieved, greater AC may more effectively retrieve source details and reject the information as incorrect.

Secondly, one construct related to AC, but not identical to it, is inhibitory control (IC), the ability to block goal-irrelevant information or representations triggered by the environment from entering working memory (Hasher et al., 1999). According to Oberauer (2001), IC plays a role in reducing the activation of irrelevant information in the long-term memory, thereby reducing the interference or distraction from it. Attention control makes sure that the correct task is executed while inhibitory control ensures that the task is executed with right information (Oberauer, SÜß, Wilhelm, & Sander, 2007). Thus, those with better AC and consequently better IC, are likely to more efficiently inhibit discredited disinformation after it is evaluated as invalid in source monitoring and thus less likely to further reason and infer based on the discredited disinformation.

In summary, a person's better attention control capacity may lead to stronger encoding of cues, more accurate search and use of source information at test, and greater inhibition of irrelevant information such as disinformation. As such, greater AC, through involvement in these processes, may lead to the reduced CIE. Thus, the fourth hypothesis of the current study was that attention control is one of the causes of the CIE and thus would be negatively correlated with the CIE (Figure 4 and Figure 9).

Figure 4. *Hypothesis 4.*

AC = Attention Control, CIE = Continued Influence Effect

Attention Control as a Potential Cause of Conservatism

Research indicates people with different political orientations (conservatives and liberals) not only differ in the contents of their attitudes, but also in cognitive styles, which potentially underlie different ideologies (Carney, Jost, Gosling, & Porter, 2008; Jost, 2017; Jost et al., 2003). Meta-analyses (Jost, 2017; Jost et al., 2003) confirmed that liberals and conservatives differ significantly in dogmatism, cognitive/ perceptual rigidity, needs for order, structure and closure, intolerance of ambiguity and uncertainty, integrative complexity, need for cognition, cognitive reflection, self-deception and perceptions of threat.

Among various personal and environmental factors contributing to these differences, one factor may be differences in cognitive ability. For instance, conservatism

and receptivity to *pseudo-profound bullshit* (meaningless and very vague statements) steadily show positive relationship (Jost, 2017). Sterling, Jost, and Pennycook (2016) found that economic conservatives, individuals who support free market ideology, showed lower scores on measures of verbal and fluid intelligence, and higher receptivity to *pseudo-profound bullshit.* Furthermore, the positive relationship between economic conservatism and *bullshit* receptivity was mediated by low verbal intelligence and higher reliance on heuristic processing. In line with these findings, the meta-analysis results by Jost (2017) showed that conservatism was negatively related to need for cognition (unweighted $r = -.16$ weighted $r = -.09$). These results suggest that conservatives may engage in heuristic or automatic thinking more often than liberals (Jost, 2017). One reason for this could be overall lower attention control ability among conservatives.

Those with lower attention control ability may need to exert more mental effort to govern a complex task, which consequently increase feelings of fatigue (Belmont, Agar, & Azouvi, 2009). Systematic (deliberate) processing is more demanding and requires more intentional involvement of attention control than automatic processing (Norman & Shallice, 1986) and thus if one has lower attention control ability, then it may be more adaptive for the person to engage in automatic processing more often to reduce subjective fatigue or burnout. Supporting this argument, recent research found that lower mental effort was positively related to conservativism (Eidelman, Crandall, Goodman, & Blanchar, 2012; Van Berkel, Crandall, Eidelman, & Blanchar, 2015). Both groups of researchers (Van Berkel et al., 2015; Eidelman et al., 2012) found that factors that should reduce AC (e.g., alcohol intoxication, cognitive load, low-effort thought instructions etc.) increased conservatism.

17

Thus, fifth hypothesis was that low attention control capacity would lead to higher conservatism and consequently, they would be negatively related (Figure 5 and Figure 9). As stated in hypothesis 4, it is possible that attention control capacities contribute to the CIE. As such, it is possible that conservatism and CIE are positively related because attention control ability influences both conservativism and CIE. Thus, sixth hypothesis was that attention control would drive (not mediate) the relationship between conservatism and the CIE (Figure 6 and Figure 9).

Figure 5. *Hypothesis 5.*

AC = Attention control
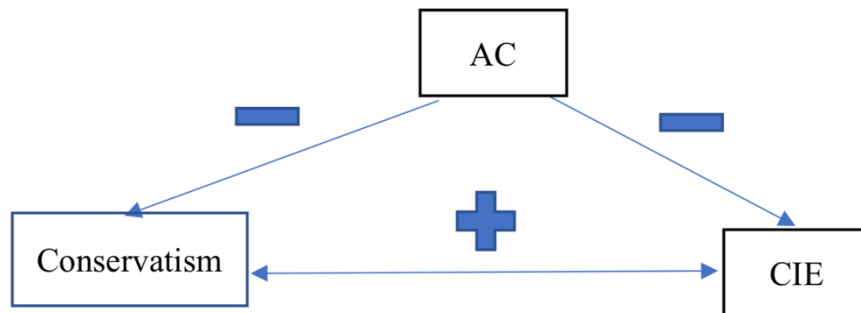
Figure 6. *Hypothesis 6*

AC = Attention Control, CIE = Continued Influence Effect

Attention Control as a Potential Cause of IA and NSC

Differences in epistemic motivations such as IA and NSC may stem from attention control as well. For example, lower attention control ability may be related to higher IA and NSC because with less attention control resources available, one may find it difficult to process an ambiguous situation as is and may have to prematurely reduce the ambiguity to certainty or stick to the previous beliefs ignoring the novel and more complex information. In addition, one of the benefits of closure is reduced necessity for further information processing, which is especially beneficial when one is fatigued (Webster & Kruglanski, 1998). Similarly, one with fewer attention control resources may prefer less information processing and thus prefer maintaining closure by ignoring new evidence or information.

However, to the best of our knowledge, no studies have examined the relationship between attention control and epistemic motivations and thus this hypothesis would be close to explorative than confirmative. As such, the seventh hypothesis was that higher AC would reduce IA and NSC and hence they would be negatively related (Figure 7 and Figure 9). IA and NSC were considered as underlying conservatism and higher AC was also hypothesized to cause lower conservatism (H5). Put together, the eighth hypothesis was that higher AC would lead to lower IA and NSC which will consequently lead to lower conservatism (Figure 8 and Figure 9).

Figure 7. *Hypothesis 7.*

AC = Attention Control, IA = Intolerance of Ambiguity, NSC = Need for Specific Closure
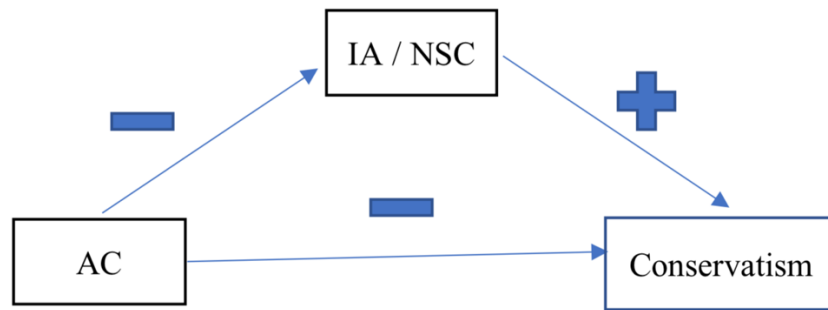
Figure 8. *Hypothesis 8.*

AC = Attention Control, IA = Intolerance of Ambiguity, NSC = Need for Specific Closure

In summary, the current study examined whether conservatism is positively related to continued reliance on disinformation during thinking and reasoning after corrections. Prior research results on this topic are inconclusive because they are confounded with worldviews, level of prior exposure to the disinformation and level of exposure to corrections as well as perceived credibility of the correction sources. Thus, the current study investigated this research question using a scenario with novel and neutral disinformation and trustworthy correction source.

In addition, intolerance of ambiguity, need for specific closure and attention control ability were examined as confounding variables that influence both conservatism and CIE and thus drive the positive relationship between the two. Lastly, the relationship between AC and IA /NSC were examined to see whether the relationship between conservatism and IA / NSC is driven by the third variable AC. All the hypotheses were examined simultaneously in a multivariate manner using path analysis, to reduce type I error (Figure 9). The examination of these variables related to the CIE together in one model may further advance the understanding of the potential sources of CIE, paving the

way for future experimental studies aiming to uncover the causal mechanisms behind CIE

and reduce the magnitude of CIE.
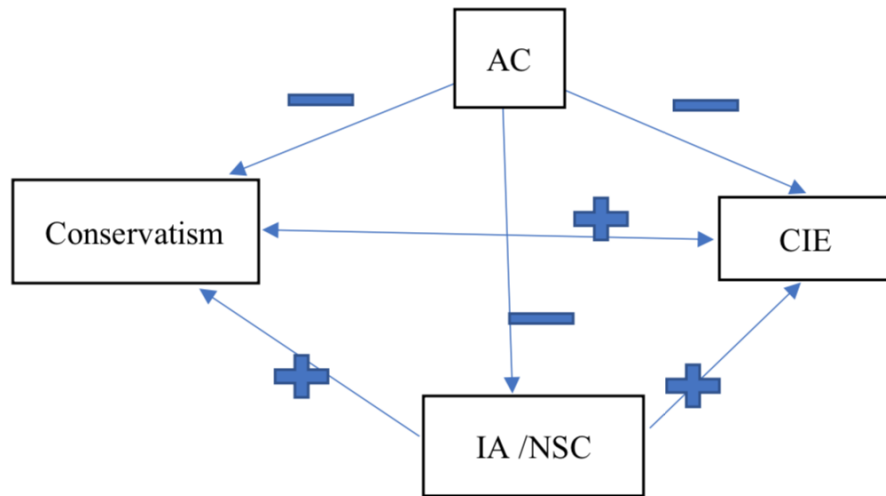
Figure 9. *The Original Model.*

AC = Attention Control, IA = Intolerance of Ambiguity, NSC = Need for Specific Closure, CIE = Continued Influence Effect

CHAPTER II - METHOD

Participants

Undergraduate students (N =160) from a public university in the southeastern

United States and community volunteers were recruited. Some participants were students

enrolled in introductory psychology courses and other psychology courses that require or

allow participation in research for partial course credit. These students were recruited

using SONA (https://usm.sona-systems.com), an online psychological research

recruitment system used by the School of Psychology. Other participants ($N = 38$) were

community volunteers recruited via craigslist advertisements or flyers posted at libraries

on and off campus as well as a local Starbucks. These participants were compensated

with $15 Walmart gift cards.

Loehlin (2004) suggested at least 100 and preferably 200 cases for Structural

Equation Modeling (SEM) with less than 10 variables. Meyers, Gamst, and Guarino

(2016) recommend a sample size 8 times of the number of variables plus 50 cases.

Following this rule, the recommended sample size for this study would be 90 based on

the four variables in the analysis. Another recommendation was 15 cases per observed

variable, which yields 60.

To obtain adequate power, the current study recruited a total of 198 participants

(54 male [27.3%], 143 female [72.2%] and 1 with missing response for gender [0.5%]) to

compensate for data loss (e.g., cases with too much missing data or cases failing the

validity items). Among these 198 participants, 46 participants were not included in the

data analysis because they failed one or more of the validity-check items or missed more

than 25% of the total data. Therefore, the final sample size was composed of 152

participants 39 men (26%) and 113 women (74%). Ethnicity of the participants was the following: 86 White or European American (56.6%), 47 Black or African American (30.9%), 8 Asian American (5.3%), 6 Latino (3.9%), 3 multicultural (2%), 1 American Indian (.7%), and 1 Pacific Islander (.7%) with a mean age of 20.19 years ($SD = 3.49$) and an age range 18 - 40 years. As for class standing, 84 were 1st year in college, 26 were 2nd year, 21 were 3rd year, 13 were 4th year, 1 was 5th or higher and 7 were graduate or professional students.

Materials

Conservatism

Conservatism was measured by two different scales. The first scale included two bi-directional single-item measures of (a) social and (b) economic political orientation based on a 7-point Likert scale from 1 (Very Liberal) to 7 (Very Conservative) (SEPO; Appendix A). The second scale is the 12 Item Social and Economic Conservatism Scale (SECS; Everett, 2013) which assesses one's level of conservatism and liberalism regarding social and fascial issues using a 7-point Likert scale from 1 (greater negativity) to 7 (greater positivity) (Appendix B). For all measures, higher scores indicated more conservative attitudes or less liberal attitudes. Everett (2013) reported good internal consistency reliability ($\alpha = .88$, .87 and .70 for the total scale, social and economic subscales) despite relatively small number of items in the measure. In the current study, the internal consistency was good for the overall and social conservatism (.82 and .95) but poor for economic conservatism (.46). Adequate fit in confirmatory factor analysis and significant correlations with other related constructs such as resistance to change and dogmatism provided evidence for construct and concurrent validity (Everett, 2013).

23

Intolerance of Ambiguity

Multiple Stimulus Types Ambiguity Tolerance (MSTAT; McLain, 1993) containing 22 items was used to measure intolerance of ambiguity (IA) (Appendix C). Among all the measures for IA, MSTAT has the best psychometric properties overall (Furnham & Marks, 2013). The internal consistency of the measure was good ($\alpha = .89$) in this study. Evidence for concurrent validity has been established from significant correlations with other measures of IA, such as Budner's (1962) 16-item measure, Storey and Aldag's (1983) 8-item measure and MacDonald's (1970) 20-item measure. MSTAT scores are also correlated with measures of other related constructs such as receptivity to change, willingness to take risks and dogmatism (Furnham & Marks, 2013). Items assessing tolerance of ambiguity were reverse-coded and the average of the items was obtained so that the high score indicated high intolerance of ambiguity.

Need for Specific Closure

Need for Closure Scale (NFC; Kruglanski et al., 2013) (Appendix D) is comprised of 5 sub-scales assessing 5 facets of need for closure, which are order, predictability, decisiveness, ambiguity and closed mindedness. The closed mindedness subscale assesses the need for specific closure and other four subscales measure the need for non-specific closure to various capacities. The closed mindedness subscale is comprised of 8 items and participants are asked to respond to these 8 items using a 6-point Likert scale, from 1 (strongly disagree) to 6 (strongly agree). The average of the 8 items was obtained and thus the score of each participant ranged from 1 to 6, with higher scores indicating more close-minded attitudes. Kruglanski et al. (2013) reported that the reliability for the close-mindedness subscale was acceptable at around .6. In the current study it was .69.

Construct validity was established by the adequate loadings of the 6 first-order factors. Evidence for convergent validity is available given significant correlations with need for cognition ($r = .32$) and cognitive complexity ($r = .31$). Discriminant validity is evidenced by non-significant correlation ($r = .08$) with intolerance of ambiguity (Webster & Kruglanski, 1994). But, in the current study, they were significantly correlated ($r = .57$, $p < .01$)

Attention Control

A single measure of attention control is considered inadequate because it measures factors unrelated to AC (e.g., math or verbal ability) (Loehlin & Beaujean, 2016). Thus, multiple indicators of different aspects of AC were used including operational span (OSPAN; working memory), antisaccade (inhibition) and the Stroop tasks (goal maintenance), and a composite score indicating a person's overall attentional control ability was obtained based on the reaction times and error rates (Hutchison, 2007). The battery is based on a battery originally used by Hutchison (2007) but the original OSPAN tasks are replaced with shortened OSPAN tasks by Foster et al. (2015), which showed good predictive validity despite the shortened length.

OSPAN. Operation span (OSPAN) task measures working memory capacity (Forster et al., 2015). The task is comprised of 6 trials and in each trial 2 to 7 pairs of a math problem (e.g., 10 x 2 - 5 = 10, Correct / Incorrect) and a letter (e.g., "N") were presented to the participants, and they were asked to remember the letters in order. The number of math problem-letter pairs in a sequence increased and decreased randomly to accurately assess participants' working memory. Those with higher working memory capacity will remember more letters in the trials and consequently receive higher OSPAN

scores. Span scores were obtained based on each letter correctly recalled in order and thus the highest span score was 27 (Forster et al., 2015).

Antisaccade. Antisaccade task assesses inhibitory control aspect of attention control (Guitton, Buchtel, & Douglas, 1985). On each trial, a large star appeared in either left or right side for 100ms and then a target stimulus (O or Q) appeared on the opposite side of the screen for 100ms. The participants were instructed to look to the opposite direction from the flashed star to identify the target stimulus target before it disappears. There were 8 practice trials followed by 48 experimental trials. Because there were only two response options (O or Q), the chance for correct response was 50%. The antisaccade scores indicate the percentage of correct responses and thus higher scores indicate higher attention control ability.

Stroop. Similar to the antisaccade task, the Stroop task measures goal maintenance and inhibitory control (Kane & Engle, 2003). The Stroop task was comprised of 36 incongruent trials with color words (*red, green, blue and yellow*) presented in another color (e.g., the word *green* presented in red, blue and yellow), 36 congruent trials with color words in the same color and 48 neutral trials with neutral words (bad, deep and poor). Participants needed to keep the goal of naming the color of the word and resist the habitual responses of reading the word. Participants responded vocally to a microphone connected to a response box. The computer measured the latency from the stimulus presentation until the onset of the participants vocal response. The response accuracy was coded by the experimenter via a keyboard keypress. Stroop score was a composite score based on error rates and reaction times difference between

26

congruent and incongruent trials (both raw and standardized z scores). Thus, higher Stoop scores reflect lower attention control ability.

Continued Influence Effect (CIE)

The CIE was measured based on disinformation-based inferences made after reading two sets of fictional police reports investigating warehouse fire (Appendix E) and jewelry theft (Appendix G). The police reports were adapted from the messages used by Johnson and Seifert (1994), who modified the reports from Wilkes and Leatherbarrow (1988). In each set, there were 13-14 messages of similar length in total, with each message comprised of 2 to 4 sentences. Unlike the original CIE measures using written messages, the current study used audio messages recorded by a female student without regional accent to further examine the scope of validity of the CIE measure. The participants were allowed to listen to the message as many times as they need but once they move forward, they could not return to the previous message. Both sets of messages include one piece of disinformation that were corrected later. The sequence in which the two stories appear were randomized. After listening to the audio messages of the first story, one of the measures included in the study randomly appeared as a distraction task.

Then the participants answered an open-ended questionnaire comprised of 22 (Warehouse Fire Story; Appendix F) or 23 (Jewelry Theft Story; Appendix H) questions revised from Wilkes and Leatherbarrow (1988). The first 10 fact-checking questions examined the facts in the story and the other 10 to 11 inference-examination questions assessed participants' inferences about the event. The last 2 correction-check questions examined whether the participants noticed the corrections.

27

In the original study by Johnson and Seifert (1994), several different methods were used to code the CIE such as one based on response to the inference questions only, the other based on both the fact and inference questions and another based on free recall of the story. The problem was that the specific rationale for these different methods were not provided. In the current study, responses to inference questions were used to assess the CIE because the core of the CIE is based on the judgements made in response to the corrected disinformation rather than just memories about the disinformation and correction. In addition, many fact questions seemed irrelevant to the disinformation (e.g., "5. What business was the firm in?"). In contrast, all inference questions were closely related to the disinformation and correction (e.g., "1. Why did the fire spread so quickly?"). Another practical consideration was to shorten the time needed to code the responses.

Four undergraduate research assistants coded the responses and each response is coded by two coders. Any inconsistencies between the two coders were resolved by consulting the primary researcher. A response was coded as 1 if it reflected beliefs in the corrected disinformation including direct and uncontroverted references to the volatile materials such as the gas cylinders and painting materials or the son as a suspect for the jewelry theft. A reference was considered as uncontroverted if it mentions the disinformation without mentioning the correction.

<center>Procedure</center>

A Dell desktop and monitor as well as a standard set of mouse and keyboard were used. Upon arrival, participant read the hard copies of the consent form and signed them. The measure of attention control was always administered first because it is relatively

<center>28</center>

more demanding cognitively. The researcher typed in the pre-determined subject number (from 101 to 350), which was used to match the data from attention control battery to the data collected via an online survey based on Qualtrics, a web-based survey tool (Qualtrics, Provo, UT). The participants were informed that the purpose of the study was to investigate the relationship between personality and information processing. The purpose of the study was kept vague so that most natural responses can be obtained.

Upon participants' completion of the attention control battery, the researcher opened the link to a survey created via Qualtrics and entered the subject number. Participants were informed that they would listen to a series of audio messages and they can proceed at their own pace but they cannot return to the previous messages. They were also informed that they would need to recall the information later and answer related questions. After they read the story, one of the measures listed above (e.g., measure of conservatism, intolerance of ambiguity and need for specific closure) or a measure of general demographics appeared randomly as distraction tasks. Then the participants answered the open-ended questionnaire. The audio massages of the second story appeared afterwards, followed by the other measure as a distraction task. Then the second open-ended questionnaire about the second story were presented. Lastly, they completed the measures of conservatism, IA, need for specific closure and demographic information that did not appear as distraction tasks before and these measures were presented in random order to eliminate any sequence effects.

Meade and Craig (2012) recommended having up to three validity items (i.e., "I have never brushed my teeth", or "Answer this question as very true") to screen out the participants who are not paying attention and responding carelessly. Therefore, two

directed response items were intermixed with other questions in the Qualtrics survey.

Upon the completion of all the tasks, the participants were debriefed and the experiment

ended. The study took about 75 minutes to complete.

CHAPTER III – RESULTS

Data Preparation

During the initial data screening, 4 cases with more than 25% of total missing data and 42 cases failing one or both of the validity items were screened out. Then frequencies and descriptive statistics were examined to find out invalid responses in the data. No obvious outliers were identified and 6 missing responses were imputed using linear trend at point. As a result, the final sample was comprised of 152 participants.

After initial data screening procedures, the various measures were scored according to their respective manuals. The CIE score for each story (i.e., warehouse fire and jewelry theft) was calculated by summing the number of responses reflecting inferences based on the corrected disinformation (e.g., "The fire spread so quickly because of explosive materials in the closet."). The average CIE score for each participant was obtained by taking the mean of the two stories' total CIE scores. Correct memory proportion was also obtained based on the correct responses to 20 fact questions. The average correct memory proportion was .69, indicating the participants did remember most details of the two stories.

Next, the five assumptions of correlational analyses were examined to make sure that the assumptions of normality and homoscedasticity are met and the variables are on interval or ratio scales in nature (Field, 2013). Skewness and kurtosis were checked and no obvious violations of normality were found for the average CIE scores used to test the original hypotheses. However, the CIE scores based on the jewelry theft story were positively skewed as indicated by a pseudo z score of 6 (skewness statistic = 1.19, standard error = .20).

Next, the means, standard deviations, ranges, and zero-order correlations between all study variables were obtained to illustrate their bivariate relationship (see Tables 1 and 2). All scales had acceptable reliability ranging from .69 to .89, except for the Economic Conservatism Sub-scale of the Social and Economic Conservatism Scale (SECS; α = .46).

Table 1

Intercorrelations of All Study Variables for the Final Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CIE_mean															
2. CIE_fire	.80**														
3. CIE_theft	.62**	.03													
4. AC	.11	.08	.07												
5. Stroop	-.08	-.00	-.13	-.51**											
6. Antisaccade	.13	.18**	-.02	.73**	-.11										
7. OSPAN	.004	-.03	.05	.71**	-.10	.22**									
8. SEPO	.09	.13	-.03	-.04	-.06	-.05	-.07								
9. SEPO_SC	.04	.06	-.02	-.04	-.03	-.01	-.07	.92**							
10. SEPO_EC	-13	.19**	-.04	-.04	-.10	-.08	-.06	.88**	.62**						
11. SECS	.06	.07	.02	.00	-.14	.02	-.13	.60**	.56**	.53**					
12. SECS_SC	.01	.04	-.05	-.08	-.01	-.03	-.06	.61**	.61**	.47**	.91**				
13. SECS_EC	.12	.08	.10	.11	-.28**	.07	-.12	.41**	.31**	.45**	.82**	.51**			
14. NSC	.02	.03	-.04	-.08	.10	-.06	-.01	.23**	.24**	.18*	.10.	.14	.01		
15. IA	-.02	-.04	-.01	.01	-.02	.00	.01	.11	.12	.08	-.08	-.05	-.10	.57**	
16. CMP	.22**	.23**	.07	.30**	-.10	.30**	.16*	.01	.00	.02	.09	-.01	.19*	-.10	-.05

Note: *N* = 152. CIE_mean = CIE mean of two stories; CIE_fire = CIE score of the fire story; AC = Attention Control; OSPAN = Operation Span; SEPO =Social and Economic Political Orientation

Scale; SEPO_SC= Social Conservatism Sub-scale; SEPO_EC = Economic Conservatism Sub-scale; SECS = Social and Economic Conservatism Scale; SCES_SC = Social Conservatism Sub-scale;

SECS_EC = Economic Conservatism Sub-scale; NSC = need for specific closure; IA = intolerance of ambiguity, CMP = correct memory proportion. *p < .05, ** p < .01, two tailed.

Table 2

Means, Standard Deviations, Ranges, and Scale Reliabilities of All Study Variables for

the Final Sample

Variables	M	SD	Range	α
1. CIE_mean	2.42	1.19	0-10.5	†
2. CIE_fire	3.43	1.86	0-10	†
3. CIE_theft	1.41	1.42	0-11	†
4. AC	0	1	†	†
5. Stroop	0	1	†	†
6. Antisaccade	.74	.14	0-1	†
7. OSPAN	15.67	6.12	0-25	†
8. SEPO	4.13	1.39	1-7	.76
9. SEPO_SC	3.87	1.67	1-7	†
10. SEPO_EC	4.39	1.41	1-7	†
11. SECS	4.71	.92	1-7	.83
12. SECS_SC	5.06	1.22	1-7	.85
13. SECS_EC	4.36	.88	1-7	.46
14. NSC	2.91	.67	1-6	.69
15. IA	3.80	.77	1-7	.89
16. CMP	.69	.15	0-1	†

Note: N = 152. CIE_mean = CIE mean of two stories; CIE_fire = CIE score of the fire story; AC = Attention Control; OSPAN = Operation Span; SEPO =Social and Economic Political Orientation Scale; SEPO_SC= Social Conservatism Sub-scale; SEPO_EC = Economic Conservatism Sub-scale; SECS = Social and Economic Conservatism Scale; SCES_SC = Social Conservatism Sub-scale; SECS_EC = Economic Conservatism Sub-scale; NSC = need for specific closure; IA = intolerance of ambiguity, CMP = correct memory proportion. *$p < .05$, ** $p < .01$, two tailed.

Tests of Stated Hypotheses

All original hypotheses are summarized in the test model (Figure 9), and were

examined together via path analysis using Mplus. Only observed variables and no latent

variables were used in the analysis, since the focus of the study is the relationships among

the variables instead of the measurement part. In addition, including the latent variables

would have required a sample size too large to achieve during the time allotted for this

project.

Both the CIE and Political Orientation were regressed on Attention Control and

Intolerance of Ambiguity (and Need for Specific Closure) via "ON" command and

Political Orientation was correlated with the CIE via "with" command. Because

Intolerance of Ambiguity (IA) and Need for Specific Closure (NSC) are similar but

different constructs ($r = .57$, $p < .001$), they were tested in separate models, one analysis

with IA and the other with NSC. Similarly, because the two measures of political

orientation (i.e., the two single-item questions [SEPO] and the inventoried measure of

Social Conservatism [SECS]) were only moderately correlated ($r = .60$, $p < .001$), they

were tested separately.

All four models (IA & NSC by SEPO & SECS; more specifically, model 1 with

IA & SEPO, model 2 with IA & SECS, model 3 with NSC & SEPO and model 4 with

NSC & SECS) were just-identified models. None of the coefficients for the predicted

paths were significant ($ps > .05$) (Figures 10-13), except for the path from NSC to SEPO,

which was already established in the literature ($r = .23$, $p < .005$) and thus was not

included in the original hypotheses. Thus, no hypotheses based on the original model

were supported by the path analysis (Hypotheses 1- 8).
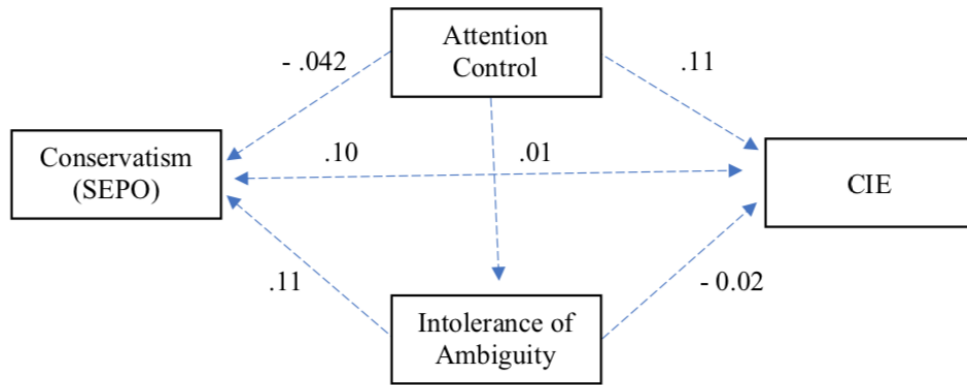
Figure 10. *The Original Model with SEPO and Intolerance of Ambiguity.*

SEPO = Social and Economic Political Orientation Scale
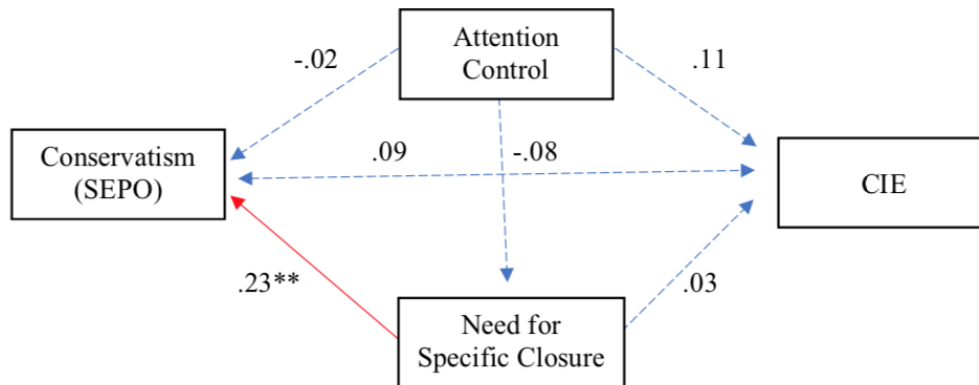
Figure 11. *The Original Model with SEPO and Need for Specific Closure.*

SEPO = Social and Economic Political Orientation Scale
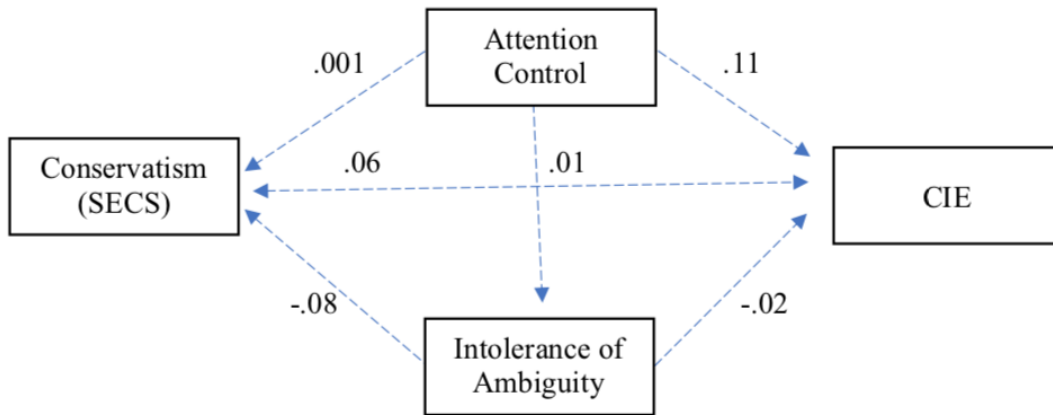
Figure 12. *The Original Model with SECS and Intolerance of Ambiguity.*

SECS = Social and Economic Conservatism Scale
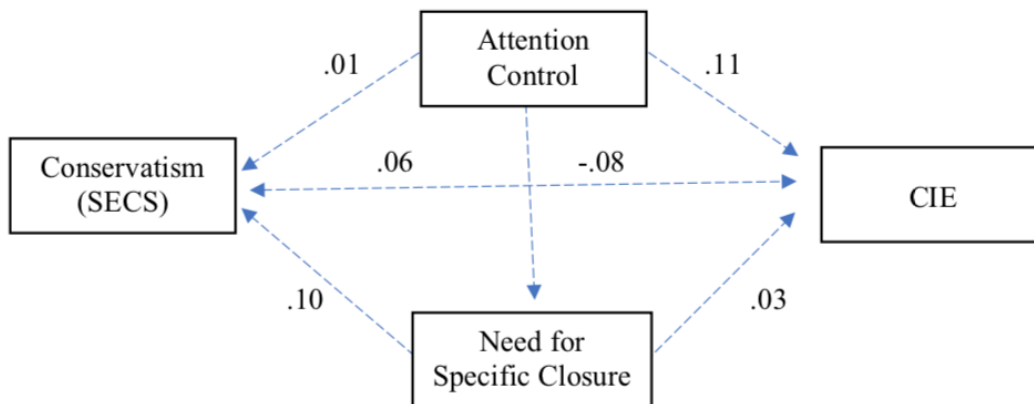
Figure 13. *The Original Model with SECS and Need for Specific Closure.*

SECS = Social and Economic Conservatism Scale

Exploratory Analyses

Next, supplementary analyses were conducted to further explore the models, and the sub-scale scores were included in the correlation analyses. More specifically, the Social and Economic Conservatism sub-scale scores were analyzed separately because

they were not correlated particularly highly ($r = .62$, $p < .001$ for SEPO_EC and SEPO_SC and $r = .51$, $p < .001$ for SECS_EC and SECS_SC). In addition, the Stroop, Antisaccade and OSPAN scores in addition to the composite score of the three tasks were considered because they assess different aspects of Attention Control (Hutchison, 2007).

Furthermore, very oddly, the CIE scores of the two stories (warehouse fire and jewelry theft) did not correlate at all ($r = .03$, $p = .69$). One may argue that this may indicate there is not CIE at all. It's possible that both CIE measures were invalid but also equally possible that just one of them was invalid while the other was valid. The analysis of the normality indicated possible positive skewness of the CIE scores based on the jewelry theft story (skewness statistic = 1.19, standard error = .20). These statistics suggest that the jewelry theft story-based CIE scores may not be suitable to be included in the analyses and thus only the CIE scores based on warehouse fire story were included in further exploratory analyses.

The correlation matrix showed that the only Attention Control task performance significantly related to the CIE scores based on the warehouse fire story (CIE_fire) was Antisaccade ($r = .18$, $p < .05$), although the direction was opposite to the original hypothesis (Hypothesis 4). It was originally hypothesized that Attention Control would be negatively related to the CIE, i.e., those with better attention control ability would show less CIE. In addition, although overall Political Orientation (SEPO) did not correlate with the CIE, Economic Conservatism measured via the bi-directional single-question measures of Economic Conservatism (SEPO_EC) did significantly correlate with CIE_fire ($r = .19$, $p < .05$), providing partial support for Hypothesis 1. In addition, Economic Conservatism (SEPO_EC) was significantly correlated with Need for Specific

Closure ($r = .18$, $p < .05$) but not with Intolerance of Ambiguity ($r = .08$, $p = .34$). The

path from Attention Control to Need for Specific Closure was removed due to non-

significant correlations between the two ($r = - .06$, $p > .45$). Based on these correlations, a

new model was tested (Figure 14). The CIE scores based on the warehouse fire story

(CIE_fire) and Economic Conservatism (SEPO_EC) were regressed on Antisaccade and

Need for Specific Closure (NSC) with "ON" commands. SEPO_EC and CIE_fire scores

were correlated via a "WITH" command.

The path from NCS to CIE_fire was not significant ($\beta = .05$, $p = .57$), consistent

with the correlation matrix. In addition, while the path from NCS to SEPO_EC was

significant ($\beta = .17$, $p < .05$), the path from Antisaccade to SEPO_EC was not significant

($\beta = .07$, $p = .39$), again consistent with the correlation matrix. Lastly, SEPO_EC and

CIE_fire were still correlated ($r = .21$, $p < .01$). These results suggest that SEPO_EC does

positively predict the CIE, providing partial support for Hypothesis 1. However, this

correlation is unlikely to be caused by the third variables, i.e., Attention Control

(indicated by Antisaccade) or Need for Specific Closure, acting as confounding variables

since only one path from each of them to SEPO_EC and the CIE was significant (the path

from NCS to SEPO_EC and Antisaccade to CIE_fire).
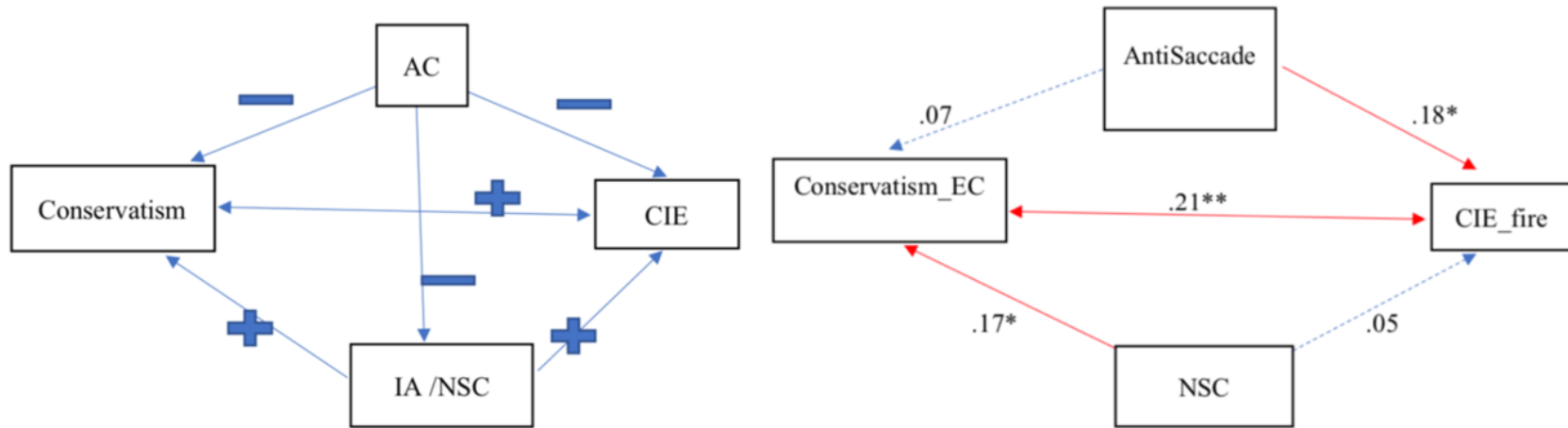
Figure 14. *The Original Model and the Alternative Model Side by Side.*

AC = Attention Control, IA = Intolerance of Ambiguity, NSC = Need for Specific Closure, CIE = Continued Influence Effect, CIE_fire = Continued Influence Effect Based on Warehouse Fire Story,

Conservatism_EC = Economic Conservatism

CHAPTER IV – DISCUSSION

The current study examined whether the continued influence effect of disinformation is positively related to a person's political orientation and whether this relationship is spuriously caused by two confounding variables, attention control and intolerance of ambiguity (or need for closure) exerting influence on both political orientation and the CIE.

Political Orientation and the CIE

The results showed that when political orientation—social, economic or overall—was measured with an inventorized measure (the Social and Economic Conservatism Scale, SECS; Everett, 2013), it was not related to the CIE. Similarly, social and overall political orientation measured with two single-item questions (Social and Economic Political Orientation; SEPO), did not relate to the CIE either. However, economic conservatism (SEPO_EC), measured with one of the two single-item questions (SEPO), did positively relate to the CIE. Importantly, political orientation is treated as bi-directional in these assessments and thus high conservatism is considered as low liberalism and vice versa.

There are several implications here. The two measures of political orientation (SECS and SEPO) may have tapped into different aspects of political orientation. The SECS assesses political orientation based on attitudes toward specific topics (e.g., abortion, gun control, business and welfare). In contrast, the SEPO assesses how one *views* oneself globally in terms of social and economic political orientation. Thus, the SEPO seems to tap more into the overall political self-concept / self-perception as

opposed to the specific political attitudes that constitute a political orientation captured by the SECS.

As such, the results regarding the political orientation and the CIE suggest that a person's specific political attitudes (captured by the SECS measure) may not predict whether a person is more likely to show continued influence of disinformation. Similarly, regardless whether a person views oneself as more conservative or liberal in general, or socially conservative or liberal, those self-views will not predict whether a person is more likely to be continually under the influence of disinformation after corrections. However, those who *view* themselves as more economically conservative or less economically liberal may be more likely to experience the continued influence effect of disinformation.

In addition, there seems to be a rather clear discrepancy between general *self-perception* and actual attitudes toward specific economic policy issues. For example, self-view of economic conservatism (SEPO_EC) and participants' actual ideological stance on economic issues (SECS_EC) were only moderately correlated ($r = .45$, $p < .01$). This may partially explain why self-concept based economic political orientation (SEPO_EC) was a significant predictor of the CIE while the specific attitude based economic orientation (SECS_EC) was not.

The root of this discrepancy may have stemmed from poor self-knowledge. Previous research has shown that people tend to have poor self-knowledge in general (for review, see Wilson & Dunn, 2003); People remove some of their undesirable thoughts and feelings from awareness through different mechanisms such as repression, suppression and intentional forgetting, which may consequently lead to incomplete and flawed self-knowledge, including poor self-knowledge about one's attitudes.

The assumption of self-report-based attitudinal measures is that people can and are willing to accurately report their attitudes. However, some attitudes may not be readily available for introspection (Krosnick, Judd & Wittenbrink, 2005; Schwarz, 2008). The work on dual system of attitudes (Wilson, Lindsey & Schooler, 2000) and implicit and explicit evaluations (Gawronski & DeHouwer, 2014; Fazio & Olson, 2003) suggests that certain attitudes (usually ones assessed with implicit measures) are less well-known or accessible to the person than those assessed with more direct explicit measures.

Political attitudes have been studied with both explicit and implicit measures (for review, see Friese, Smith, Koever, & Bluemke, 2016; Gawronski, Galdi, & Arcuri, 2015) and it is generally found that such measures are moderately to highly correlated. When measuring political orientation using a liberal-conservative Implicit Association Test, the most common implicit measure of attitudes (Greenwald, McGhee, & Schwartz, 1998), Choma and Hafer (2009) found that implicit and explicit measures of political orientation were only moderately correlated ($r = .48$). The strength of this relationship may change depending on some moderators such as political knowledge (Choma & Hafer, 2009), such that the positive correlation is stronger among those who are more knowledgeable about politics. In addition, Karpinski, Steinman, and Hilton (2005) identified attitude importance as a moderator of the implicit-explicit political attitudes relationship: when the attitude is more important, the relationship is stronger. Perhaps incorporating a measure of implicit political orientation could provide further insights in future studies.

The current sample, with the mean age of 20, was comprised mainly of young college students ($N = 145$, 95.4%) despite intentional efforts to obtain more diverse

sample. In his criticisms of the reliance on a narrow data base of college students in social psychology, Sears (1986) pointed out that college students tend to have less crystallized attitudes which are still volatile and developing. Early adulthood (late teens to mid/late twenties) is a key period for the development of political self and unstable attitudes in adolescence stabilize in early adulthood (Sears & Funk, 1999). Their opinions start to diverge from their parents' due to experiences such as casting their first vote (Highton & Wolfinger, 2001), leaving home for work or higher education (Alwin, Cohen, & Newcomb, 1991), getting married and having children (Stoker & Jennings, 1995), or major events and national tides in this period (Plutzer, 2002). Major political events are more likely to be remembered and considered as important and influential to one's political development (Schuman & Rogers, 2004). Thus, college students' understanding of the meaning of social and economic political orientation and their own political orientation is likely to be changing and developing, which may have contributed to the gap between self-perception and the actual attitudes. Future studies examining the association between political orientation and the CIE should attempt to recruit more diverse sample or test their relationships among different age groups to overcome the still common trend of heavy reliance on college students in social psychology research (Jones, 2010) and improve generalizability of findings in this area.

Moreover, these results indicate that although it is a common practice to combine social and economic conservatism to reflect a person's overall political orientation, the researchers should still consider examining social and economic political orientation separately when studying the phenomenon of CIE, especially with a sample of college students. Social and economic political orientation were highly correlated (.51 between

44

SECS_SC & SECS_EC; .62 between SEPO_SC & SEPO_EC) but the correlations still do not seem high enough to treat them as the same construct. If the sample size were bigger, the overall political orientation measured with the two single-item measures (SEPO) may turn out to be a positive predictor of the CIE since the p value was approaching significance ($r = .123$, $p < .10$). However, if examined separately, it is clearly the economic conservatism (SEPO_EC) ($r = .19$, $p < .05$) that contributed to this relationship rather than the social conservatism (SEPO_SC) ($r = .06$, $p = .46$).

It is important to point out that what has been examined in this study is the association between political orientation and the continued influence of neutral disinformation (e.g., there were explosive materials in the closet.), not political disinformation. The reason why the CIE of neutral, non-political disinformation was positively related to SEPO_EC but not SEPO_SC or general self-perception of one's conservative level (SEPO) is unclear. Lewandowsky and colleagues (2017) argued that the match between a person's worldview and the disinformation may play a role in the phenomenon of the CIE. But the current finding suggests that self-reported economic conservatism is associated with the CIE even when influence from worldviews is excluded.

Relatedly, the picture between the political orientation and the CIE might be even more complicated than what has been previously suggested, i.e., the conservatives might be more vulnerable to continued influence of disinformation (Kull et al, 2003; Travis, 2010). Only one aspect of political orientation, the general self-perception of economic political orientation, was associated with the CIE while all other aspects of political orientations measured in this study did not. Duarte and colleagues (2015) voiced a

45

concern that the social psychology field is more homogenous and less politically diverse than ever as most psychologists identify as politically liberal. This trend may have contributed to the mischaracterization of conservatives or at least depicted an incomplete picture of conservatives among whom there is a huge heterogeneity. For example, social conservatism tends to be associated with lower cognitive ability, but economic conservatism tends to relate to higher cognitive ability (Iyer, Koleva, Graham, Ditto, & Haidt, 2012; Kemmelmeier, 2008).

Thus, future studies should measure various aspects of conservatism to further investigate the relationship between political orientation and the CIE by including both more general, self-perception-based measures, more specific attitudinal measures of political orientation, and even perhaps more subtle, implicit measures, to capture different aspects of political orientation. Plus, other types of conservatism (e.g., system-justification [Jost & Banaji, 1994], social dominance orientation [SDO; Pratto, Sidanius, Stallworth, & Malle, 1994] and right-wing authoritarian [RWA; Altemeyer, 1996, 1998], etc.) may also differentially relate to the CIE and thus should be considered.

<center>Attention Control and the CIE</center>

Similarly, the overall attention composite obtained based on Stroop, antisaccade and OSPAN task scores did not predict the CIE as hypothesized. However, antisaccade task scores were positively correlated with the CIE. What's perplexing is the direction of the relationship. Antisaccade scores reflect the capacity to inhibit automatic responses and redirect attention measured. Thus, those with higher antisaccade scores should have shown less CIE as a result of stronger ability to prevent disinformation from entering working memory and influencing reasoning and judgements. However, the results

<center>46</center>

showed the opposite. Interestingly, these results are consistent with findings by Eslick, Fazio and Marsh (2011), who reported that highlighting disinformation in the text led to more disinformation-based errors. Highlighted disinformation should draw more attention and consequently more careful monitoring, which should have reduced disinformation-based errors. But they found the opposite. According to Eslick et al., drawing attention to disinformation may have facilitated the more efficient encoding of associations with the disinformation. Thus, it seems possible that more attention capacity may actually lead to more CIE in some contexts.

One caveat to interpret the relationship between attention control and CIE is that although attention control did not predict CIE in this study, it may still play a role in the processes related to the CIE. One weakness of the current design is that the responses to the CIE were provided by participants themselves without the presence of the research assistants. Although this procedure is consistent with the procedures adopted by previous studies of the CIE, it may not be ideal to assess the relationship between attention control and the CIE. A person with high attention control ability may not fully utilize one's attention control capacity during the CIE measurement process as one did during the attention control assessment process. The attention control assessment process was done in the company of a research assistant, whose presence may encourage a person to try harder on attention control tasks and lead to more accurate assessment of one's attention control ability. Thus, future studies should still consider experimental designs to manipulate attention control in different stages of the CIE measurement processes to further illustrate whether and how attention control contributes to the CIE.

NSC / IA and the CIE

It was hypothesized that intolerance of ambiguity (IA) and need for specific closure (NSC) will be positively related to the CIE but no significant relationships were found. One possible explanation is that one's NSC and IA levels indeed do not predict whether a person may continually be under the influence of corrected disinformation. The very small correlation coefficients (-.01 to -.04) and large p values may support this explanation (.67 to .90). Another explanation could be that IA and NSC may still influence the CIE but using trait IA and NSC fails to capture this relationship because one's IA and NSC levels may still fluctuate across different situations. Thus, future studies should still consider experimental designs and manipulating IA or NSC to investigate whether this manipulation causes changes in the CIE.

Attention Control and Political Orientation

Previous studies found that manipulations that supposedly reduced attention control led to an increase in conservative attitudes (Eidelman et al., 2012; Van Berkel et al., 2015) implying that lower attention levels lead to more conservative attitudes. However, the current study found that attention control measured with antisaccade and OSPAN tasks did not relate to any aspect of political orientation (SEPO_SC, SEPO_EC, SEPO, SECS_SC & SECS; all $ps > .05$). The only statistically significant relationship was a negative relationship between Stroop task scores and economic conservative attitudes (SECS_EC) ($r = -.28$, $p < .001$). However, the direction of the relationship was opposite to that found in the previous studies. As pointed out before, Stroop tasks assess the goal maintenance aspect of the attention control. Thus, this result suggests that those who are better at maintaining goals in their mind (as indicted by low Stroop composite

48

scores) report more conservative attitudes. One explanation is that this is a type I error due to many correlation analyses run in the current study. Moreover, SECS_EC subscale showed very low internal consistency ($\alpha = .46$), casting doubt on the validity of this measure and the relation involving it. Furthermore, this relationship was not replicated when economic conservatism was measured using a single-item measure of economic conservatism (SEPO_EC; $r = -.09$, $p = .26$).

There is also an alternative explanation that this relationship between Antisaccade and SECS_EC is a true relationship. The relatively small p value ($r = -.28$, $p < .005$) may support this explanation. Also, the SECS_EC subscale may have indeed accurately measured this economic conservatism but the internal consistency was low because college students had less crystallized attitudes about various economic issues or were unfamiliar with them. Also, as pointed out before, economic conservative attitudes measured by the SECS (SECS_EC) and the single-item measure (SEPO_EC) were only moderately correlated ($r = .45$, $p < .001$), suggesting that they may capture different aspects of conservative attitudes, Thus, the other explanation can be that goal maintenance aspect of the attention control does indeed relate to a person's attitudes about economic issues measured by SECS (limited government, welfare benefits [reverse coded], gun ownership, fiscal responsibility and business).

In summary, it seems possible that conservatism is not driven by lower attention control as suggested by previous studies and actually, some aspect of the attention control (e.g., higher ability to maintain goals) and certain type of conservatism (e.g., more conservative attitudes toward fiscal issues) are positively related. As stated before, the trend of reduced political diversity in psychology field may have led to incomplete

characterization of conservatives missing the heterogeneity and nuanced differences among the conservatives and liberals. Because this is only the first study with such a finding, future studies should attempt direct replications or conceptual replications by including measures tapping into other aspects of conservatism (e.g., system-justification, SDO and RWA, etc.) to further reveal the relationship between attention control and conservatism and consequently depict a more complete picture of conservatives and liberals.

NCS /IA and Political Orientation

Although previous studies often found positive relationships between need for closure / intolerance of ambiguity (IA) and political orientation, the current study found that only need for specific closure (subset of need for closure) correlated with political orientation measured with two single-item questions (SEPO; $r = .23$, $p < .005$) but not with the inventorized measure of political orientation (SECS; $r = .11$, $p = .16$). This is consistent with the previous findings since this line of research often used single-item questions to measure political orientations (Jost, 2017; Jost et al., 2003) instead of inventorized measures such as the Social and Economic Conservatism Scale (SECS; Everett, 2013), which was used only infrequently.

What is perplexing is that intolerance of ambiguity was not related to either measure of political orientation, including the social and economic conservatism sub-scales. Previous meta- analyses (Jost, 2017; Jost et al., 2003,) found that intolerance of ambiguity and conservatism were consistently correlated (.20 to .34). One explanation is that intolerance of ambiguity correlates better with certain aspects of conservatism such as ethnocentrism (O'Connor, 1952) or authoritarianism (e.g., Kenny & Ginsberg, 1958;

50

Pawlickp & Almquist, 1973). The other explanation can be that there may exist some moderators that alter this relationship. One such moderator could be gender. When this relationship was examined among men and women separately, a significant relationship was found among men ($r = .32$, $p < .05$), but not among women ($r = .08$, $p = .40$). However, this is only a post-hoc analysis and there was a gender imbalance in the sample recruited (39 men vs. 113 women). Thus, this speculation should be treated with extreme caution but future studies will need to consider examining the possible moderating effect of gender on the relationship between intolerance of ambiguity and political orientation.

Attention Control and NSC / IA

An exploratory hypothesis (Hypothesis 7) that one source of individual differences in NCS and IA was attention control capacity was also examined, but the data did not support this hypothesis ($ps > .05$). This could mean that attention control is not one of the causes that lead to individual differences in NSC or IA. However, another explanation could be that some variables may moderate this relationship. When men and women were analyzed separately, Stroop scores showed a significant positive relationship with IA among men ($r = .33$, $p < .05$), suggesting that men with lower capacity to maintain goals cognitively (higher Stroop scores) will report more intolerance of ambiguity levels, which is consistent with the study hypothesis (Hypothesis 7). But no such relationship was found among women ($r = -.16$, $p = .09$). Again, this post-hoc analysis result should be treated with caution because the significant relationship could well be just type I error or unstable p value due to a small sample size of men ($n = 39$). Future studies with sufficient and similar number of men and women participants should further examine the possible moderating effect of gender on this relationship. In addition,

51

experimental designs that manipulate attention control, or even better, the specific ability to maintain goals, are needed to better uncover the possible causal link between attention control and NSC / IA.

<center>Other Limitations and Future Research</center>

The standard method to assess the CIE is based on memories and inferences about one story participants read. However, to ensure more variability in the responses, two stories were included in the current study, a story about fire inside a warehouse (CIE_fire) and a story about jewelry theft in a house (CIE_theft), both of which were validated in the original study by Johnson and Seifert (1994), with more evidence for the warehouse fire story since it was used several times, while the jewelry theft story was only used once for replication purpose. In the current study, the responses to the jewelry theft story showed possible skewness issue (skewness statistic = 1.20, Std. Error = .20). In addition, compared to the fire story, the theft story had a much lower mean (1.41 vs. 3.43) and a slightly lower standard deviation (1.42 vs. 1.86) and range (6 vs. 8). So overall, the jewelry theft story seems to have lower validity than the fire story as a measure of the CIE. This may explain why the CIE scores from the two stories did not correlate ($r = .03$, p = .70). Future studies are advised to use jewelry theft story with caution especially when using only one story to assess the CIE.

In addition, to further test the validity of the CIE assessment paradigm, the current study used audio recordings of the stories, instead of written materials, as the input, while the response process was done by typing responses on a computer. It is unclear whether this change of input method has influenced the validity of the CIE measures since the format was not manipulated in this study. Future studies are encouraged to conceptually

<center>52</center>

replicate the CIE measure paradigm by manipulating input formats such as audio recordings or video clips to examine whether these changes in input affect the validity of the CIE measures.

Lastly, this is a correlational study and thus findings do not allow causal inferences. Experimental designs with specific manipulations (e.g., attention control) similar to studies done by Van Berkel et al. (2015) or Eidelman et al. (2012) may help to better uncover the causes of the CIE.

Conclusion

This study was the first systematic examination of person-level sources of the CIE and found that the CIE measured with the warehouse fire paradigm was positively related to self-reported levels of economic conservatism and inhibition aspects of attention control. The CIE was not related to intolerance of ambiguity or need for specific closure. In summary, the current study provides some initial evidence regarding person-level sources of the CIE and possible directions for future studies.

APPENDIX A – Social and Economic Political Orientation Scale (SEPO)

1. Politically, how would you describe yourself on **SOCIAL ISSUES** (e.g., morals, freedoms)?

Very Liberal	Liberal	Somewhat Liberal	Moderate	Somewhat Conservative	Conservative	Very Conservative
1	2	3	4	5	6	7

2. Politically, how would you describe yourself on **FISCAL ISSUES** (e.g., money, taxes)?

Very Liberal	Liberal	Somewhat Liberal	Moderate	Somewhat Conservative	Conservative	Very Conservative
1	2	3	4	5	6	7

APPENDIX B – The 12 Item Social and Economic Conservatism Scale (SECS)

Please indicate the extent to which you feel positive or negative towards each issue. Scores of 1 indicate greater negativity, and scores of 7 indicate greater positivity. Scores of 4 indicate that you feel neutral about the issue.

1. Abortion.

2. Limited government

3. Military and national security.

4. Religion.

5. Welfare benefits (reverse scored).

6. Gun ownership.

7. Traditional marriage.

8. Traditional values.

9. Fiscal responsibility.

10. Business.

11. The family unit.

12. Patriotism.

Complete the following questionnaire by indicating the extent to which you agree with the following statements.

1. I don't tolerate ambiguous situations well.

2. I find it difficult to respond when faced with an unexpected event.

3. I don't think new situations are any more threating than familiar situations.

4. I'm drawn to situations which can be interpreted in more than one way.

5. I would rather avoid solving a problem that must be viewed from several different perspectives.

6. I try to avoid situations which are ambiguous.

7. I am good at managing unpredictable situations.

8. I prefer familiar situations to new ones.

9. Problems which cannot be considered from just one point of view are a little threating.

10. I avoid situations which are too complicated for me to easily understand.

11. I am tolerant of ambiguous situations.

12. I enjoy tackling problems which are complex enough to be ambiguous.

13. I try to avoid problems which don't seem to have only one "best" solution.

14. I often find myself looking for something new, rather than trying to hold things constant in my life.

15. I generally prefer novelty over familiarity.

16. I dislike ambiguous situations.

17. Some problems are so complex that just trying to understand them is fun.

18. I have little trouble coping with unexpected events.

19. I pursue problem situations which are so complex some people call them "mind boggling."

20. I find it hard to make a choice when the outcome is uncertain.

21. I enjoy an occasional surprise.

22. I prefer a situation in which there is some ambiguity.

1.........strongly disagree

2....moderately disagree

3...........slightly disagree

4..........................neutral

5................slightly agree

6.........moderately agree

7..............strongly agree

APPENDIX D – Need for Closure Scale (NFC)

"Attitude, Belief and Experience Survey"

Instructions: Read each of the following statements and decide how much you agree with each according to your beliefs and experiences. Please respond according to the following scale.

1.........strongly disagree

2....moderately disagree

3...........slightly disagree

4...............slightly agree

5.........moderately agree

6..............strongly agree

1. I think that having clear rules and order at work is essential for success.

2. Even after I've made up my mind about something, I am always eager to consider a different opinion.

3. I don't like situations that are uncertain.

4. I dislike questions which could be answered in many different ways.

5. I like to have friends who are unpredictable.

6. I find that a well-ordered life with regular hours suits my temperament.

7. I enjoy the uncertainty of going into a new situation without knowing what might happen.

8. When dining out, I like to go to places where I have been before so that I know what to expect.

9. I feel uncomfortable when I don't understand the reason why an event occurred in my

life.

10. I feel irritated when one person disagrees with what everyone else in a group believes.

11. I hate to change my plans at the last minute.

12. I would describe myself as indecisive.

13. When I go shopping, I have difficulty deciding exactly what it is I want.

14. When faced with a problem I usually see the one best solution very quickly

15. When I am confused about an important issue, I feel very upset.

16. I tend to put off making important decisions until the last possible moment.

17. I usually make important decisions quickly and confidently.

18. I have never been late for an appointment or work.

19. I think it is fun to change my plans at the last moment.

20. My personal space is usually messy and disorganized.

21. In most social conflicts, I can easily see which side is right and which is wrong.

22. I have never known someone I did not like.

23. I tend to struggle with most decisions.

24. I believe orderliness and organization are among the most important characteristics of a good student.

25. When considering most conflict situations, I can usually see how both sides could be right.

26. I don't like to be with people who are capable of unexpected actions.

27. I prefer to socialize with familiar friends because I know what to expect from them.

28. I think that I would learn best in a class that lacks clearly stated objectives and

requirements.

29. When thinking about a problem, I consider as many different opinions on the issue as possible.

30. I don't like to go into a situation without knowing what I can expect from it.

31. I like to know what people are thinking all the time.

32. I dislike it when a person's statement could mean many different things.

33. It's annoying to listen to someone who cannot seem to make up his or her mind.

34. I find that establishing a consistent routine enables me to enjoy life more.

35. I enjoy having a clear and structured mode of life.

36. I prefer interacting with people whose opinions are very different from my own.

37. I like to have a plan for everything and a place for everything.

38. I feel uncomfortable when someone's meaning or intention is unclear to me.

39. I believe that one should never engage in leisure activities.

40. When trying to solve a problem I often see so many possible options that it's confusing.

41. I always see many possible solutions to problems I face.

42. I'd rather know bad news than stay in a state of uncertainty.

43. I feel that there is no such thing as an honest mistake.

44. I do not usually consult many different options before forming my own view.

45. I dislike unpredictable situations.

46. I have never hurt another person's feelings.

47. I dislike the routine aspects of my work (studies).

Need for specific closure is in bold.

60

Message 1

Jan. 25th 8:58 p.m. Alarm call received from premises of a wholesale stationery warehouse. Premises consist of offices, display room, and storage hall.

Message 2

A serious fire was reported in the storage hall, already out of control and requiring instant response. Fire engine dispatched at 9:00 p.m.

Message 3

The alarm was raised by the night security guard, who had smelled smoke and gone to investigate.

Message 4

Jan, 26th 4:00 a.m. Attending fire captain suggests that the fire was started by a short circuit in the wiring of a closet off the main storage hall. Police now investigating.

Message 5

4:30 a.m. Message received from Policies Investigator Lucas saying that they have reports that cans of oil paint and pressurized gas cylinders had been present in the closet before the fire.

Message 6

Firefighters attending the scene report thick, oily smoke and sheets of flames hampering their efforts, and an intense heat that made the fire particularly difficult to bring under control.

Message 7

It has been learned that a number of explosions occurred during the blaze, which endangered firefighters in the vicinity. No fatalities were reported.

Message 8

Two firefighters are reported to have been taken to the hospital as a result of breathing toxic fumes that built up in the area in which they were working.

Message 9

       A small fire had been discovered on the same premises, six months previously. It had been successfully tackled by the workers themselves.

Message 10

       10:00 a.m. The owner of the affected premises estimates that total damage will amount to hundreds of thousands of dollars, although the premises were insured.

Message 11

       10:40 a.m. A second message received from Police Investigator Lucas regarding the investigation into the fire. It stated that the closet reportedly containing cans of oil pain and gas cylinders had actually been empty before the fire.

Message 12

       The shipping supervisor has disclosed that the storage hall contained bales of paper, mailing and legal-size envelopes; scissors, pencils, and other school supplies; and a large number of photo-copying machine.

Message 13

       11:30 a.m. Attending fire captain reports that the fire is now out and that the storage hall has been completely gutted.

APPENDIX F – Questions for Warehouse Fire Scenario

Fact Questions

1. What was the extent of the firm's premises?

2. Where did an attending firefight think the fire started?

3. Where on the premises was the fire located?

4. What features of the fire were noted by the security guard?

5. What business was the firm in?

6. When was the fire engine dispatched?

7. What was in the storage hall

8. What was the cost of the damage done?

9. How was it thought the fire started?

10. When was the fire eventually put out?

Inference Questions

1. Why did the fire spread so quickly?

2. For what reason might an insurance claim be refused?

3. What was the possible cause of the toxic fumes?

4. What was the relevance of the closet?

5. What aspect of the fire might the police want to continue investigating?

6. Why do you think the fire was particularly intense?

7. What is the most likely cause of the fire that the workers successfully put out earlier?

8. What could have caused the explosions?

9. Where was the probable location of the explosions?

10. Is there any evidence of careless management?

Manipulation Check Questions

1. What was the point of the second message from the police?

2. Were you aware of any corrections in the reports that you read?

In this section, you will listen to the recorded audio messages in your own pace. Click the next button when you are ready to proceed to the next message. You will not be able to go back and listen to any previous messages. You will be asked to recall the information in the messages later.

Message 1

3:00 p.m., May 2nd. Police respond to a call made from a home on Acorn St., in a middle-class residential neighborhood.

Message 2

The homeowner, Ms. Harter, reports that her jewelry box is missing. Contents are reported to include gold chains, gold and silver earrings, rings, and pendants of precious stones.

Message 3

She discovered that the box was missing when she returned from a vacation and wanted to put a new necklace she'd bought in it. It had been stored in a locked drawer in her bedroom dresser.

Message 4

She swears she had checked the box before leaving on vacation, and everything was in order. A tall tree arches near the bedroom window, but police have found no evidence of tampering with the window.

Message 5

The Harters report that they had asked their son, Evan, to check in on the house periodically during their absence. The son also did other odd jobs for many of the neighbors.

Message 6

Police suspect that Evan may have taken the box from the house to help pay off large gambling debts.

Message 7

The neighborhood has been hit with a number of thefts recently. There are no arrests or leads in these cases so far.

Message 8

The Harters' next-door neighbor reports that she noticed a light on in the house, after her dog suddenly began barking late Saturday evening, April 28th. An unfamiliar dark-colored car had been parked in a nearby alley.

Message 9

A search for footprints and tire tracks has turned up inconclusive, due to a recent rainstorm. In the course of the investigation, an officer noted a broken latch on a basement window.

Message 10

Police are still attempting to determine whether other valuables are missing from the house. The television and a home computer had not been disturbed, however.

Message 11

The Harters have contacted their insurance company about the loss. The last appraisal showed the box's contents to be worth several thousand dollars.

Message 12

A second message from the police investigators about the incident. It stated that the Harters' son is no longer a suspect, because several independent sources confirm that he had been out of town on business during the Harters' vacation.

01 Message13

Ms. Harter is considering offering a reward for return of several of the pieces, because they have great sentimental value for her. There would be no questions asked.

Message 14

Detectives will look for similarities between this case and the other 3 thefts reported in the neighborhood recently.

Please answer each question on the basis of your understanding of the series of audio messages you listened to several minutes ago regarding the jewelry theft.

Cause Question

    1. What caused the box to be missing from the Harters' home?

Fact Questions

    2. How much did an appraisal show the box's contents to be worth?

    3. Where was the Harters' home located?

    4. Where was the jewelry box normally kept?

    5. Why did Ms. Harter consider offering a reward?

    6. What did the Harters' next-door neighbor notice?

    7. What kinds of jewelry did the box contain?

    8. What arrangements did the Harters make for checking up on the house?

    9. When did Ms. Harter discover that the jewelry box was missing?

    10. What did police notice about the bedroom window?

    11. When did the neighbor's dog suddenly start barking?

Inference Questions

    12. Why might the neighbor's dog have been barking?

    13. Whose car might the neighbor have noticed, parked in the alley?

14. Why might the son feel bad about the incident?

14. What could the Harters have done to better avoid this problem?

15. Who, if anyone, should be questioned more thoroughly by the police?

16. Why wasn't the television taken?

17. How might the thief have gotten into the house?

18. Why might the Harters be angry with their son?

19. What might be responsible for the other thefts in the neighbor- hood recently?

20. What steps should the police take next?

21. Where was Evan Harter on the evening of April 28th?

Manipulation Check Questions

22. What did the police investigators report about where Evan Harter was during the Harters' vacation?

23. What facts about the case did the police change their minds about, based on information they discovered later?

APPENDIX I –IRB Approval Letter

THE UNIVERSITY OF SOUTHERN MISSISSIPPI.

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 18092603
PROJECT TITLE: Personality and Information Processing
PROJECT TYPE: Doctoral Dissertation
RESEARCHER(S): Jinhao Chi
COLLEGE/DIVISION: College of Education and Human Sciences
SCHOOL: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 11/5/2018 to 11/5/2019

Edward L. Goshorn, Ph.D.
Institutional Review Board

REFERENCES

Altemeyer, R. A., & Altemeyer, B. (1996). *The authoritarian specter.* Cambridge, MA:

Harvard University Press.

Altemeyer, R. A. (1998). The other "authoritarian personality." In M. P. Zanna (Ed.),

Advances in Experimental Social Psychology (Vol. 30, pp. 47-91). New York:

Academic Press. https://doi.org/10.1016/S0065-2601(08)60382-2

Alwin, D. F., Cohen, R. L., & Newcomb, T. M. (1991). *Political attitudes over the life*

span: The Bennington women after fifty years. Madison: University of Wisconsin

Press.

Anderson, C. A., Lepper, M. R., & Ross, L. (1980). Perseverance of social theories: The

role of explanation in the persistence of discredited information. *Journal of*

Personality and Social Psychology, *39*(6), 1037.

https://doi.org/10.1037/h0077720

Asch, S. E. (1946). Forming impressions of personality. *The Journal of Abnormal and*

Social Psychology, 41(3), 258-290. https://doi.org/10.1037/h0055756

Ayers, M. S., & Reder, L. M. (1998). A theoretical review of the disinformation effect:

Predictions from an activation-based memory model. *Psychonomic Bulletin &*

Review, 5(1), 1-21. http://doi.org/10.3758/BF03209454

Belmont, A., Agar, N., & Azouvi, P. (2009). Subjective fatigue, mental effort, and

attention deficits after severe traumatic brain injury. *Neurorehabilitation and*

Neural Repair, 23(9), 939-944. http://doi.org/10.1177/1545968309340327

Budner, N. Y. (1962). Intolerance of ambiguity as a personality variable. *Journal of*

Personality, *30*(1), 29-50. https://doi.org/10.1111/j.1467-6494.1962.tb02303.x

Carney, D. R., Jost, J. T., Gosling, S. D., & Potter, J. (2008). The secret lives of liberals

and conservatives: Personality profiles, interaction styles, and the things they

leave behind. *Political Psychology*, *29*(6), 807-840.

http://doi.org/10.1111/j.1467-9221.2008.00668.x

Carretta, T. R., & Moreland, R. L. (1983). The direct and indirect effects of inadmissible

evidence. *Journal of Applied Social Psychology*, *13*(4), 291-309.

https://doi.org/10.1111/j.1559-1816.1983.tb01741.x

Choma, B. L., & Hafer, C. L. (2009). Understanding the relation between explicitly and

implicitly measured political orientation: The moderating role of political

sophistication. *Personality and Individual Differences, 47*(8), 964-967.

https://doi.org/10.1016/j.paid.2009.07.024

Drever, J. (1963). *A Dictionary of Psychology.* Baltimore, MA: Penguin.

Duarte, J. L., Crawford, J. T., Stern, C., Haidt, J., Jussim, L., & Tetlock, P. E. (2015).

Political diversity will improve social psychological science 1. *Behavioral and

Brain Sciences, 38*. https://doi.org/10.1017/S0140525X14000430

Duckitt, J. (2001). A dual-process cognitive-motivational theory of ideology and

prejudice. *Advances in Experimental Social Psychology, 33,* 41-113.

https://doi.org/10.1016/S0065-2601(01)80004-6

Durrheim, K. (1998). The relationship between tolerance of ambiguity and attitudinal

conservatism: A multidimensional analysis. *European Journal of Social

Psychology, 28*(5), 731-753. https://doi.org/10.1002/(SICI)1099-

0992(199809/10)28:5%3C731::AID-EJSP890%3E3.0.CO;2-B

Ecker, U. K., Lewandowsky, S., & Tang, D. T. (2010). Explicit warnings reduce but do not eliminate the continued influence of disinformation. *Memory & Cognition, 38*(8), 1087-1100. https://doi.org/10.3758/MC.38.8.108

Eidelman, S., Crandall, C. S., Goodman, J. A., & Blanchar, J. C. (2012). Low-effort thought promotes political conservatism. *Personality and Social Psychology Bulletin*, *38*(6), 808-820. http://doi.org/10.1177/0146167212439213

Ellsberg, D. (1961). Risk, ambiguity, and the Savage axioms. *The Quarterly Journal of Economics*, 643-669. http://doi.org/10.2307/1884324

Eslick, A. N., Fazio, L. K., & Marsh, E. J. (2011). Ironic effects of drawing attention to story errors. *Memory, 19*(2), 184-191. https://doi.org/10.1037/e527312012-155

Everett, J. A. (2013). The 12 item social and economic conservatism scale (SECS). *PloS One*, 8(12), e82131. https://doi.org/10.1371/journal.pone.0082131

Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology*, 54(1), 297-327. https://doi.org/10.1146/annurev.psych.54.101601.145225

Feingold, R. (2017). Fake News & Disinformation Policy Practicum. Stanford University. Retrieved from https://law.stanford.edu/wp-content/uploads/2017/10/Fake-News-Disinformation-FINAL-PDF.pdf

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. London: Sage.

Ford, T. E., & Kruglanski, A. W. (1995). Effects of epistemic motivations on the use of accessible constructs in social judgment. *Personality and Social Psychology Bulletin*, *21*(9), 950-962. https://doi.org/10.1177/0146167295219009

Foster, J. L., Shipstead, Z., Harrison, T. L., Hicks, K. L., Redick, T. S., & Engle, R. W. (2015). Shortened complex span tasks can reliably measure working memory capacity. *Memory & Cognition*, 43(2), 226-236. https://doi.org/10.3758/s13421-014-0461-7

Frenkel-Brunswik, E. (1948). Tolerance towards ambiguity as a personality variable. *The American Psychologist*, *3*, 268.

Frenkel-Brunswik, E. (1951). Personality theory and perception. In R. R. Blake & G. V. Ramsey (Eds.), *Perception: An approach to personality* (pp. 356-419). New York, NY, US: Ronald Press Company. http://doi.org/10.1037/11505-013

Friese, M., Smith, C. T., Koever, M., & Bluemke, M. (2016). Implicit measures of attitudes and political voting behavior. *Social and Personality Psychology Compass*, *10*(4), 188–201. https://doi-org.lynx.lib.usm.edu/10.1111/spc3.12246

Furnham, A., & Marks, J. (2013). Tolerance of ambiguity: A review of the recent literature. *Psychology*, *4*(09), 717. http://doi.org/10.4236/psych.2013.49102

Gawronski, B., & De Houwer, J. (2014). Implicit measures in social and personality psychology. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (2nd ed.). New York, NY: Cambridge University Press.

Gawronski, B., Galdi, S., & Arcuri, L. (2015). What can political psychology learn from implicit measures? Empirical evidence and new directions. *Political Psychology*, *36*(1), 1–17. https://doi-org.lynx.lib.usm.edu/10.1111/pops.12094

Gerrie, M. P., Belcher, L. E., & Garry, M. (2006). 'Mind the gap': false memories for

    missing aspects of an event. *Applied Cognitive Psychology*, *20*(5), 689-696.

    https://doi.org/10.1002/acp.1221

Graesser, A. C. (1981). *Prose comprehension beyond the word*. New York, NY: Springer

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual

    differences in implicit cognition: the implicit association test. *Journal of*

    Personality and Social Psychology, 74(6), 1464. https://doi.org/10.1037//0022-

    3514.74.6.1464

Guitton, D., Buchtel, H. A., & Douglas, R. M. (1985). Frontal lobe lesions in man cause

    difficulties in suppressing reflexive glances and in generating goal-directed

    saccades. *Experimental Brain Research*, 58(3), 455-472.

    https://doi.org/10.1007/BF00235863

Hasher, L., Zacks, R. T., & May, C. P. (1999). Inhibitory control, circadian arousal, and

    age. In D. Gopher & A. Koriat (Eds.), *Attention and Performance XVII. Cognitive*

    regulation of performance: Interaction of theory and application (pp. 653–675).

    Cambridge, MA: MIT Press. https://doi.org/10.7551/mitpress/1480.003.0032

Hastie, R., & Park, B. (1986). The relationship between memory and judgment depends

    on whether the judgment task is memory-based or on-line. *Psychological Review*,

    93(3), 258–268. https://doi.org/10.1037/0033-295x.93.3.258

Highton, B., & Wolfinger, R. E. (2001). The first seven years of the political life cycle.

    American Journal of Political Science, 202-209. http://doi.org/10.2307/2669367

Hutchison, K. A. (2007). Attentional control and the relatedness proportion effect in

    semantic priming. *Journal of Experimental Psychology: Learning, Memory, and*

    Cognition, 33(4), 645. http://doi.org/10.1037/0278-7393.33.4.645

Iyer, R., Koleva, S., Graham, J., Ditto, P., & Haidt, J. (2012). Understanding libertarian

    morality: The psychological dispositions of self-identified libertarians. *PloS One,*

    7(8), e42366. http://doi.org/10.1371/journal.pone.0042366

Jacoby, L. L., Woloshyn, V., & Kelley, C. (1989). Becoming famous without being

    recognized: Unconscious influences of memory produced by dividing attention.

    Journal of Experimental Psychology: General, 118(2), 115.

    http://doi.org/10.1037/0096-3445.118.2.115

Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring.

    Psychological Bulletin, 114(1), 3. http://doi.org/10.1037/0033-2909.114.1.3

Johnson, H. M., & Seifert, C. M. (1994). Sources of the continued influence effect: When

    disinformation in memory affects later inferences. *Journal of Experimental*

    Psychology: Learning, Memory, and Cognition, *20*(6), 1420.

    http://doi.org/10.1037/0278-7393.20.6.1420

Jones, D. (2010). A WEIRD view of human nature skews psychologists' studies. *Science,*

    328 (5986), 1627. https://doi.org/10.1126/science.328.5986.1627

Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and

    the production of false consciousness. *British Journal of Social Psychology,*

    33(1), 1-27. https://doi.org/10.1111/j.2044-8309.1994.tb01008.x

Jost, J. T. (2017). Ideological asymmetries and the essence of political

    psychology. *Political Psychology*, *38*(2), 167-208.

    https://doi.org/10.1111/pops.12407

Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism

    as motivated social cognition. *Psychological Bulletin*, 129(3), 339.

    http://doi.org/10.1037/0033-2909.129.3.339

Jost, J. T., Napier, J. L., Thorisdottir, H., Gosling, S. D., Palfai, T. P., & Ostafin, B.

    (2007). Are needs to manage uncertainty and threat associated with political

    conservatism or ideological extremity? *Personality and Social Psychology*

    Bulletin, *33*(7), 989-1007. http://doi.org/10.1177/0146167207301028

Kagan, J. (1972). Motives and development. *Journal of Personality and Social*

    Psychology, 22(1), 51-66. http://doi.org/10.1037/h0032356

Kane, M. J., & Engle, R. W. (2003). Working-memory capacity and the control of

    attention: The contributions of goal neglect, response competition, and task set to

    Stroop interference. *Journal of Experimental Psychology: General*, 132(1), 47.

    http://doi.org/10.1037/0096-3445.132.1.47

Karpinski, A., Steinman, R. B., & Hilton, J. L. (2005). Attitude importance as a

    moderator of the relationship between implicit and explicit attitude measures.

    Personality and Social Psychology Bulletin, 31(7), 949-962.

    https://doi.org/10.1177/0146167204273007

Kelley, C. M., & Lindsay, D. S. (1993). Remembering mistaken for knowing: Ease of

    retrieval as a basis for confidence in answers to general knowledge questions.

Journal of Memory and Language, 32(1), 1-24.

https://doi.org/10.1006/jmla.1993.1001

Kemmelmeier, M. (2008). Is there a relationship between political orientation and

cognitive ability? A test of three hypotheses in two studies. *Personality and*

Individual Differences, 45(8), 767-772. https://doi.org/10.1016/j.paid.2008.08.003

Kenny, D. T., & Ginsberg, R. (1958). Authoritarian submission attitudes, intolerance of

ambiguity, and aggression. *Canadian Journal of Psychology/Revue Canadienne*

De Psychologie, 12(2), 121–126. https://doi.org/10.1037/h0083736

Keppel, G., & Underwood, B. J. (1962). Proactive inhibition in short-term retention of

single items. *Journal of Verbal Learning and Verbal Behavior, 1*(3), 153-161.

https://doi.org/10.1016/s0022-5371(62)80023-1

Krosnick, J. A., Judd, C. M., & Wittenbrink, B. (2005). The measurement of attitudes. In

D. Albarracin, B. T. Johnson & M. P. Zanna (Eds.), *The handbook of attitudes*

(pp. 21–76). Mahwah: Erlbaum.

Kruglanski, A. W. (1990). Motivations for judging and knowing: Implications for causal

attribution. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation*

and cognition: Foundations of Social Behavior, Vol. 2, pp. 333-368). New York,

NY, US: The Guilford Press.

Kruglanski, A. W., Atash, M. N., De Grada, E., Mannetti, L., & Pierro, A. (2013). Need

for Closure Scale (NFC). Measurement Instrument Database for the Social

Science. Retrieved from www.midss.ie

Kruglanski, A. W., Webster, D. M., & Klem, A. (1993). Motivated resistance and

openness to persuasion in the presence or absence of prior information. *Journal of*

Personality and Social Psychology, *65*(5), 861–876. https://doi.org/10.1037/0022-3514.65.5.861

Kull, S., Ramsay, C., & Lewis, E. (2003). Misperceptions, the media, and the Iraq war. *Political Science Quarterly*, *118*(4), 569-598. https://doi.org/10.1002/j.1538-165X.2003.tb00406.x

Leiserowitz, A., Maibach, E. W., Roser-Renouf, C., Feinberg, G., & Howe, P. (2013). Climate change in the American mind: Americans' global warming beliefs and attitudes in April 2013. http://doi.org/10.2139/ssrn.2298705

Lewandowsky, S., Cook, J., & Ecker, U. K. (2017). Letting the Gorilla Emerge from the Mist: Getting Past Post-Truth. *Journal of Applied Research in Memory and Cognition*, *6*(4), 418-424. https://doi.org/10.1016/j.jarmac.2017.11.002

Lewandowsky, S., Ecker, U. H., & Cook, J. (2017). Beyond disinformation: Understanding and coping with the 'post-truth' era. *Journal of Applied Research in Memory and Cognition*, *6*(4), 353-369. http://doi.org/10.1016/j.jarmac.2017.07.008

Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Disinformation and its correction: Continued influence and successful de-biasing. *Psychological Science in the Public Interest,* 13(3), 106-131. http://doi.org/10.1177/1529100612451018

Lewandowsky, S., Gignac, G. E., & Oberauer, K. (2013). The role of conspiracist ideation and worldviews in predicting rejection of science. *PloS One*, 8(10), e75637. https://doi.org/10.1371/journal.pone.0075637

Luchins, A. S. (1957). Primacy-recency in impression formation. In C. I. Hovland. (Ed), The *order of presentation in persuasion* (pp. 33-61) New Haven, CT: Yale University Press.

Loehlin, J. C. (2004). *Latent variable models: An introduction to factor, path, and structural equation analysis* (4th ed.). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Loehlin, J. C., & Beaujean, A. A. (2016). *Latent variable models: An introduction to factor, path, and structural equation analysis*. New York, NY: Taylor & Francis.

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437. http://doi.org/10.1037/a0028085

Meyers, L. S., Gamst, G., & Guarino, A. J. (2016). *Applied multivariate research: Design and interpretation*. Thousand Oaks, CA: Sage.

MacDonald, A. P. (1970). Revised scale for ambiguity tolerance: Reliability and validity. *Psychological Reports, 26,* 791-798. https://doi.org/10.2466/pr0.1970.26.3.791

McCright, A. M., Dentzman, K., Charters, M., & Dietz, T. (2013). The influence of political ideology on trust in science. *Environmental Research Letters*, *8*(4), 044029. http://doi.org/10.1088/1748-9326/8/4/044029

McLain, D. L. (1993). The MSTAT-I: A new measure of an individual's tolerance for ambiguity. *Educational and Psychological Measurement*, 53(1), 183-189. http://doi.org/10.1177/0013164493053001020

Neuberg, S. L., & Newsom, J. T. (1993). Personal need for structure: Individual differences in the desire for simpler structure. *Journal of Personality and Social Psychology*, *65*(1), 113–131. https://doi.org/10.1037/0022-3514.65.1.1

Norman, D. A., & Shallice, T. (1986). Attention to action. In *Consciousness and self-regulation* (pp. 1-18). Springer US. https://doi.org/10.1007/978-1-4757-0629-1_1

Oberauer, K. (2001). Removing irrelevant information from working memory: a cognitive aging study with the modified Sternberg task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 27(4), 948. http://doi.org/10.1037/0278-7393.27.4.948

Oberauer, K., Süß, H.-M., Wilhelm, O. & Sander, N. (2007) Individual differences in working memory capacity and reasoning ability. In A. R. A. Conway, C. Jarrold, M. J. Kane, A. Miyake, & J. N. Towse (Eds.), *Variation in working memory* (pp.49-75). New York: Oxford University Press. http://doi.org/10.1093/acprof:oso/9780195168648.003.0003

O'Connor, P. (1952). Ethnocentrism, "intolerance of ambiguity," and abstract reasoning ability. *The Journal of Abnormal and Social Psychology*, 47(2, Suppl), 526–530. http://doi.org/10.1037/h0056142

Pawlickp, R. E., & Almquist, C. (1973). Authoritarianism, locus of control, and tolerance of ambiguity as reflected in membership and nonmembership in a women's liberation group. *Psychological Reports, 32*(3_suppl), 1331-1337. https://doi.org/10.2466/pr0.1973.32.3c.1331

Pennycook, G., & Rand, D. G. (2017). Who falls for fake news? The roles of analytic thinking, motivated reasoning, political ideology, and bullshit receptivity. *SSRN Working Paper*. http://doi.org/10.2139/ssrn.3023545

Plutzer, E. (2002). Becoming a habitual voter: Inertia, resources, and growth in young

   adulthood. *American Political Science Review, 96*(1), 41-56.

   https://doi.org/10.1017/s0003055402004227

Poland, G. A., & Jacobson, R. M. (2011). The age-old struggle against the

   antivaccinationists. *New England Journal of Medicine*, *364*(2), 97-99.

   http://doi.org/10.1056/NEJMp1010594

Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance

   orientation: A personality variable predicting social and political attitudes.

   Journal of Personality and Social Psychology, 67(4), 741–763.

   https://doi.org/10.1037/0022-3514.67.4.741

Rice, G.E., Okun, M.A., Farren, D.E., & Christiansen, J.G. (1991). *Older adults'*

   processing of text containing information which contradicts their erroneous

   beliefs about osteoarthritis (Tech. Rep. No. 2). Adult Development and Aging

   Program, Arizona State University.

Ross, L., Lepper, M. R., & Hubbard, M. (1975). Perseverance in self-perception and

   social perception: biased attributional processes in the debriefing

   paradigm. *Journal of Personality and Social Psychology*, *32*(5), 880.

   http://doi.org/10.1037/0022-3514.32.5.880

Russell, B. (1950). Philosophy and politics. In B. Russell (Ed.), *Unpopular essays* (pp. 1–

   20). New York, NY: Simon & Schuster.

Schuman, H., & Rodgers, W. L. (2004). Cohorts, chronology, and collective memories.

   Public Opinion Quarterly, *68*(2), 217-254. https://doi.org/10.1093/poq/nfh012

Schwarz, N. (2008). Attitude measurement. In W. Crano, & R. Prislin (Eds.), *Attitudes and persuasion* (pp. 41—60). Philadelphia, PA: Psychology Press.

Sears, D. O. (1986). College sophomores in the laboratory: Influences of a narrow data base on social psychology's view of human nature. *Journal of Personality and Social Psychology, 51*(3),515 http://doi.org/10.1037/0022-3514.51.3.515.

Sears, D. O., & Funk, C. L. (1999). Evidence of the long-term persistence of adults' political predispositions. *The Journal of Politics, 61*(1), 1-28. https://doi.org/10.1037//0022-3514.51.3.515

Sorrentino, R. M., & Short, J.-A. C. (1986). Uncertainty orientation, motivation, and cognition. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 379-403). New York, NY, US: Guilford Press.

Sterling, J., Jost, J. T., & Pennycook, G. (2016). Are neoliberals more susceptible to bullshit? *Judgment and Decision Making*, *11*(4), 352 - 360.

Stoker, L., & Jennings, M. K. (1995). Life-cycle transitions and political participation: The case of marriage. *American Political Science Review, 89*(2), 421-433. https://doi.org/10.2307/2082435

Storey, R. G., & Aldag, R. J. (1983). Perceived environmental uncertainty: A test of an integrated explanatory model. *Paper presented at the 43rd Annual meeting of the National Academy of Management*.

Tetlock, P. E. (1983). Cognitive style and political ideology. *Journal of Personality and Social Psychology*, *45*(1), 118. http://doi.org/10.1037/0022-3514.45.1.118

Travis, S. (2010). CNN poll: Quarter doubt Obama was born in US. *CNN Politics*.

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, *5*(2), 207-232. https://doi.org/10.1016/0010-0285(73)90033-9

Van Berkel, L., Crandall, C. S., Eidelman, S., & Blanchar, J. C. (2015). Hierarchy, dominance, and deliberation: Egalitarian values require mental effort. *Personality and Social Psychology Bulletin*, *41*(9), 1207-1222. http://doi.org/10.1177/0146167215591961

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151. https://doi.org/10.1126/science.aap9559

Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, *67*(6), 1049–1062. https://doi.org/10.1037/0022-3514.67.6.1049.

Wilkes, A. L., & Leatherbarrow, M. (1988). Editing episodic memory following the identification of error. *The Quarterly Journal of Experimental Psychology*, *40*(2), 361-387. https://doi.org/10.1080/02724988843000168

Wilson, T. D., & Dunn, E. W. (2004). Self-knowledge: Its limits, value, and potential for improvement. *Annual Review of Psychology*, 55, 493–518. https://doi.org/10.1146/annurev.psych.55.090902.141954

Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review, 107*(1), 101–126. https://doi.org/10.1037/0033-295x.107.1.101

Wyer, R. S., & Budesheim, T. L. (1987). Person memory and judgments: The impact of information that one is told to disregard. *Journal of Personality and Social Psychology*, *53*(1), 14. http://doi.org/10.1037/0022-3514.53.1.14

Zaragoza, M. S., Belli, R. F., & Payment, K. E. (2007). Misinformation Effects and the Suggestibility of Eyewitness Memory. In M. Garry, H. Hayne, M. Garry, H. Hayne (Eds.) *Do justice and let the sky fall: Elizabeth Loftus and her contributions to science, law, and academic freedom* (pp. 35-63). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Zaragoza, M. S., & Lane, S. (1991, November). The role of attentional resources in suggestibility and source monitoring. Paper presented at the 32nd annual meeting of the Psychonomic Society, San Francisco. CA. https://doi.org/10.1037/e665402011-029