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Individual Differences in Perceptions of People: Attitude Change in Personality

Brandon Robert Brace

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Abstract

It was hypothesized that (1) people's attitudes will polarize more and have greater belief consistency with an increased amount of time for thought than with less amount of time for thought, (2) people's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups and given a high opportunity for thought, and (3) people's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups, are given a high opportunity for thought if those people have a low personal fear of invalidity rather than having a high personal fear of invalidity. We manipulated opportunity for thought and target. We measured the personal fear of invalidity as a moderator variable. We measured attitude polarization and belief consistency. Participants were directed to give initial impressions to descriptors of nonspecific individuals or groups. Participants were then directed to think about some of those descriptors as rebel insurgent individuals or groups. Although our hypotheses were not supported, other findings were significant. Plausible alternative explanations, limitations, and future directions are discussed.

Introduction

Reporters affiliated with the Associated Press generate news on a day to day basis on the United States' current war against terror. Avoiding reading, watching, or hearing about daily events related to war against terror is difficult. Public opinion in the United States on its war against terror varies from extreme support to extreme disapproval. Some individuals initially supported war against terror because of events happening on September 11, 2001. Other individuals felt that the United States' response was too extreme. Individual's attitudes on the United States' war against terror differed in both direction of opinion (i.e., for or against) and in intensity of opinion (i.e., extremity). Some individuals simply expressed their opinions about war against terror verbally. Yet, other individuals expressed their opinions on bumper-stickers. Finally, other individuals joined the U.S. armed-forces or rallied outside public offices. Perhaps individuals' actions after events of September 11, 2001 may have reflected their attitudes about going to war. Perhaps individuals who joined our armed-forces or rallied held more extreme attitudes toward going to war than did individuals who simply put bumper-stickers on their vehicles.

What would compel people to quit their jobs and join our military? Why would other people spend time away from work or family so they may protest outside public offices? Why would people engage in extreme actions based on their extreme attitudes? Some researchers suggest one explanation being self-generated attitude change which involves a process whereby people think about information (Tesser, 1978; Tesser, Martin, & Mendolia, 1995). People may find that when reconsidering what they know, they cannot recall every detail and so they fill in what is missing with what is consistent to

them. They may also remember information that does not make sense or is not clear, so they make that information consistent with what they already know. Additionally, they may hear something that is not consistent with what they know and choose to ignore what was said.

Self-Generated Attitude Change

Attitude polarization is one possible result from thinking about an attitude object (Tesser & Conlee, 1975; Tesser et al., 1995). People sometimes discount information that is not consistent with what they already know (Tesser et al., 1995). People may also reinterpret information so that it is consistent with what they already know (Tesser et al., 1995). Finally, people may generate information consistent with what they already know (Tesser et al., 1995).

Generally speaking, people form an initial attitude about an object (e.g., a person, place, or idea). An attitude object may be any abstract idea (e.g., terror) or concrete object (e.g., a bomb) a person can imagine. Self-generated attitude change is a process whereby further thought results in a change of attitude extremity (see Tesser, 1978; Tesser et al., 1995 for a review). After a person engages in thought about an attitude object, initially negative attitudes become more negative (Tesser et al., 1995). A person with an initially negative attitude about Osama bin Laden may have a more intense negative attitude about Osama bin Laden after thinking about him and remembering 9/11/2001. After a person engages in thought about an attitude object, initially positive attitudes become more positive (Tesser et al., 1995). A person with an initially positive attitude about New York Firefighters may have a more intense positive attitude about New York Firefighters after thinking about them and remembering 9/11/2001.

An example of self-generated attitude change might begin with a man who turns on his television and sees a news station with a live video feed of the Twin Towers burning. This person hears a news reporter say that those claiming responsibility call themselves al Qaeda. This person's initial thoughts may be of shock, fear, and anger. After viewing and hearing three days of nonstop media coverage, this person may have more intense feelings of anger and may harbor more hatred towards al Qaeda than if he had not been exposed to additional media coverage. A person who was presented with more frequent and widespread forms of media (e.g., newspapers, radio, and television) was induced to think more about the attack that occurred on September 11, 2001 than he normally would think about the attack. After he thought about this attack, his beliefs became more extreme than they would have been had he not thought about this attack. After his beliefs became extreme, his feelings became more extreme than his initial feelings. Consequently, his resulting attitudes became more extreme than his initial attitudes.

Macroprocesses

The first macroprocess in self-generated attitude change is that after people engage in thought about an attitude object, their beliefs about that attitude object change (Tesser, 1978). Thinking (i.e., thought) results in a more consistent belief than a person's initial belief without thought (Tesser, 1978). Thought is not static; it is a dynamic and creative process (Tesser et al., 1995). Thought can be better compared to an artist painting a picture as opposed to a computer pulling files. An example of how thought and beliefs are related might be a woman thinking about events of September 11, 2001. While thinking, she visualizes the Twin Towers burning. She "paints" more details about this

scene while thinking about the Twin Towers than without thinking: flames roaring out of broken windows grow larger, smoke billowing up into the heavens becomes darker and increasingly consuming. She now recalls people hurling themselves out windows to avoid being burned by fire. She becomes tense while thinking about this scene. Her heart starts beating fast, and she starts believing what she “painted” in her mind actually happened. She believes her thoughts, even if the scene in her mind is more exaggerated or extreme than what actually occurred. As this woman thought about this scene, she started believing thoughts tied to these events. If this woman was given more time to think in this fashion, her attitudes would become more extreme than if given less or no time to think in this fashion.

The second macroprocess of self-generated attitude change is how a change in people’s feelings is contingent upon a change in people’s beliefs (Tesser, 1978). What people believe to be true about an attitude object is correlated to how you feel about that attitude object. In the previous example, we can begin to understand why this woman may feel terrified, angry, or sorrowful. This woman may think about how hundreds of people died by being burned alive or by being crushed by tons of debris. Compared to her initial beliefs, this woman’s beliefs about 9/11/2001 are more extreme during thought. With a change in beliefs, she feels what happened on 9/11/2001 was more terrible compared to her initial beliefs.

Microprocesses

Generation of consistent beliefs is one of three microprocesses by which people may experience attitude polarization (Tesser, 1978). As time progresses, people forget details. We tend to fill in missing information when asked to think about something that is familiar to us. If details are missing, people tend to generate consistent details with other information they possess. If people generate consistent thoughts, people may experience attitude polarization because details people generate tend to support knowledge those people already possess.

For example, imagine that this same woman thought again about events of 9/11/2001. If she perceived this situation to be disastrous in nature, emergency personnel in emergency vehicles would be near the Twin Towers to assist in any way possible. Even if this woman did not specifically recall an individual siren, she may think of what a typical police car siren sounds like and incorporate this sound into her memory of that day. She has generated consistent beliefs and has created a more coherent (i.e., more stable) memory as compared to a less coherent memory produced by inconsistent beliefs or no beliefs.

Generation of additional beliefs and opportunity for thought were manipulated in a study by Tesser and Cowan (1975). Participants were given either four or eight adjectives describing a fictitious person. Participants then indicated their initial attitudes about that fictitious person. When given opportunity for thought, participants generated additional beliefs about that fictitious person. Generation of additional beliefs appeared more when participants were given fewer initial details about an attitude object than when participants were given a greater amount of initial details. When distracted from thought, participants generated fewer additional beliefs about that fictitious person as compared to participants given opportunity for thought. This idea that attitudes polarize less when people are distracted as compared to when people are given time for thought is

supported by many studies (e.g., Leone 1995; see also Chaiken & Yates, 1985; Millar & Tesser, 1986; Tesser & Leone, 1977).

Reinterpretation of inconsistent information is the second of three microprocesses people may experience attitude polarization (Tesser, 1978). Reinterpretation occurs when people assume a meaning from an ambiguous piece of information that is consistent with information they already possess. People may initially perceive a detail in a way that is ambiguous with how they view an attitude object. People may “rethink” what happened and change a certain detail around to make an ambiguous detail consistent with other information they possess. People using reinterpretation may experience attitude polarization.

For example, maybe this same woman is reminiscing events of 9/11/2001 with a man. He makes an ambiguous (i.e., open to interpretation) statement: “I don’t believe what they said about President Bush.” Depending on this woman’s initial attitudes toward President Bush, she may reinterpret what this man said in many ways. Tesser (1978) suggests that if this woman held an initially positive attitude toward President Bush, she will reinterpret this man’s ambiguous statement to be positive toward President Bush (e.g., I love President Bush’s tactics). In contrast, if this woman held an initially negative attitude toward President Bush, she will reinterpret this man’s ambiguous statement to be negative toward President Bush (e.g., I hate President Bush’s tactics).

In one study, Tesser and Cowan manipulated reinterpretation of ambiguous information and opportunity for thought (1977). Participants were given sets of three adjectives describing a fictitious person. Two of these adjectives were either positive or negative and one of these adjectives was neutral. Participants were asked to indicate their initial attitudes about this fictitious person. Participants were then either given 90 seconds of thought or distraction. Participants given an opportunity for thought polarized more as compared to distracted participants. If participants were given two positive adjectives, they tended to infer that ambiguous adjective was also positive. If participants were given two negative adjectives, they had a tendency to infer that ambiguous adjective was also negative. Reinterpretation of ambiguous information has been replicated in previous studies (e.g., Leone, 1996; Millar & Tesser, 1986; Tesser & Cowan, 1977).

Discounting of inconsistent beliefs is the last microprocess by which people may experience attitude polarization (Tesser, 1978). People using discounting may disregard information that is not consistent with information they already have. Discounting happens when people are presented with information that is not consistent with information they already have. Discounting may occur when someone simply ignores information.

For example, a woman is talking to a man. He states “The New York Fire Department did such a lousy job. They let all those people die!” Assuming this woman had initially positive attitudes toward the New York Fire Department, she would find information given by this man to be inconsistent with her beliefs and would discount that information. Because a man stated information that conflicted with information this woman had, his information would not be perceived as relevant and would therefore be disregarded.

In a study by Lord, Ross, and Lepper (1979), discounting of inconsistent beliefs and participants’ beliefs about the death penalty were manipulated. Participants were asked to indicate their beliefs (i.e., for or against) about the death penalty. Participants

were then given a fictitious study arguing for or against the death penalty. Participants were then asked to indicate how well or poorly this study was conducted and how convincing evidence seemed. Participants were then given a second fictitious study presenting an opposite view about the death penalty. As before, participants were asked to indicate how well or poorly this study was conducted and how convincing evidence seemed. After reading both articles, participants reported that articles supporting their beliefs were more convincing than articles not supporting participants' beliefs. Lord, Ross, and Lepper found that attitude shifts taking place in participants resulted in attitude polarization (1979). Further research on discounting of inconsistent beliefs can be found in additional studies (e.g., Chaiken & Yates, 1985; Leone, 1996; Millar & Tesser, 1986; Tesser, 1978).

People may generate information, reinterpret information, and discount information as they reexamine their body of knowledge pertaining to an attitude object. People reexamining their beliefs about an attitude object may generate a piece of information consistent with information they already possess about that attitude object. People reexamining their beliefs about an attitude object may reinterpret some ambiguous information to be consistent with other information about that attitude object. People reexamining their beliefs about an attitude object may discount some information inconsistent with other information about that attitude object. All three microprocesses may result in increased belief consistency which in turn results in self-generated attitude change. Different people may use all three or a combination of these three microprocesses during thought (Tesser, 1978).

Schemas

Microprocesses are means by which peoples' attitudes polarize: generation, reinterpretation, and discounting (Judd & Brauer, 1995; Millar & Tesser, 1986). Schemas are structures within which peoples' attitudes polarize. Experimenters have found a relationship between schemas and attitude polarization in many studies (e.g., Judd & Brauer, 1995; Lassiter & Apple, 1998; Leone & Ensley, 1986; Sadler & Tesser, 1973; Tesser & Leone, 1976). Tesser (1978) suggests that without schemas, little attitude polarization may take place. In contrast, if a well-developed schema exists, more polarization should take place.

According to Tesser (1978), schemas are mental representations of stimulus domains (i.e., attitude objects). Attitude objects may have a large number of attributes associated with them and people may have a large amount of knowledge about attitude objects (Tesser, 1978). Fiske and Taylor defined schemas as "...a cognitive structure that represents knowledge about a concept or type of stimulus, including its attributes and the relations among the attributes" (1991, p. 98). That is, schemas are naïve theories about an attitude object (Carlston & Smith, 1996; Kelley, 1967; Ross, 1977). Another way of explaining schemas is by comparing them to blueprints. People use blueprints for information about structure and rules for building objects. People use schemas for thinking about and filling in details about attitude objects.

Because people cannot focus on every detail of even simple attitude objects, people use schemas to simplify thinking processes (Tesser, 1978). This thinking process is simplified because people no longer need to think about every detail. People using schemas may be drawn to relevant information and experience a reduction of uncertainty when presented with ambiguous information (Tesser et al., 1995). Because schemas come

equipped with details about an attitude object, people may also be able to fill in missing information and draw conclusions about an attitude object using details from schemas (Lord, Paulson, Sia, Thomas, & Lepper, 2004; Tesser, 1978).

Recall, from above examples, a woman is reminiscing about events happening on 9/11/2001. Perhaps she is again asked to think about events on 9/11/2001. She may employ schemas to remember other information. She may think about that day and recall seeing broken windows and debris on the ground around her. She may not have actually seen those details until generating that information. Broken windows and debris on the ground are consistent with other disaster information from that day. Because she is using schemas, she will stay within certain boundaries when recalling information. Chances are small she will recall having seen a kangaroo parade walking down Greenwich Street. Even though she may not have perfect memory, a kangaroo parade walking down Greenwich Street while airliners were crashing into the Twin Towers is unlikely. A memory with a kangaroo parade does not fit a “disaster schema” or a “typical day in New York City schema.” If she were to generate this thought, she may just as quickly discount it because of irrelevancy. Thus, even if events of that day were very blurred for this woman, she would have a low chance of recalling a kangaroo parade. Instead, this woman may use a “disaster schema” of a scenario where she may recall seeing people run and people hearing loud sirens wailing. Further, she may have recalled an otherwise ambiguous memory. This memory may be one such as people yelling to one another. In terms of this situation however, she may reinterpret that yelling as having to do with the current disaster rather than any other context. She is using schemas to think about and fill in past experiences in her memory. That is, she may be filling in details by calling upon a schema relating to a disaster scenario.

There are different parts of schemas to reflect different kinds of memory (e.g., semantic or episodic). Schemas are composed of three types of information: semantic, episodic, and affective (Carlston & Smith, 1996; Tulving, 1972; Zanna & Rempel, 1988). These types of information are not isolated. As information of one kind (e.g., semantic) is made available (i.e., created by generation of information) through any of the microprocesses, that information also activates other types of information (e.g., episodic or affective).

Tulving (1972) proposed that semantic information is declarative in nature (See also Carlston & Smith, 1996). Semantic information pertains to information with a verbal quality (i.e., statements and facts) (Carlson, 2008; Carlston & Smith, 1996). Semantic information may be comprised of general facts about an attitude object. People may use semantic information to describe an attitude object’s traits. For example, a woman is asked to think about terrorists. Someone asks this woman to describe some traits or characteristics terrorists might have. After thinking for a moment, this woman may reply with these attributes: fanatical, dangerous, suicide bomber, gunman, killer. She used a schema to think about what “terrorists” meant to her. Using a schema enables her to semantically describe what terrorists are to her.

Tulving (1972) proposed that episodic information is contextual in nature (i.e., seen from the perspective of a perceiver) (See also Carlston & Smith, 1996). Episodic information pertains to information with an audio and visual quality (e.g., a person or place) (Carlson, 2008; Carlston & Smith, 1996). Episodic information may include images or scenes from a stored memory. People may use episodic information to describe

other peoples' behaviors. For example, perhaps this same woman is asked to think about terrorists again. This time, someone asks this woman to picture in her mind any physical characteristics terrorists might have. After thinking a moment, she may picture the following characteristics: men covered in tan-colored clothing and rags, some yelling in a foreign language, AK-47 machine guns held in the air and firing, a rocket-propelled grenade launcher being fired, an explosion. She used a schema to picture "terrorists" in her mind. Doing so enabled her to picture other things linked to that word and episodically picture terrorists.

Zanna and Rempel (1988) proposed that affective information pertains to information with an evaluative quality. Affective information may be comprised of emotional reactions to an attitude object (Carlston & Smith, 1996). People may use affective information to take a negative, positive, or ambivalent stance toward an attitude object. For example, once again this woman is asked to think about terrorists. This time someone asks this woman how she feels about terrorists. After thinking a moment, she may say that she hates terrorists. She used a schema to evaluate "terrorist" in her mind. Doing so enabled her to give an emotional response triggered from affective information.

Different forms of information are not isolated from one another. Affective and cognitive components of peoples' thought processes work together when people form an attitude toward an attitude object (Leone, Taylor, & Adams, 1991; McGuire, 1985; Stephan, 1985). A memory or experience may be especially strong when people call upon all three kinds of information (i.e., semantic, episodic, and affective). For example, recalling someone yell "watch out for falling glass!" may help people remember seeing glass and debris fall. Recalling someone yell this statement (i.e., semantic) and recalling seeing it as it happened (i.e., episodic) may help people recall what they felt at that moment (i.e., affective). Each kind of information (i.e., semantic, episodic, and affective) that is related to another kind of information (i.e., pertaining to the same attitude object) strengthens an overall memory. People with a memory supported by each kind of information may experience more attitude polarization than people with a memory not supported by each kind of information.

Schema Complexity

Schema complexity can be described in terms of volume (i.e., amount of information related to an attitude object). Schema complexity increases as the number of independent pieces of information pertaining to an attitude object increases (Chaiken & Yates, 1985; Millar & Tesser, 1986; Tesser & Leone, 1977). Detail and complexity are related in terms of amount of accessible information related to an attitude object. For example, some researchers found support for a view that people have more complex schemas to assist in thinking about individual's personality as compared to less complex schemas to assist in thinking about group's personality (e.g., Britton & Tesser, 1982; Millar & Tesser, 1986; Tesser & Leone, 1977). When thinking about an individual (e.g., Osama bin Laden), people may be able to come up with more highly detailed information (e.g., personality traits, visuals, and emotions) about that individual than when people think about groups of people (e.g., al Qaeda).

People using more complex schemas have a greater chance of experiencing attitude change compared to people using less complex schemas (Tesser et al., 1995). Tesser and Leone (1977) found support for schema complexity in that more polarization occurred during thought conditions when people have more complex schemas compared

to conditions in which people have less complex schemas or in which people are in distraction conditions (See also Leone & Aronow, 1992; Leone & Ensley, 1985; Munro & Ditto, 1997; Clary, Tesser & Downing, 1978; Tesser & Leone, 1977). Related to this difference between individual and group schema complexity, attitude polarization occurs more in an evaluation of individual personality than in an evaluation of group personality (Leone & Ensley, 1985; Millar & Tesser, 1986). Attitude change occurs more often when thinking about individuals than when thinking about groups because of a greater number of accessible cognitions (i.e., attention grasping) surround individuals than groups. For example, people are better able to picture Osama bin Laden than al Qaeda in their minds and are thus better able to form attitudes toward Osama bin Laden than al Qaeda.

Individuals may be better able to produce descriptive information regarding that one terrorist (e.g., Osama bin Laden) than groups of terrorists (e.g., al Qaeda). Individuals may be better able to produce semantic, episodic, and affective information regarding that one terrorist than about groups of terrorists (Carlston & Smith, 1996; Tulving, 1972; Zanna & Rempel, 1988). People may be better able to generate consistent information, reinterpret ambiguous information, and discount inconsistent information regarding an individual terrorist than about groups of terrorists (e.g., Chaiken & Yates, 1985; Millar & Tesser, 1986; Tesser & Cowan, 1975). People thinking about an individual terrorist may be more likely to experience attitude polarization than are people thinking about groups of terrorists (Tesser et al., 1995; Valenti & Tesser, 1981). Given the aforementioned variations in thinking about one terrorist versus groups of terrorists, some individuals are more likely to experience these variations than other individuals.

Personal Fear of Invalidity

People may experience effects of self-generated attitude change to a greater or lesser extent due to individual differences such as the personal fear of invalidity. Personal fear of invalidity is an individual's comfort, or lack thereof, in being wrong about attitude objects (Thompson, Naccarato, Parker, & Moskowitz, 2001). People high in personal fear of invalidity may not be willing to commit to an attitude about attitude objects without knowing as much as those people can about that topic (Clow & Esses, 2005; Freund, Kruglanski, & Shpitajzen, 1985; Thompson et al., 2001). Conversely, people low in personal fear of invalidity may be willing to commit to an attitude about attitude objects without knowing as much as those people can about that topic (Clow & Esses, 2005; Freund et al., 1985; Thompson et al., 2001). For example, perhaps a woman and a man are talking about rebel insurgents in the Middle East. If this woman was high in personal fear of invalidity as compared to low in personal fear of invalidity, she may be cautious when making statements about those rebel insurgents. She may be increasingly cautious when making statements about rebel insurgents if her knowledge base is small. If this woman was low in personal fear of invalidity as compared to high in personal fear of invalidity, she may be hasty when making statements about those rebel insurgents. She may be increasingly hasty when making statements about rebel insurgents regardless of her knowledge base size.

In a study by Freund et al. (1985), experimenters found additional information regarding "freezing" and "unfreezing" of people's first impressions on an attitude objects. Having an initial belief and sticking with it despite available information that might lead to a different belief is freezing (Kruglanski & Freund, 1983). Having an initial belief and modifying it due to available information leading to a different belief is unfreezing

(Kruglanski & Freund, 1983). People sometimes freeze on initial information regarding an attitude object (Freund et al., 1985; Kruglanski & Freund, 1983).

For example, a group of people may have never heard of Osama bin Laden prior to the events of September 11, 2001. That group of people's first impressions of him was then connected with attacks on the United States. If this group is presented with and they ignore information that Osama bin Laden is a righteous liberator, they have frozen to their first negative impressions. Conversely, if this group is presented with and they accept information that Osama bin Laden is a righteous liberator, they have unfrozen from their first negative impressions. Whether people "freeze" on a belief or idea depends on their personal fear of invalidity (Freund et al., 1985; Kruglanski & Freund, 1983). Freund et al. (1985) found that people high in personal fear of invalidity tended to not freeze upon a belief due to their reluctance to commit to a potentially incorrect belief. Freund et al. (1985) found that people low in personal fear of invalidity tended to freeze upon a belief due to their haste to commit to a potentially incorrect belief.

When applying the above reasoning to self-generated attitude change in general, one may infer that because people high in personal fear of invalidity are not likely to freeze upon a belief, those people will also not polarize when thinking about an attitude object (Thompson & Zanna, 1995). One may also infer that because people low in personal fear of invalidity are likely to freeze upon a belief, those people will also polarize when thinking about an attitude object. People high in personal fear of invalidity may not freeze because they seek out information that may either be consistent or inconsistent with their initial beliefs (Freund, et al., 1985; Kruglanski & Freund, 1983; Kruglanski & Mayseless, 1987). People low in personal fear of invalidity may freeze upon a belief because they either don't seek out more information or they seek out information consistent with their initial beliefs (Freund, et al., 1985; Kruglanski & Freund, 1983; Kruglanski & Mayseless, 1987). People high in personal fear of invalidity seek information both consistent and inconsistent with initial beliefs to validate an opinion. People low in personal fear of invalidity seek information to validate an opinion, but this information is consistent with their initial beliefs.

Self-generated attitude change may be examined in particular by its' microprocesses in general. Generation of consistent information, reinterpretation of ambiguous information, and discounting of inconsistent information may lead people to polarize in their evaluation of an attitude object (Tesser, 1978). People high in personal fear of invalidity may generate information both consistent and inconsistent to their initial beliefs (Kruglanski & Mayseless, 1987, 1988). People low in personal fear of invalidity may generate only information consistent to their initial beliefs (Kruglanski & Mayseless, 1987, 1988). People high in personal fear of invalidity may reinterpret ambiguous information to be either consistent or inconsistent with their initial beliefs (Kruglanski & Mayseless, 1988). People low in personal fear of invalidity may reinterpret ambiguous information to be consistent with their initial beliefs (Kruglanski & Mayseless, 1988). People high in personal fear of invalidity may discount information only if that information does not make sense to them or if it truly seems invalid (Kruglanski & Mayseless, 1988). People low in personal fear of invalidity may discount information if that information is not consistent with their other information (Kruglanski & Mayseless, 1988). By having inconsistent information, people high in personal fear of invalidity will tend to attenuate in affect regarding an attitude object (Kruglanski & Mayseless, 1987;

Thompson & Zanna, 1995). By having consistent information, people low in personal fear of invalidity will tend to polarize in affect regarding an attitude object (Kruglanski & Mayseless, 1987; Thompson & Zanna, 1995).

For example, perhaps a woman high in personal fear of invalidity has an initial belief that Osama bin Laden is a terrorist. She may think about everything that motivates him. This information may be both consistent (e.g., he hates the United States) and inconsistent (e.g., he is trying to save his people from oppression) with her initial beliefs. After using thought generation, reinterpretation, and discounting, she may have additional information, but some of that information may be inconsistent with her initial beliefs. Because she now has information that conflicts with her initial beliefs, she may attenuate her beliefs toward Osama bin Laden.

Perhaps a woman low in personal fear of invalidity has an initial belief that Osama bin Laden is a terrorist. She may think about everything that motivates him, information that is consistent (e.g., he hates the United States) with her initial beliefs. After using thought generation, reinterpretation, and discounting, she may have additional information consistent with her initial beliefs. She may polarize her beliefs toward Osama bin Laden because she now has additional information that is consistent with her initial beliefs. This woman used schemas and microprocesses of self-generated attitude change when thinking about Osama bin Laden. Perhaps a different woman high in personal fear of invalidity has an initial belief that Osama bin Laden is a terrorist. She may think about everything that motivates him, information that is consistent (e.g., he hates the United States) with her initial beliefs. After using thought generation, reinterpretation, and discounting, she may have additional information consistent and inconsistent with her initial beliefs. She may attenuate her beliefs toward Osama bin Laden because she now has additional information that is consistent and inconsistent with her initial beliefs. This woman used schemas and microprocesses of self-generated attitude change when thinking about Osama bin Laden.

In summary, people use schemas as guidelines when thinking about an attitude object (Carlston & Smith, 1996; Fiske & Taylor, 1991; Tesser, 1978). Attitude polarization begins with thought and people use schemas to guide that thought process (Judd & Brauer, 1995, Leone & Ensley, 1986; Sadler & Tesser, 1973). People are different and tend to think differently. One way people differ is in terms of fear of being wrong. People may seek information differently or in different amounts as fear of being wrong increases or decreases.

People high in personal fear of invalidity may seek information about an attitude object thereby increasing schema complexity before committing to a belief about that attitude object (Clow & Esses, 2005; Kruglanski & Mayseless, 1987; Thompson & Zanna, 1995). Compared to people low in personal fear of invalidity, people high in personal fear of invalidity may have a complex schema, but that schema has some inconsistent information (Clow & Esses, 2005; Kruglanski & Mayseless, 1987). Results from having an inconsistent schema may be attitude attenuation (Tesser & Leone, 1977; Tesser et al., 1995). People low in personal fear of invalidity may not seek information about an attitude object thereby not increasing schema complexity (Clow & Esses, 2005; Kruglanski & Mayseless, 1987; Thompson & Zanna, 1995). Compared to people high in personal fear of invalidity, people low in personal fear of invalidity may have a complex schema, but that schema has largely consistent information (Clow & Esses, 2005;

Kruglanski & Maysseless, 1987). Results from having a consistent schema may be attitude polarization (Tesser & Leone, 1977; Tesser et al., 1995). Given the aforementioned information, three possible hypotheses may be predicted: H₁ People's attitudes will polarize more and have greater belief consistency with an increased amount of time for thought than with less amount of time for thought. H₂ People's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups and given a high opportunity for thought. H₃ People's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups, are given a high opportunity for thought, and have a low personal fear of invalidity rather than having a high personal fear of invalidity.

Method

Participants

Participants volunteered for a study titled "Individual Differences in Perceptions of People." There were a total of 123 (34 males, 89 females) participants. Participants were recruited with an incentive of extra credit in their undergraduate psychology and honors classes. This study was one of several means by which undergraduate students could earn extra credit for their classes.

Most participants ranged in age from 18 to 22 years old (68.1%). Most participants indicated they were Caucasian (65.5%). Participants indicated a political affiliation of Democratic (23.3%), Independent (8.6%), Republican (28.4%), or no party affiliation (38.8%). Moderate scores were needed to measure attitude polarization because attitude polarization is measured by comparing any change from initial responses. The experimenter in this study randomly assigned participants to experimental conditions. He also obtained a signed written informed consent from each participant. All participants were treated in accordance with the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2003).

Procedure

A male experimenter greeted participants individually and informed participants that this study was designed to assess impressions of people. He informed participants of any potential risks and benefits associated with taking part in this study. He also informed participants that participation in this study was voluntary and that they had a right to withdraw from this study at any time without penalty. He explained that participants' responses would be kept confidential and participants' identities would remain anonymous. He asked participants if they had any questions. After answering any questions, he then asked participants to read and sign an informed consent document.

He then placed a 15-point Likert-type scale directly in front of participants. Endpoints of this scale were labeled *strongly favorable* (+7) and *strongly unfavorable* (-7) with a midpoint labeled *neutral* (0). Intermediate points were labeled *moderately favorable* (+4) and *moderately unfavorable* (-4). The experimenter in this study explained the use of this scale and answered any questions from the directions given. Participants were told to express their impressions aloud by saying a number (e.g., +6, -3).

He individually presented participants with 30 sets of descriptor words on 7.3 cm by 13.3 cm cards. Four descriptor words (e.g., talented, independent, unconventional, humorous) were printed on each card. Fifteen descriptor cards had three positive attributes (e.g., imaginative, loyal, skilled) and one neutral attribute (e.g., ordinary).

Fifteen descriptor cards had three negative attributes (e.g., authoritative, unintelligent, resentful) and one neutral attribute (e.g., mediocre). The experimenter in this study chose all attributes, each rated on likeableness, from a list of 555 personality-trait words (cf., Anderson, 1968).

The experimenter in this study presented each card by placing it in front of participants and asked participants to look at that descriptor set. He told participants to think about that descriptor set in terms of either an individual or a group of individuals. He also told participants that each card represented a different individual or group of individuals. He asked participants to rate how they felt about that descriptor set using that 15-point Likert-type scale. If participants did not indicate how they felt about a descriptor set, he prompted them by asking how they felt. After participants indicated their impressions, he recorded participants' initial impressions on a separate coding sheet. Participants were not able to view notes taken by him. This procedure was repeated for all remaining descriptor sets.

After participants read all sets of descriptors and indicated their initial impression toward each descriptor set, the experimenter in this study randomly chose two descriptor sets for which participants indicated a moderately favorable impression (i.e., +4) and two descriptor sets for which participants indicated a moderately unfavorable impression (i.e., -4). If participants had not indicated moderately favorable or unfavorable impression (i.e., +4 or -4) toward any descriptor set, he chose a participants' next closest rating (e.g., +3 or -5).

The experimenter in this study randomly assigned participants to one of four conditions. Participants in condition one received a low opportunity for thought (i.e., 30 seconds of thought) and were also asked to think about descriptors in terms of an individual rebel insurgent (cf. Leone et al., 1991). Participants in condition two received a low opportunity for thought and were asked to think about descriptors in terms of an entire group of rebel insurgents. Participants in condition three received a high opportunity for thought (i.e., 90 seconds of thought) and were asked to think about descriptors in terms of an individual rebel insurgent (cf. Leone et al., 1991). Participants in condition four received a high opportunity for thought and were asked to think about descriptors in terms of an entire group of rebel insurgents.

The experimenter in this study asked participants to focus all of their thinking on each descriptor in terms of either an individual Rebel Insurgent or a group of Rebel Insurgents. Specifically, he told participants

I'd like you to take some time to think about one of these descriptions. I want you to concentrate all of your thoughts on this [group or individual] during the time I give you. You might want to think about how you feel about a [group or individual] with these characteristics. You might want to think about [groups or individuals] you know fit this description. Or you might want to think about what other qualities and traits [group or individuals] like this may have. Just concentrate on this description and continue thinking until I tell you to stop (Leone, 1996).

After he gave these instructions to participants and gave them an opportunity for thought, he put a Likert-type scale directly in front of participants. He then asked participants to again indicate their impressions toward that descriptor set using that 15-point Likert-type scale. Specifically, he told participants

Now that you've had a chance to collect your thoughts, I'd like you to once again indicate how you feel. Sometimes people's feelings change even over a short period of time as this. Of course, you may or may not feel the same way about the [group or individual]. Using the scale as before, indicate how you feel about the [group or individual] now (Leone, 1996).

Participants indicated their responses upon a 15-point Likert-type scale and he recorded each response. He recorded participants' responses on a separate sheet of paper and prevented participants from viewing that sheet of paper. He repeated this process (i.e., thought and re-rating) until all three remaining descriptor cards were viewed by participants.

He measured participants' impression change in the following way (cf. Tesser, 1978). If participants' initial impression changed from moderately favorable (+4) to less favorable (e.g., +3, +2) or if participants' initial impression changed from moderately unfavorable (-4) to more favorable (e.g., -3, -2) following a period of thought, he assigned a score of "-1" to indicate impression attenuation. If participants' initial impressions did not change following a period of thought, he assigned a score of "0" to indicate no impression attenuation or polarization. If participants' initial impressions changed from moderately favorable (+4) to more favorable (e.g., +5, +6) or if participants' initial impressions changed from moderately unfavorable (-4) to less favorable (e.g., -5, -6) following a period of thought, he assigned a score of "+1" to indicate impression polarization. Individual scores were recorded and were not visible to participants.

The experimenter in this study manipulated beliefs by assessing participants' thoughts after completing the thought assessment portion of the survey. Change in belief was measured by thought listing (e.g., Cacioppo & Petty, 1981; Cacioppo, von Hippel, & Ernst, 1997). Participants were asked to list everything that came to mind when presented with each descriptor set. Participants wrote on a piece of paper each thought that came to mind within a predetermined amount of time for each card. Participants were asked to make a check next to a thought if they had a single thought more than once (cf. Cacioppo et al., 1997). The experimenter in this study assessed beliefs by reviewing participants' list of thoughts and assigning a "+" to indicate a positive thought, a "0" to indicate a neutral thought, or a "-" to indicate a negative thought. He assessed participants' personal fear of invalidity after completing this section.

Individual differences in the personal fear of invalidity were assessed using the 14-item Personal Fear of Invalidity Scale (Thompson et al., 2001). Responses to each of the statements were made using a 5-point Likert scale with response options labeled from *strongly disagree* to *strongly agree*. Of the 14 items in the Personal Fear of Invalidity Scale, nine items were worded such that agreement indicated a high personal fear of invalidity (e.g., "I prefer situations where I do not have to decide immediately."). The remaining five items were worded such that disagreement indicated a high personal fear of invalidity (e.g., "Decisions rarely weigh heavily on my shoulders.>").

Responses to items for which disagreement indicated a high personal fear of invalidity were reverse scored. Answers to all items were scored such that higher scores indicated a higher personal fear of invalidity. Scores for answers to individual items were summed such that higher total scores indicated a higher personal fear of invalidity. The

experimenter in this study classified participants as either high or low in personal fear of invalidity based on a median split of the full range of scores on the Personal Fear of Invalidity Scale.

Several researchers have found Cronbach's alphas of .84 or more for scores on the Personal Need for Invalidity Scale (e.g., Leary, Sheppard, McNeil, Jenkins, & Barnes, 1986; Thompson et al., 2001). Sadowski & Gulgoz (1992) found over a seven week interval a test-retest correlation of .88 for scores on the Personal Fear of Invalidity Scale. Researchers found that scores on the Personal Fear of Invalidity Scale are positively correlated with scores on measures of attention given to tasks (e.g., Osberg, 1987), information seeking and usage in problem solving (e.g., Berzonsky & Sullivan, 1992), and motivation for experiences that are thought provoking (e.g., Venkatraman & Price, 1990). Researchers found that scores on the Personal Fear of Invalidity Scale are uncorrelated with scores on measures of dogmatism (e.g., Cacioppo & Petty, 1982), need for closure (e.g., Petty & Jarvis, 1996), and preference for order (e.g., Webster & Kruglanski, 1994). The experimenter in this study obtained a Cronbach's alpha of .80 in this sample for scores on the Personal Fear of Invalidity Scale.

After the individual differences portion of this survey, the experimenter in this study included some questions designed to assess participants' demographic information. He first asked to indicate their sex between two options labeled *male* or *female*. He then asked participants to indicate their age with response options labeled *18-22*, *23-27*, *28-32*, *33-37*, *38 or older*. He asked participants to indicate their race with response options labeled *African American / Black*, *Asian / Pacific Islander*, *Caucasian / White*, *Hispanic / Latino*, *Other*. He also asked participants to indicate their political affiliation with response options labeled *Democrat*, *Independent*, *Republican*, or *No Party Affiliation*. The experimenter in this study asked participants some questions that served as a manipulation check upon completion of answering demographic questions. He directed some questions at participants' attention to detail to specific portions of the survey (e.g., Did you think of any particular people or groups? Why?) and some questions at participants' attention to the survey as a whole (e.g., What did you think we were looking at in this study?). He also asked whether participants' felt the same or different (e.g., Do you think that your attitude changed or remained similar when you had time to think about the people?). He debriefed all participants as to the purpose of this study at the conclusion of post-experiment questions.

Results

Overview

This study was a 2 (opportunity for thought: high vs. low) x 2 (target: individual vs. group) x 2 (personal fear of invalidity: high vs. low) x 2 (affect: initially favorable vs. initially unfavorable attitude) factorial design. Between-subjects variables in this study were opportunity for thought, target, and the personal fear of invalidity. The within-subjects variable in study was initial affect. The dependent variables in this study were attitude polarization and belief consistency. All participants' scores on measures of attitude polarization and belief consistency were analyzed using a 2 (opportunity for thought) x 2 (target) x 2 (personal need for invalidity) x 2 (affect) analysis of variance (ANOVA).

Main Analysis

It was hypothesized that participants would experience greater attitude polarization and belief consistency when they were given a high opportunity for thought rather than a low opportunity for thought. A main effect was expected for opportunity for thought. It was also hypothesized that participants would experience greater attitude polarization and belief consistency when given a high opportunity for thought rather than a low opportunity for thought and instructed to think about individuals rather than think about groups of individuals. A two-way interaction was expected between opportunity for thought and target. Finally, it was hypothesized that participants with a low personal fear of invalidity would experience greater attitude polarization and belief consistency than would participants with a high personal fear of invalidity when given a high opportunity for thought (rather than a low opportunity for thought) and instructed to think about individuals (rather than groups). A three-way interaction between opportunity for thought, target, and the personal fear of invalidity was expected.

Attitude Polarization. As a whole, there was no support for our hypotheses concerning attitude polarization. First, there was no significant main effect for opportunity for thought, $F < 1.00$. Second, there also was no significant interaction between opportunity for thought and target of thought, $F < 1.00$. Last, there was no significant interaction between opportunity for thought, target of thought, and the personal fear of invalidity, $F < 1.00$.

However, there were some unexpected effects. The following effects were between-subjects effects. There was a significant main effect for the personal fear of invalidity, $F(1, 108) = 3.81, p < .05$. Participants low in the personal fear of invalidity experienced attitude attenuation ($M = -.44, SD = .96$) and participants high in the personal fear of invalidity experienced attitude polarization ($M = .11, SD = 1.05$). There was a significant interaction between opportunity for thought and the personal fear of invalidity, $F(1, 108) = 4.50, p < .04$. There was no simple main effect of the personal fear of invalidity (low personal fear of invalidity: $M = -.41, SD = 1.28$; high personal fear of invalidity: $M = -.58, SD = 1.36$) when there was a low opportunity for thought. There was a significant simple main effect of the personal fear of invalidity when there was a high opportunity for thought. When given high opportunity for thought, participants low in the personal fear of invalidity became more attenuated ($M = -.93, SD = 1.28$) whereas participants high in the personal fear of invalidity became more polarized ($M = .17, SD = 1.44$).

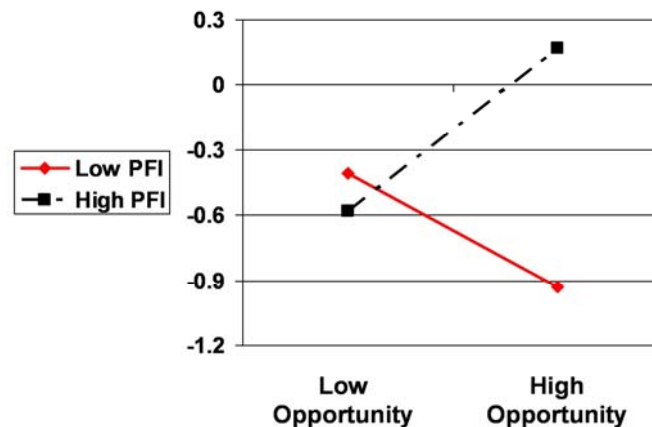


Figure 1. Effects for opportunity for thought and the personal fear of invalidity on attitude polarization.

The following effects were within-subjects effects (i.e., all participants were in each condition). There was a significant main effect for initial affect, $F(1, 108) = 17.48, p < .01$. Participants who thought about a descriptor and had positive initial affect attenuated ($M = -.44, SD = .134$) whereas participants who thought about a descriptor and had negative initial affect polarized ($M = .31, SD = 1.37$). There was a marginally reliable interaction between initial affect and opportunity for thought, $F(1, 108) = 3.42, p < .07$. Participants given a low opportunity for thought expressed more attitude polarization when beginning with negative initial affect ($M = .57, SD = 1.33$) than positive initial affect ($M = -.50, SD = 1.31$). Participants given a high opportunity for thought also expressed more attitude polarization when beginning with negative initial affect ($M = .05, SD = 1.39$) than positive initial affect ($M = -.38, SD = 1.46$). However, this difference was more pronounced when participants received a low opportunity for thought than high opportunity for thought.

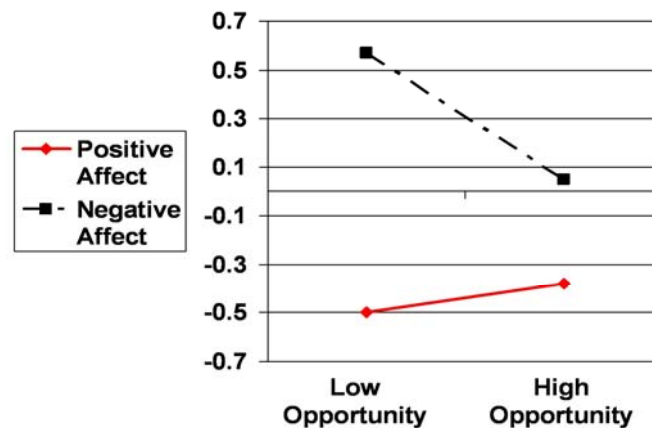


Figure 2. Effects for initial affect and opportunity for thought on attitude polarization.

Belief Consistency. As a whole, there was no support for our hypotheses concerning belief consistency. First, there was no significant main effect for opportunity for thought, $F < 1.00$. Second, there was no significant interaction between opportunity for thought and target of thought, $F < 1.00$. Last, there was no significant interaction between opportunity for thought, target of thought, and the personal fear of invalidity, $F < 1.00$.

However, there were some unexpected effects. The following effects were between-subjects effects. There was a marginally reliable interaction between opportunity for thought and the personal fear of invalidity $F(1, 108) = 3.14, p < .08$. There was no significant simple main effect of personal fear of invalidity (high personal fear of invalidity: $M = 1.29, SD = .38$; low personal fear of invalidity: $M = 1.29, SD = .41$) when there was low opportunity for thought. There was a significant simple main effect of personal fear of invalidity when there was high opportunity for thought. When given high opportunity for thought, participants low in the personal fear of invalidity were less consistent in their beliefs ($M = 1.21, SD = .48$) than were participants high in the personal fear of invalidity ($M = 1.36, SD = .35$).

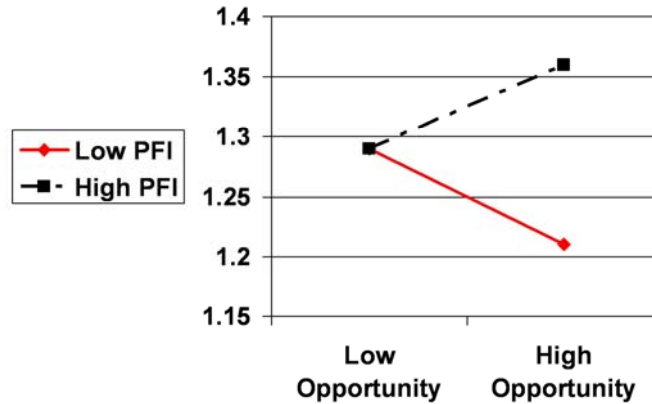


Figure 3. Effects for opportunity for thought and the personal fear of invalidity on belief consistency.

The following effects were within-subjects effects. There was a significant main effect for initial affect, $F(1, 108) = 18.21, p < .01$. Participants who thought about a descriptor and had positive initial affect expressed some belief consistency ($M = 1.11, SD = .64$) whereas participants who thought about a descriptor and had negative initial affect ($M = 1.42, SD = .50$) expressed greater belief consistency. There was a significant interaction between initial affect and opportunity for thought, $F(1, 108) = 5.13, p < .05$. Participants given a low opportunity for thought expressed more consistent beliefs when beginning with negative initial affect ($M = 1.53, SD = 1.32$) than positive initial affect ($M = 1.05, SD = .62$). Participants given a high opportunity for thought also expressed more consistent beliefs when beginning with negative initial affect ($M = 1.32, SD = .50$) than positive initial affect ($M = 1.17, SD = .66$). However, this difference was more pronounced when participants received a low opportunity for thought than high opportunity for thought.

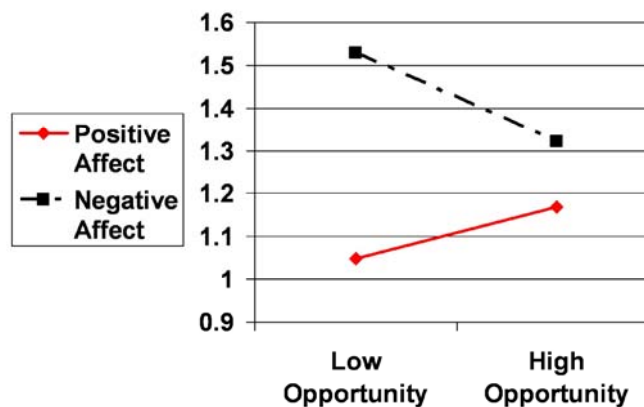


Figure 4. Effects for initial affect and opportunity for thought on belief consistency.

There was also a significant interaction between initial affect, opportunity for thought and the personal fear of invalidity, $F(1, 108) = 6.30, p < .02$. Participants low in the fear of invalidity given a low opportunity for thought expressed more consistent beliefs when beginning with negative initial affect ($M = 1.42, SD = .47$) than with positive initial affect ($M = 1.16, SD = .66$); participants high in the fear of invalidity given a low opportunity for thought expressed more consistent beliefs when beginning

with negative initial affect ($M = 1.62, SD = .46$) than positive initial affect ($M = .95, SD = .57$) (see Figure 5a). Participants low in the fear of invalidity given a high opportunity for thought expressed more consistent beliefs when beginning with negative initial affect ($M = 1.28, SD = .59$) than positive initial affect ($M = .96, SD = .64$); participants high in the fear of invalidity given a high opportunity for thought expressed similarly consistent beliefs when beginning with negative initial affect ($M = 1.35, SD = .30$) and positive initial affect ($M = 1.37, SD = .62$) (see Figure 5b).

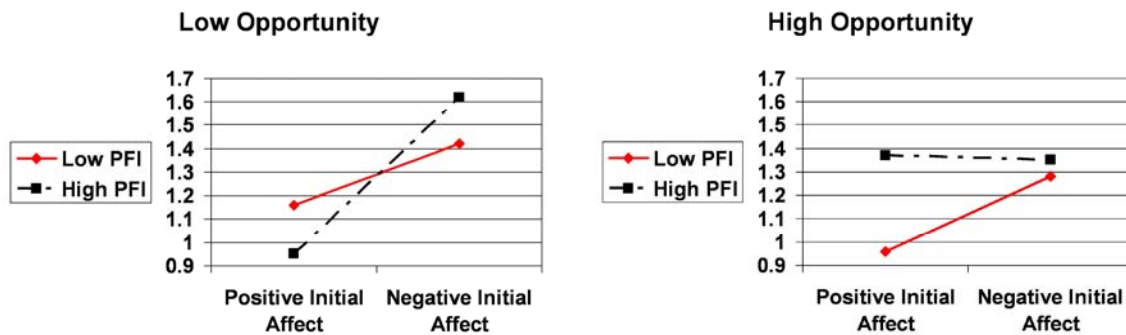


Figure 5a & 5b. Effects for initial affect, opportunity for thought, and the personal fear of invalidity on belief consistency.

Secondary Analysis

Recall the function of macroprocesses in self-generated attitude change. As people think longer about an attitude object, their beliefs about that attitude object become increasingly consistent (Tesser, 1978). As people's beliefs about an attitude object become increasingly consistent, their feelings about that attitude object become increasingly polarized (Tesser, 1978). It was therefore expected that there would be a positive correlation between our measures of attitude change and belief consistency. Overall, there was support for this expectation, $p < .01$. Participants who thought about the first positive descriptor had a more reliable relationship, $r = .51$, between attitude polarization and belief consistency than participants who thought about the first negative descriptor, $r = .37$. Participants who thought about the second positive descriptor had a more reliable relationship, $r = .56$, between attitude polarization and belief consistency than participants who thought about the second negative descriptor, $r = .45$.

Manipulation Check

Remember that people have schemas which these people use to guide their thought about an attitude object (Carlston & Smith, 1996). Some schemas are better developed than are others (Tesser et al., 1995). Schemas about individuals are better developed than are schemas about groups (Britton & Tesser, 1982; Millar & Tesser, 1986; Tesser & Leone, 1977). In this study, participants were instructed to think about either an individual target or a group target. The experimenter tested the effectiveness of this manipulation using a question in a post-experiment survey which was completed by all participants (i.e., "Did you think of any particular people or groups?"). It was expected that participants who received the individual condition would be more likely to think about a specific person (e.g., Osama bin Laden) during thought than would participants who received the group condition.

We predicted that participants thinking about individual targets should think about specific targets rather than nonspecific targets more so than participants thinking about

group targets. To test this effect, we conducted a Chi Square analysis. Overall, there was no support for our hypothesis that participants should think about a specific target more often when told to think about individual targets than group targets, $\chi^2(1, N = 116) < 1.00$. Most participants 62.5% instructed to think about individuals thought about a specific individual rebel insurgent. Most participants 70% instructed to think about groups thought about a specific group of rebel insurgents.

Discussion

Recall our hypotheses. First, we predicted that participant's attitudes will polarize more and have greater belief consistency with an increased amount of time for thought than with less amount of time for thought. Second, we predicted that participant's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups and given a high opportunity for thought. Third, we predicted that participant's attitudes will polarize more and have greater belief consistency when instructed to think about individuals rather than groups, are given a high opportunity for thought, and have a low personal fear of invalidity rather than having a high personal fear of invalidity. Contrary to what was expected, none of our hypotheses were supported.

Many researchers have confirmed that simply thinking for a period of time results in attitude extremity about an attitude object (Tesser, 1978; Tesser et al., 1995). Tesser (1978) hypothesizes that a change in participants' beliefs is contingent upon thought and a change in participants' feelings is contingent upon a change in participants' beliefs. This macroprocess (i.e., a relationship between thought, beliefs, and feelings) is related to microprocesses (i.e., generation of additional consistent beliefs, reinterpretation of ambiguous beliefs, and discounting of inconsistent beliefs) in attitude change. Participants with more consistent information about an attitude object are more likely to polarize than are participants with less consistent information about an attitude object (Lord et al., 1979; Miller, McHoskey, Bane, & Dowd, 1993; Pomerantz, Chaiken, & Tordesillas, 1995).

Although we did not formally hypothesize a relationship between attitude polarization and belief consistency, given the literature we would expect as polarization increases, belief consistency would also increase (Millar & Tesser, 1986; Tesser, 1978). Consistent with our expectations, we found a positive correlation between attitude polarization and belief consistency. This relationship was expected because as participants think, they engage in the microprocesses of self-generated attitude change (Tesser, 1978). When given time to think, participants' beliefs should become increasingly consistent because consistent beliefs are being generated, ambiguous beliefs are being reinterpreted, and inconsistent beliefs are being discounted (Tesser, 1978).

No difference in attitude polarization or in belief consistency was found when participants were given different amounts of time to think and instructed to think about different targets. Similarly, this lack of difference was found in participants who were high or low in the personal fear of invalidity. Perhaps some participants were not thinking and were not engaging in the microprocesses of self-generated attitude change. Attitude polarization and belief consistency after thought has been documented when experimenters instructed participants to think for differing amounts of time (e.g., Leone & Ensley, 1986), when distracted from thought (e.g., Chaiken & Yates, 1985), when thinking of fictitious participants (Tesser & Cowan, 1975, 1977), and when thinking of

social issues such as the death penalty (Lord et al., 1979). One difference between this study and other studies is we asked participants how they felt about rebel insurgents. Perhaps our participants had difficulty in thinking about this type of person or this group of people.

No difference in attitude polarization or in belief consistency was found when participants thought about individuals or groups. In previous studies, experimenters observed that schema complexity was related to attitude polarization by manipulating target of thought (e.g., individuals or groups) (Britton & Tesser, 1982; Millar & Tesser, 1986; Tesser & Leone, 1977). Participants with more well-developed schemas (e.g., individuals) polarized after thought more so than did participants with less well-developed schemas (e.g., groups) (Britton & Tesser, 1982; Millar & Tesser, 1986; Tesser & Leone, 1977). In previous studies, participants were directed to think about individuals or groups of people and were therefore invoking a schema of varying complexity. In the current study, we manipulated target of thought and also directed participants to think about an individual rebel insurgent or a group of rebel insurgents.

Perhaps our manipulation of targets did not matter because participants were focusing on “rebel insurgent” and disregarding individual and group. If participants were unfamiliar with the idea of rebel insurgent, then these participants would have difficulty thinking about either an individual rebel insurgent or group of rebel insurgents. That is participants who had no idea about rebel insurgents would have no schema for either individuals or groups. No difference in attitude polarization or in belief consistency was found when participants differing in personal fear of invalidity thought about individuals or groups. Differences in the personal fear of invalidity may not have mattered if participants had no idea about rebel insurgents.

There were several unexpected findings for attitude polarization. Contrary to Thompson et al. (2001), participants not afraid of being wrong held less extreme attitudes after thinking. Perhaps these participants were not engaged in thinking or did not care about the topic. Contrary to Thompson et al. (2001), participants afraid of being wrong held more extreme after thinking. Perhaps these participants thought long and hard to avoid being wrong.

When participants were given a long time (i.e., 90 seconds) to think, participants not afraid of being wrong (i.e., low in the personal fear of invalidity) became less extreme and participants afraid of being wrong (i.e., high in the personal fear of invalidity) became more extreme. There was no difference between participants given a short time (i.e., 30 seconds) to think because they may have felt rushed to report their feelings. Participants who feel rushed may respond similarly in regardless of individual differences.

There were several unexpected findings for belief consistency. Contrary to Thompson et al. (2001), participants not afraid of being wrong had less consistent beliefs after thinking. Perhaps these participants did not feel they had to justify their attitudes. Contrary to Thompson et al. (2001), participants afraid of being wrong had more consistent beliefs after thinking. Perhaps these participants did feel they had to justify their attitudes.

There were some additional unexpected findings for belief consistency. Participants with initially positive affect became less positive after thought, whereas participants with initially negative affect became more negative after thought. Perhaps

upon being told to think about rebel insurgents, participants engaged a negative schema. Engaging a negative schema may have acted as a process constraint (i.e., a restriction on thinking) (Leone & Aronow, 1992). Participants may have critically examined their initial beliefs and either changed those beliefs if they were not congruent with what they were directed to think about (i.e., rebel insurgents) or strengthened those beliefs if they were congruent with what they were directed to think about. Perhaps when engaging a negative schema, participants tend to call upon more negative beliefs than positive beliefs regardless of differences in initial affect, thought condition, or individual differences in the fear of being wrong.

Limitations

One limitation to this study is that the experimenter could not manipulate the personal fear of invalidity. The personal fear of invalidity is a personality difference whereby some participants fear being wrong more than do others (Thompson et al., 2001). The experimenter in this study was unable to randomly assign participants to a personality difference condition and was thereby unable to determine causality between the personal fear of invalidity and attitude polarization or belief consistency.

There may have been a limitation by sampling only from a college population. After reviewing 50 years of research Sears (1986), found a majority of researchers sample from college students. Being able to generalize effects to nonstudent populations may not always be possible. Although he suggests that most psychological phenomena being studied are universal and ever-present, it may be likely that nonstudents are more involved than are students, in current events. Nonstudents may have better developed ideas about rebel insurgents than would students.

The experimenter in this study did not know if participants were thinking during the entire time given to them. Participants were given either 30 seconds or 90 seconds for thought. He instructed participants to think the entire time and notified them when that time ended. He could not know for certain that participants were both thinking about a specific individual or group and engaging in microprocesses of self-generated attitude change (i.e., generation, reinterpretation, and discounting). If participants did not think and engage in microprocesses, then participants would not experience attitude polarization.

Although the experimenter in this study manipulated which schemas participants used to think about rebel insurgents by telling them to think about either groups or individuals, he did not know if participants were only thinking about one target or the other. Schema assessment was indirect. Schema assessment could be more direct if participants were required to write their thoughts while given opportunity to think rather than after given opportunity to think.

Although the experimenter in this study addressed all questions prior to asking participants to think about rebel insurgents, it is possible that some participants still did not understand the meaning of rebel insurgent. After a thorough experimenter-led discussion of possible meanings and examples of what rebel insurgent meant, the experimenter in this study asked participants if they understood its meaning for a second time. At this time, all participants replied that they had a good idea of its meaning. One possibility is that due to social desirability (i.e., it may have been more desirable to be perceived as having knowledge than not having knowledge), participants may have responded that they knew the meaning of rebel insurgent when they did not. One

alternative to an experimenter-led discussion is to present all participants with a colloquial definition and an example of rebel insurgents. Including a question in the post-experiment debrief inquiring whether or not participants understood the meaning of rebel insurgent may help experimenters understand individual differences more clearly than without this documentation.

Future Directions

Several possible new lines of research can be followed after this study. In future studies, researchers may also focus on sampling from older populations or special populations (e.g., veterans, international students, political science majors) when using a manipulation such as require participants to think about rebel insurgents. In some previous studies, experimenters have used a button and clock as a means of measuring participants' thinking (Leone, 1984). Experimenters instructed participants to hold a button while thinking that activated a clock to record how long participants were thinking. If other experimenters can measure when and how much participants are thinking, then other experimenters will be able to more accurately infer if participants are thinking and engaging in the microprocesses of self-generated attitude change. In future studies, researchers could also manipulate when (e.g., during opportunity for thought, after opportunity for thought) participants list their thoughts. Experimenters will then be able to measure belief consistency across different conditions.

The experimenter in this study instructed participants to think about rebel insurgents during the rating portion of this study. Instructing participants to think about rebel insurgents may have caused participants to invoke a negative schema (i.e., a mental representation invoking negative affective information) (Carlston & Smith, 1996; Tulving, 1972; Zanna & Rempel, 1988). A way to test this possibility in the future would be to instruct participants to think about freedom fighters instead of rebel insurgents. Leaving all other variables and steps within the methodology identical, experimenters could measure any difference in attitude polarization and belief consistency when participants invoke a positive schema (i.e., a mental representation invoking positive affective information) instead of a negative schema (Carlston & Smith, 1996; Tulving, 1972; Zanna & Rempel, 1988).

Another way to alter the schema portion of this study could be to instruct participants to think about groups of people that are personally relevant to typical undergraduates (e.g., professors). Instructing participants to think about professors would increase personal relevance and also cause participants to invoke more well-developed schemas than less-well developed schemas. Using more well-developed schemas may cause increased amounts of attitude polarization (Tesser & Leone, 1977).

Participants with more well-developed schemas about rebel insurgents or freedom fighters than participants with less-well developed schemas could be studied in future studies. Participants with more well-developed schemas may include military personnel, Latin Americans who were affected by Che Guevara, Eastern Europeans who lived under the USSR, or Africans affected by Nelson Mandela. Such participants may polarize more and have more well-developed schemas regarding rebel insurgents and freedom fighters than participants unaffected by either. Participants who lived in different parts of the world may have more, or at least different, experience than participants who have lived their entire lives in the United States.

Summary

One possible difference between participants' reactions to the events on September 11, 2001 may be individual differences. Some participants may not have reacted because they felt as though they didn't have enough information. Other participants reacted regardless of current information by protesting or approving war. Some participants may have not acted initially, but after thinking for a period of time may have decided to act in a way congruent with their beliefs. Other participants may have decided to stop thinking about terrorist or the events on September 11, 2001 altogether. Understanding individual differences between people and ways of thinking are important as a way of understanding our personal experience.

References

- Anderson, N. H. (1968). Likableness ratings of 555 personality-trait words. *Journal of Personality and Social Psychology, 9*(3), 272-279.
- Berzonsky, M. D., & Sullivan, C. (1992). Social-cognitive aspects of identity style: Need for cognition, experiential openness, and introspection. *Journal of Adolescent Research, 7*(2), 140-155.
- Britton, B. K., & Tesser, A. (1982). Effects of prior knowledge on use of cognitive capacity in three complex cognitive tasks. *Journal of Verbal Learning & Verbal Behavior, 21*(4), 421-436.
- Cacioppo, J. T., & Petty, R. E. (1981). Social psychological procedures for cognitive response assessment: The thought-listing technique. In T. V. Merluzzi, C. R. Glass, & M. Genest (Eds.), *Cognitive assessment* (pp. 309-342). New York: Guilford Press.
- Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*(1), 116-131.
- Cacioppo, J. T., von Hippel, W., & Ernst, J. M. (1997). Mapping cognitive structures and processes through verbal content: The thought-listing technique. *Journal of Consulting and Clinical Psychology, 65*(6), 928-940.
- Carlson, N. R. (2008). *Foundations of Physiological Psychology (7th ed.)*. New York: Allyn & Bacon.
- Carlston, D. E., & Smith, E. R. (1996). *Principles of mental representation*. New York, NY, US: Guilford Press.
- Chaiken, S., & Yates, S. (1985). Affective-cognitive consistency and thought-induced attitude polarization. *Journal of Personality and Social Psychology, 49*(6), 1470-1481.

- Clary, E. G., Tesser, A., & Downing, L. L. (1978). Influence of a salient schema on thought-induced cognitive change. *Personality and Social Psychology Bulletin*, 4(1), 39-43.
- Clow, K. A., & Esses, V. M. (2005). The development of group stereotypes from descriptions of group members: An individual difference approach. *Group Processes & Intergroup Relations*, 8(4), 429-445.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition (2nd ed.)*. New York, NY, England: McGraw-Hill Book Company.
- Freund, T., Kruglanski, A. W., & Shpitajzen, A. (1985). The freezing and unfreezing of impressional primacy: Effects of the need for structure and the fear of invalidity. *Personality and Social Psychology Bulletin*, 11(4), 479-487.
- Judd, C. M., & Brauer, M. (1995). *Repetition and evaluative extremity*. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Kelley, H. H. (1967). Attribution theory in social psychology. *Nebraska Symposium on Motivation*, 15, 192-238.
- Kruglanski, A. W., & Freund, T. (1983). The freezing and unfreezing of lay-inferences: Effects on impressional primacy, ethnic stereotyping, and numerical anchoring. *Journal of Experimental Social Psychology*, 19(5), 448-468.
- Kruglanski, A. W., & Mayselless, O. (1987). Motivational effects in the social comparison of opinions. *Journal of Personality and Social Psychology*, 53(5), 834-842.
- Kruglanski, A. W., & Mayselless, O. (1988). Contextual effects in hypothesis testing: The role of competing alternatives and epistemic motivations. *Social Cognition*, 6(1), 1-20.
- Lassiter, G. D., & Apple, K. J. (1998). Need for cognition and thought-induced attitude polarization: Examining possible demand characteristics. *Social Behavior and Personality*, 26(1), 99-103.
- Leone, C. (1984). Thought-induced change in phobic beliefs: Sometimes it helps, sometimes it hurts. *Journal of Clinical Psychology*, 40(1), 68-71.
- Leone, C. (1995). A review: Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. New York: Harcourt, Brace, & Janovich. *Psychology and Marketing*, 12, 459-466.
- Leone, C. (1996). Thought, objectivism, and opinion extremity: Individual differences in attitude polarization and attenuation. *Personality and Individual Differences*, 21(3), 383-390.

- Leone, C., & Aronow, R. E. (1992). Thought, process constraints, and cognitive style: Individual differences in self-generated reduction of fear. *Journal of Social & Clinical Psychology, 11*(4), 365-376.
- Leone, C., & Ensley, E. (1985). Self-generated attitude change: Another look at the effects of thought and cognitive schemata. *Representative Research in Social Psychology, 15*(1-2), 2-9.
- Leone, C., & Ensley, E. (1986). Self-generated attitude change: A person by situation analysis of attitude polarization and attenuation. *Journal of Research in Personality, 20*(4), 434-446.
- Leone, C., Taylor, L. W., & Adams, K. C. (1991). Self-generated attitude change: Some effects of thought, dogmatism, and reality constraints. *Personality and Individual Differences, 12*(3), 233-240.
- Lord, C. G., Paulson, R. M., Sia, T. L., Thomas, J. C., & Lepper, M. R. (2004). Houses built on sand: Effects of exemplar stability on susceptibility to attitude change. *Journal of Personality and Social Psychology, 87*(6), 733-749.
- Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology, 37*(11), 2098-2109.
- McGuire, W. J. (1985). Attitudes and attitude change. *Handbook of Social Psychology, 2*, 233-346.
- Millar, M. G., & Tesser, A. (1986). Thought-induced attitude change: The effects of schema structure and commitment. *Journal of Personality and Social Psychology, 51*(2), 259-269.
- Miller, A. G., McHoskey, J. W., Bane, C. M., & Dowd, T. G. (1993). The attitude polarization phenomenon: Role of response measure, attitude extremity, and behavioral consequences of reported attitude change. *Journal of Personality and Social Psychology, 64*(4), 561-574.
- Munro, G. D., & Ditto, P. H. (1997). Biased assimilation, attitude polarization, and affect in reactions to stereotyped-relevant scientific information. *Personality and Social Psychology Bulletin, 23*(6), 636-653.
- Osberg, T. M. (1987). The convergent and discriminant validity of the need for cognition scale. *Journal of Personality Assessment, 51*(3), 441-450.
- Petty, R. E., & Jarvis, W. B. G. (1996). *An individual differences perspective on assessing cognitive processes*. San Francisco, CA, US: Jossey-Bass.

- Pomerantz, E. M., Chaiken, S., & Tordesillas, R. S. (1995). Attitude strength and resistance processes. *Journal of Personality and Social Psychology*, 69(3), 408-419.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. *Advances in Experimental Social Psychology*, 10
- Sadler, O., & Tesser, A. (1973). Some effects of salience and time upon interpersonal hostility and attraction during social isolation. *Sociometry*, 36(1), 99-112.
- Sadowski, C. J., & Gulgoz, S. (1992). Internal consistency and test-retest reliability of the need for cognition scale. *Perceptual and Motor Skills*, 74(2), 610.
- 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), 515-530.
- Tesser, A. (1978). Self-generated attitude change. *Advances in Experimental Social Psychology*, 11, 289-338.
- Tesser, A., Martin, L., & Mendolia, M. (1995). *The impact of thought on attitude extremity and attitude-behavior consistency*. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc.
- Tesser, A., & Conlee, M. C. (1975). Some effects of time and thought on attitude polarization. *Journal of Personality and Social Psychology*, 31(2), 262-270.
- Tesser, A., & Cowan, C. L. (1975). Thought and number of cognitions as determinants of attitude change. *Social Behavior and Personality*, 3(2), 165-173.
- Tesser, A., & Cowan, C. L. (1977). Some attitudinal and cognitive consequences of thought. *Journal of Research in Personality*, 11(2), 216-226.
- Tesser, A., & Leone, C. (1977). Cognitive schemas and thought as determinants of attitude change. *Journal of Experimental Social Psychology*, 13(4), 340-356.
- Tesser, A., Leone, C., & Clary, E. G. (1978). Affect control: Process constraints versus catharsis. *Cognitive Therapy and Research*, 2(3), 265-274.
- Thompson, M. M., Naccarato, M. E., Parker, K. C. H., & Moskowitz, G. B. (2001). *The personal need for structure and personal fear of invalidity measures: Historical perspectives, current applications, and future directions*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Thompson, M. M., & Zanna, M. P. (1995). The conflict individual: Personality-based and domain-specific antecedents of ambivalent social attitudes. *Journal of Personality*, 63(2), 259-288.

- Tulving, E. (1972). *Episodic and semantic memory*. Oxford, England: Academic Press.
- Valenti, A. C., & Tesser, A. (1981). On the mechanism of thought-induced attitude change. *Social Behavior and Personality*, 9(1), 17-22.
- Venkatraman, M. P., & Price, L. L. (1990). Differentiating between cognitive and sensory innovativeness: Concepts, measurement, and implications. *Journal of Business Research*, 20(4), 293-315.
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049-1062.
- Zanna, M. P. (.), & Rempel, J. K. (1988). *Attitudes: A new look at an old concept*. New York, NY, US: Cambridge University Press; Paris, France: Editions de la Maison des Sciences de l'Homme.