EMBEDDEDNESS VERSUS ISOLATION IN DISSONANCE-INDUCED ATTITUDE CHANGE

by

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ABSTRACT

EMBEDDEDNESS VERSUS ISOLATION IN DISSONANCE-INDUCED

ATTITUDE CHANGE

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The argument is made that embedded and isolated attitudes differ in the magnitude and effects of cognitive dissonance in an induced-compliance paradigm. Individuals who engaged in counterattitudinal advocacy with an embedded attitude experienced increased negative affect but decreased attitude change compared to those who engaged in counterattitudinal advocacy with an isolated attitude. Traditional choice condition effects were also found to be different when the attitude was embedded versus isolated, with the embedded attitude characterized by a reversal of the expected effects typically seen with isolated attitudes. It is argued that induced-compliance dissonance studies have historically been restricted to one-sided isolated attitudes and it is suggested that to better understand the overall effects of cognitive dissonance, the range of attitudes studied may need to be expanded.

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CHAPTER 1

INTRODUCTION

If you don't like something, change it. If you can't change it, change your attitude.

- Maya Angelou

As Maya Angelou states, if you cannot change something you do not like, you can just change your attitude. But what if changing your attitude is not an option, or is a very difficult one? People possess many *cognitions*, or ideas, beliefs, attitudes, and expectancies about the world in which they live. It is proposed that many of these cognitions are intertwined within a larger cognitive structure and that individuals are inclined to seek congruity within this structure. It is further assumed that some of these cognitions are more central than others within the larger structure, resulting in numerous connections to other related cognitions. If an individual encounters incongruity between one or more cognitions, those that are centrally connected should be more resistant to change if challenged because of the greater modifications to the related cognitions that are needed to restore congruity. Hence, taking Maya Angelou's advice to change your attitude may at times not be as easy as it seems.

1.1 Cognitive Consistency Theories

In the 1950s, several theoretical developments in the area of cognitive consistency were developed to account for potential changes in one's cognitive structure due to inconsistency. Heider's (1946) balance theory, Osgood and Tannenbaum's (1955) congruity theory, and Festinger's (1957) cognitive dissonance theory were connected by the proposition that inconsistency among cognitions generates a tension state that produces a motivation to restore consistency (mainly through attitude change) and underscored the notion that attitudinal relationships and structure are of significance.

Fritz Heider's (1946) balance theory suggested that there are patterns of perceived relationships among mental representations of people, concepts, sentiments, and connections among these elements (i.e. unit relations). These relationships were depicted as a triad that typically represents the sentiment and/or unit relations among oneself, another person, and an attitudinal element. Heider argued that that these relationships could exist in a balanced or unbalanced state, depending upon the logical congruence or incongruence of the sentiments and unit relations. Imbalanced states result in unstable psychological structures that motivate the individual to restore balance, which may generate attitude change. Heider was the first to put forth the idea that cognitive inconsistency could lead to attitude change. However, balance theory is limited, because although it focuses on the valence (positive or negative) of the perceiver's evaluation, it does not consider the magnitude of the evaluation. Newcomb (1968) later revised Heider's balance theory by including a third option state of *nonbalanced*, in which the perceiver is not motivated to restore balance, possibly due to lack of interest or concern. On the other hand, Newcomb posited that a cognition that held some importance to the perceiver would be more likely to be connected to other cognitions and would therefore increase the tension state and motivation to restore balance, thus addressing the limitation of the original version of balance theory.

Osgood and Tannenbaum's (1955) congruity theory also maintained that attitude change might be the consequence of motivation initiated by imbalance or incongruity. Congruity theory augmented the main tenets of balance theory by incorporating attitude polarization into the relational triads and embracing the notion that highly polarized attitudes are more resistant to change. Another novel contribution was that Osgood and Tannenbaum established formulas for predicting the trajectory and magnitude of attitude change (though these predictions were not always supported empirically).

Moving forward, Leon Festinger's (1957) theory of cognitive dissonance received the bulk of attention from researchers, becoming one of the most well-known and intensely studied

theories in social psychology. According to Festinger, individuals are motivated to maintain cognitive consistency, or consonance, and this motivation can be viewed as a fundamental human drive, much like hunger. Cognitions, or *knowledges,* may form dissonant (inconsistent), consonant (consistent), or irrelevant relationships with one another. Dissonance occurs when two cognitions are psychologically inconsistent with one another. Festinger's theory put forth three key assumptions of cognitive dissonance: (1) dissonance produces a psychological tension, or discomfort; (2) the discomfort arising from dissonance induces motivation to engage in strategies intended to reduce dissonance and restore cognitive consistency; and (3) dissonance reduction alleviates the discomfort caused by cognitive dissonance.

Many of the studies that stemmed from Festinger's (1957) dissonance theory have used an induced-compliance paradigm in which dissonance was provoked by compelling the participants to engage in a behavior that is contrary to their prior attitudes. The induced-compliance paradigm was first used by Festinger and Carlsmith (1959), who had participants describe a very boring task as being exciting to the person they thought was the next participant. Later adaptations of the induced-compliance paradigm commonly had participants write an essay that promoted a view that was in contrast to their own. For dissonance to be produced with counterattitudinal advocacy, it turned out to be crucial that the implication of choice be introduced (Brehm & Cohen, 1962; Wicklund & Brehm, 1974). Participants who are assigned or required to write against their own view (low-choice) do not tend to experience dissonance because the behavior can be rationalized as to having had no choice but to do what they were told. On the other hand, participants who feel as if they chose to write the counterattitudinal essay when asked (high-choice) do tend to experience dissonance because they cannot explain away their behavior as easily. For high-choice participants, the discomfort caused by the dissonant behavior motivates them to reduce it, which often results in a change of attitude in favor of the written position.

Festinger's theory holds that an inconsistency among cognitions creates an uncomfortable psychological tension state, resulting in negative affect and discomfort, which motivates individuals to reduce this discomfort by restoring consistency. More recently, researchers have argued that the role of affect in assessing the dissonance experience has been neglected (Devine, Tauer, Barron, Elliot, & Vance, 1999). Elliot and Devine (1994) noted increased reports of discomfort in participants who had chosen to write counterattitudinal essays, supporting the conceptualization of dissonance as psychologically unpleasant. Moreover, these feelings of discomfort seemed to dissipate after participants were given the opportunity to reduce their dissonance through attitude change. By testing the individual's affect before and after an opportunity for dissonance reduction, they have found that affect can be used as a *dissonance thermometer* to gauge both dissonance induction and dissonance reduction (Devine, et al., 1999).

Festinger (1957) discussed the idea of a *dissonance ratio*, which maintains that as the number and importance of dissonant cognitions increases, the magnitude of dissonance increases. Similarly, Cohen (1960/1967) argued that inciting individuals to support a contradictory view of a central attitude would generate more dissonance than inciting individuals to support a contradictory view of a marginal attitude. Despite these proposals, however, little research has been done varying types of attitudes, such as those that are tied to central beliefs or values as opposed to those that are more isolated.

1.2 Attitudes and Structure

Several researchers have argued that there is organization among attitudes. Whereas French (1947) proposed that there is a hierarchical arrangement of attitudes, Rokeach (1968) suggested that attitudes project along a central-peripheral spectrum, whereas Festinger (1957) theorized that attitudes occupied "clusters that are internally consistent" (p. 1). The premise that there is a potential attitudinal framework led Scott (1968) to argue that a variable component of an attitude is its *embeddedness* (as opposed to isolation) with other cognitions in a larger

structure, or *cognitorium*, as termed by Rosenberg (1968). Embedded attitudes are held to be strongly linked with various interrelated attitudes, beliefs, and values and thus would be located in a more central part of the cognitorium.

For instance, Ostrom and Brock (1968) suggested that attitudinal involvement is strengthened insofar as the attitude is linked to central and relevant values, particularly when a greater number of values are implicated and especially when those values are related to the self. In addition, others have argued that self-relevant or *ego-involving* attitudes, including those related to the social groups one identifies with, are more central and more closely related to core attitudes and values (Boninger, Krosnick, & Berent, 1995; Pilisuk, 1962; Rokeach, 1968; Rosenberg, 1968). If cognitive inconsistency involving an embedded attitude occurs, it is reasonable to assume that it would have different consequences than when inconsistency involves a trivial or isolated attitude. For example, previous research has provided evidence that central attitudes are more resistant to change (Pomerantz, Chaiken, & Tordesillas, 1995; Scott, 1959; Zuwerink & Devine, 1996).

It has been presumed that to change an embedded attitude, substantial restructuring in the cognitive framework would be required. The resulting cognitive restructuring would likely produce more imbalance than that caused by the initial dissonant elements (Ostrom & Brock, 1968; Pilisuk, 1962; Rokeach, 1960). It would seem that when an embedded attitude is challenged, discomfort would be amplified and produce an increased motivation to restore consistency. Although attitude change is often the result with isolated attitudes, this strategy may not be successful in the case of embedded attitudes because it can further magnify the dissonance by generating more inconsistency with related cognitions within the cognitorium. Because individuals are motivated to maintain consistency, it seems likely that changing a central attitude would *not* be the preferred method of reducing dissonance because it could backfire and unleash a new wave of dissonant cognitions.

Elliot and Devine (1994) suggest that incorporating a central attitude in a dissonance study may produce a more specific negative affect towards the self (such as guilt), as opposed to the general discomfort seen with less significant attitudes. They did not find evidence of guilt in their studies concerning trivial attitudes. However, Stice (1992) found that having the chance to offer a confession reduced dissonance and that guilt was highly correlated with attitude change after writing a counterattitudinal essay about a trivial attitude (raising tuition rates). It would seem that negative feelings towards the self would be stronger when they concern embedded attitudes, because these attitudes would be closely related to personal values in which violations would go against the self-standard.

Previous studies that have used a standard induced-compliance paradigm have typically examined more trivial attitudes, such as attitudes about tuition increases. Results of these studies have generally revealed that to reduce the tension caused by the dissonance (e.g. from writing a counterattitudinal essay in favor of raising tuition rates), participants changed their attitudes to be more in line with their essay-writing. Finding attitude change in these kinds of peripheral attitudes is not surprising, because these attitudes are generally not tied to more central beliefs and values and would therefore be more isolated in the larger cognitive structure. But what happens when dissonance occurs with attitudes that are highly embedded?

There have only been a handful of cognitive dissonance studies that have moved beyond isolated attitudes, comprising a small portion of the overall dissonance research. For example, Sherman and Gorkin (1980) focused on the value of gender equality and found that when participants behaved counterattitudinally, threats to their self-image led to efforts to *bolster* or reinstate the threatened value. Festinger, Riecken, and Schachter (1956/2009) demonstrated that when faced with an end-of-the-world prophecy that did not come true, members of the believing group did not change their attitudes regarding the prophecy, but justified the failure as a testament of their belief: God decided to spare the world because the group's faith was so sound. Similarly, Batson (1975) also found that disconfirming information

related to a religious belief resulted in a significant increase in the intensity of the challenged belief. Eisenstadt and Leippe (2005) investigated both personal relevance and racial symbolism and though they predicted greater attitude change as a function of increasing importance, they found no significant attitude change when both relevance and symbolism were high. They concluded that because the attitudes were strongly linked to both personal values and the self-concept, dissonance was increased by making the dissonant elements more important and numerous, as Festinger (1957) and Ostrom and Brock (1968) had predicted, and that the "corollary dissonance" was so great that attitude change was not a viable option.

1.3 Individual Differences

From the beginning, Festinger (1957) proposed that a measurable "tolerance for dissonance" existed, such that individuals who are low in tolerance should have higher rates of discomfort, leading to greater motivation to reduce the dissonance (p. 267). Since then, various researchers have proposed that a variety of other personality variables might have an effect on dissonance, such as repression-sensitization (Glass, Canavan, & Schiavo, 1968; Zanna & Aziza, 1976), intolerance of ambiguity (Budner, 1962; MacDonald, 1970), anal-retentiveness (Bishop, 1967), attributional complexity (Stalder & Baron, 1998); and dogmatism (Feather, 1969; Rokeach, 1960, 1968). However, the study of individual differences in cognitive dissonance has not been exceptionally successful (Abelson, 1968; Glass, 1969). To successfully study the effect of personality variables on dissonance, Brehm and Cohen (1962) advised targeting two types of variables: "those dealing with cognitive structure and change and those dealing with involvement, motivation, concern, and so forth of the individual" (p. 177). Based on this suggestion, one variable of each type was selected to be investigated for the current study: the *preference for consistency (*Cialdini, Trost, & Newsom, 1995) and the *need for cognition* (Cacioppo & Petty, 1982).

Cialdini, Trost, and Newsom (1995) speculated that there are individual differences in people's *preference for consistency* (PFC). Individuals who score high in PFC tend to rely on a

previously established attitude structure when responding to incoming information, making them less likely to be open to information that does not integrate with their existing attitudes, beliefs, and expectancies. Individuals low in PFC are likely to be more receptive to incoming information, as they are not compelled to rely on prior information and beliefs. Cialdini, Trost, and Newsom found that participants who were high in PFC experienced greater dissonance than those who were low in PFC when using an induced-compliance paradigm on a trivial attitude (tuition rate increase).

Cacioppo and Petty (1982) posited that there are individual differences in one's intrinsic motivation to engage in effortful thinking, designated as the *need for cognition* (NFC). Individuals who score high in NFC are inclined to seek out and reflect back on information, whereas individuals who score low in NFC are more apt to rely on authority, and social evaluations, and to use heuristics to solve problems. Cacioppo, Petty, Kao, and Rodriguez (1986) found that when high-NFC participants form attitudes, they tend to make more connections with information relevant to the attitude and display greater attitude-behavior consistency than those who are low in NFC. Haugtvedt and Petty (1992) also found that attitudes in high-NFC participants persisted longer and were more resistant to a counterattitudinal message.

1.4 The Current Study

The current research is based on the general hypothesis that, in a counterattitudinal advocacy paradigm, embedded and isolated attitudes differ in their resistance to cognitive dissonance. It was hypothesized that although individuals who engage in counterattitudinal advocacy that contradicts embedded attitudes will experience an increase in negative affect, they will nonetheless display less attitude change than those who engage in counterattitudinal advocacy with isolated attitudes. The main purpose of the current research is to fill several gaps in the current dissonance literature, primarily by examining the impact of attitude embeddedness on resistance to attitude change as a way of reducing cognitive dissonance.

The current research will also build upon other investigators' work by assessing Elliot and Devine's (1994) hypothesis that acting contrary to a central attitude may produce a more specific negative affect towards the self (guilt), as opposed to the more general discomfort found in traditional studies using trivial attitudes. Specifically, the present study will attempt to determine if self-directed negative affect is associated with dissonance in general, as Stice (1992) found, or just in regard to central attitudes, as Elliot and Devine suggested. Finally, the current research will draw upon the work of scientists in personality psychology by determining whether individual differences in cognitive structure and motivation (i.e. preference for consistency and the need for cognition) will have a moderating effect on the magnitude of dissonance that individuals experience and their subsequent level of attitude change. It is suggested that individuals who are high in preference for consistency and need for cognition will exhibit less attitude change than those who score lower on the two measures, and that individuals who are high in preference for consistency will have increased negative affect scores.

The current study assessed participants' affect and attitude change in an induced-compliance cognitive dissonance paradigm to determine if the experience of dissonance is different when it involves an isolated attitude as opposed to an embedded attitude. This exploration is expected to provide direct support for previous research findings which indicate attitude change disparity in embedded versus isolated attitudes by examining the two types of attitudes within the same study. Indeed, the present study appears to be the first to include both types of attitudes for comparison using an induced-compliance dissonance paradigm.

Pilot data suggested that the topic of abortion rights scores high in both attitude importance and attitude strength. More notably, attitudes about abortion rights were demonstrated to be influenced by religious and ethical positions, signifying that the attitude is embedded within a larger network of cognitions, beliefs, and values. Assessment of the importance, strength, and influence of religion and/or ethics was accomplished by means of

self-reported questions concerning the individuals' personal feelings towards their attitude on the topic. Abortion rights was rated as one of the most central beliefs relative to other controversial issues, such as gay marriage, immigration, and capital punishment, to name a few.

By employing such a pivotal attitude, which is inherently linked to many other cognitions and for which the level of importance should be high, the current study attempted to directly test Festinger's (1957) description of the conditions that increase the magnitude of dissonance. Recall that Festinger proposed a dissonance ratio in his statement that as the number and importance of dissonant cognitions increases, the magnitude of dissonance increases.

The current study will couple this embedded attitude (abortion rights) with a standard topic in dissonance research: tuition rate increase. Pilot data revealed that, as with abortion rights, students' attitudes towards the raising of tuition rates also scored high on self-reported attitude importance and strength, but unlike abortion rights, it was not perceived to be influenced by religious or ethical positions. These findings suggest that one's attitude on tuition rate increases is more isolated and not likely to have a high number of consonant cognitions associated with it. The isolated attitude concerning tuition rate increases should therefore be less resistant to change, and if change occurs, require less cognitive restructuring. Rokeach (1968) suggested that an individual might possess isolated attitudes that are perceived as important, deeply regarded, and protected, but that these attitudes would be relatively insignificant because of their few relationships with and limited repercussions on other attitudes. Rokeach's suggestion approximates the results of the pilot data obtained on attitudes regarding tuition rate increases. Although many participants feel very strongly about their opposition to the raising of tuition rates, because of the attitude's isolation, it is not of great consequence in the larger scheme of things. Accordingly, it was predicted that dissonance involving the embedded attitude of abortion rights would result in increased reports of negative affect,

discomfort, and self-directed negative affect (guilt), but would nevertheless yield to less attitude change than would the more isolated attitude, regarding a tuition rate increase.

1.5 Hypotheses

It is presumed that one's attitudes make up a larger cognitive structure in which embedded attitudes have more connections to other cognitions than isolated attitudes, and that individuals strive to achieve a sort of consistency within this structure. If inconsistency (dissonance) is encountered, individuals are motivated by an uncomfortable psychological state to restore a sense of consistency (consonance), usually by some sort of cognitive restructuring (attitude change). If these tenets are accurate, then it is reasonable to assume that when an embedded attitude is challenged, the result may be intensified discomfort and attitude persistence due to the resounding repercussions on its related cognitions. Furthermore, it is assumed that individual differences exist in one's preference for consistency and need for cognition and that these differences will moderate the levels of discomfort and attitude change.

1.5.1 Hypothesis 1

There will be expected differences in reported affect based on attitude type and choice condition, with higher levels of discomfort expected in an embedded attitude (abortion rights) compared to an isolated attitude (tuition rate increases), particularly for individuals in the high-choice conditions.

1.5.1.1 Hypothesis 1a

It is predicted that because an embedded attitude is connected to a larger framework of related attitudes and values, particularly those pertinent to the self, dissonance induction will result in higher levels of discomfort, as well as self-directed negative affect, than with an isolated attitude. This is expected to be true predominantly for participants who actively chose to write against their prior attitudes in the high-choice conditions.

1.5.1.2 Hypothesis 1b

Elkin and Leippe (1986) found that arousal effects triggered by counterattitudinal advocacy did not completely disappear after dissonance reduction through attitude change, indicating that attitude change may not have been enough to eliminate all of the dissonance. Based on this finding, it is projected that even if some dissonance reduction occurs through attitude change on an embedded attitude, discomfort levels will remain higher than with an isolated attitude.

1.5.2 Hypothesis 2

There will be expected differences in attitude change based on attitude type and choice condition. Specifically, it is expected that the high-choice conditions will result in more attitude change than the low-choice conditions overall, but that an embedded attitude will result in little or no attitude change compared to an isolated attitude. The low-choice control conditions are not expected to produce prominent levels of dissonance, because the participants do not have the option to choose which side they argue, which is considered a necessary condition to generate dissonance (Brehm & Cohen, 1962; Wicklund & Brehm, 1974). The participants in the high-choice conditions are presented with the choice to argue counterattitudinally, which should produce elevated dissonance, leading to increased motivation to reduce the dissonance, because going against one's previously held attitudes generally results in an inconsistent relationship between attitude and behavior. Therefore, it is expected that participants in the high-choice conditions of each attitude type will report more attitude change than the low-choice conditions. Because embedded attitudes ought to have stronger and more relationships with other cognitions, they should also be more resistant to change. Therefore, it is expected that participants who choose to write an essay against an embedded attitude will report less attitude change than participants who have the choice to write against an isolated attitude.

1.5.3 Hypothesis 3

Individual differences in the preference for consistency are expected to have moderating effects on the magnitude and effects of dissonance.

1.5.3.1 Hypothesis 3a

Because writing against one's previous belief should be perceived as especially uncomfortable for those who prefer consistency, particularly when challenging an embedded attitude, it is expected that high-PFC participants will report higher levels of negative affect, whereas participants low in PFC should not find the task so offensive, because they are not constrained by a strict attitude structure.

1.5.3.2 Hypothesis 3b

Because advocating a counterattitudinal viewpoint would not fit in with their established attitude structure, it is expected that individuals who are high in PFC will have less attitude change overall, but especially when a central attitude is challenged. On the other hand, because low-PFC individuals are more receptive to new information regardless of their past attitudes, they are expected to display higher levels of attitude change.

1.5.4 Hypothesis 4

Individual differences in the need for cognition are expected to have a moderating effect on the magnitude and effects of dissonance.

1.5.4.1 Hypothesis 4a

High-NFC individuals are anticipated to report lower levels of negative affect than those low in NFC, because they are naturally motivated to seek out new information and to think things through. In contrast, individuals low in NFC do not demonstrate this tendency and are therefore expected to find the essay task more unpleasant, especially when it challenges an embedded attitude.

1.5.4.2 Hypothesis 4b

Because high-NFC individuals have a propensity to formulate more associations among related cognitions that result in an attitude that is more resistant to change, it is expected that they will display less attitude change overall, and especially when a central attitude is challenged.

CHAPTER 2

METHOD

2.1 Participants

A total of 139 undergraduate students at the University of Texas at Arlington were recruited for participation through the Psychology Department's Experiment Management System (EMS), a web-based subject pool management program hosted online by Sona Systems (Fidler, 1997). Students earned course credit for participation in the study although credit was not based on completion of the study, as participants could decide to leave at any point during the study and still receive full credit. Participants were randomly assigned to one of six conditions. These varied factorially according to attitude type (tuition rate increases or abortion rights), and choice condition (one low-choice or two high-choice conditions). Seven participants were excluded due to noncompliance: six agreed to write the counterattitudinal essay, but instead wrote a pro-attitudinal essay, and one participant refused to write the essay at all when asked to write counterattitudinally. To achieve the goal of equal sample sizes for measuring attitude change, six participants who did not answer the second attitude measure were replaced, but were included in all other analyses.

The final sample contained 132 participants (92 females, 40 males), of which 30.3% were White, 24.2% were Hispanic/Latino, 23.5% were Asian, 16.7% were Black/African-American, and 5.3% were Other/Multiracial. The age of the sample ranged from 17–48, with a median age of 19.

2.2 Procedure

Before the laboratory study, participants signed up for and completed an online self-report survey accessed through the Experiment Management System (EMS) that collected demographic information, attitudes on abortion rights and tuition rate increases, and the

personality measures of the preference for consistency and need for cognition. Participants were required to complete the online study to be eligible to participate in the laboratory study, but they were not aware that the studies were associated. To participate in the laboratory study, participants signed up for a posted timeslot in EMS.

Because of the need to initially conceal the true nature of the study, a cover story was used. The typical cover story used in many dissonance studies is that data are being collected on behalf of a university committee interested in receiving student feedback on a particular issue (usually tuition rate increases). Because this study also included conditions in which people would be writing about abortion rights, a non-university related issue, this type of cover story would not fit the current study. In order to pose a realistic-sounding reason for why the participants would be writing an essay, the study was presented one that concerned personality and writing styles. The study was posted in EMS as the "Personality and Writing Styles Study" and participants were told that the purpose of the study was "to investigate if one's argument and writing styles are influenced by individual preferences and/or personality traits."

Before each participant arrived for the study, their prior attitude on either tuition rate increases or abortion rights was retrieved from the online study data file, depending on their randomly assigned condition. This was done to ensure that every participant was prompted to write against his or her previous attitude. Participants were randomly assigned to one of six conditions depending on attitude type and choice condition: tuition low-choice, tuition high-choice affect/attitude (AFF/ATT), tuition high-choice attitude/affect (ATT/AFF), abortion low-choice, abortion high-choice affect/attitude (AFF/ATT), abortion high-choice attitude/affect (ATT/AFF).

Affect was measured using a self-report affect scale adapted from Devine, Monteith, Zuwerink, and Elliot (1991), and an attitude change opportunity was given by asking the same question about either tuition rate increases or abortion rights that was asked in the previous

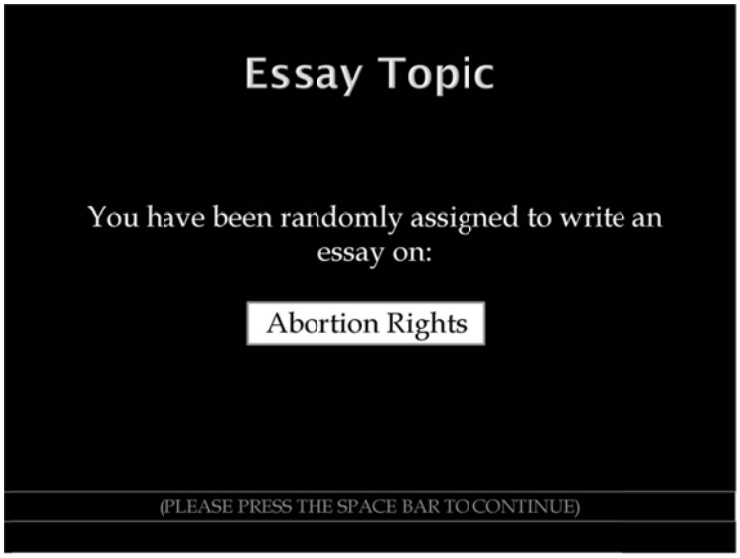
online study. These data were collected using GoogleDoc forms. The high-choice conditions for each attitude type differed only in the order of the affect and attitude measures.

To investigate the affective consequences of dissonance, in the high-choice AFF/ATT conditions, the affect scale was completed after the writing of the essay, but before the attitude change opportunity. In the high-choice ATT/AFF conditions, the affect scale was completed after the writing of the essay and the attitude change opportunity to investigate the affective consequences of potential dissonance reduction. In the low-choice conditions, the affect measure was given after agreement and the writing of the essay, but before the attitude change opportunity, as a way to measure baseline affect when dissonance is not expected due to lack of choice. PowerPoint presentations for each condition were developed for presenting the study to the participant, with embedded links to the GoogleDocs forms. Prior to the participant's arrival, the PowerPoint presentation for that participant's condition was set up and displayed on the computer.

Upon arrival at the laboratory, the participants were seated in a small room with a desk and a computer. All participants completed the informed consent forms. They then were given a study overview via PowerPoint that reiterated the cover story and what the study would entail (survey questions, an essay, etc.). To reinforce that the study was investigating personality, participants then completed several personality measures, such as John, Donahue, and Kentle's (1991) Big Five Inventory and Strahan and Gerbasi's (1972) Short Form of the Marlowe-Crowne Social Desirability Scale.

Following the surveys, the essay portion of the study was introduced, with the explanation that the topic was randomly assigned to them; participants in the low-choice conditions were told that both their topic *and* position were randomly assigned (see Figure 2.1 for examples of the presentation of the topic or topic/position). Participants were then asked to formulate a strong argument on either the topic and position that they were assigned (low-choice) or on *their* position on the topic they were assigned (high-choice). At this point, the A

A



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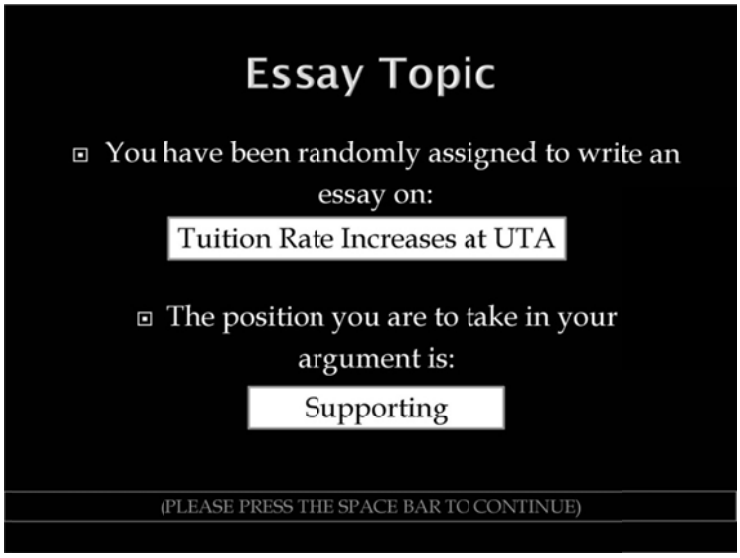

Figure 2.1 Presentation of (A) Topic in an Abortion Rights High-Choice and (B) Topic and Position in the Against Tuition Rate Increases Low-Choice Condition

researcher approached the participants in the high-choice conditions and stated that numerous essays on one side of the issue (the participant's prior attitude) had already been collected and that it would be more helpful if he or she could write on the other side and then asked if he or she was willing to comply.

Next, all participants were given two minutes to read a list of five arguments supporting their assigned or agreed to topic and position, as a way to familiarize themselves with the issue (see Appendix A for the lists of arguments). Participants were then asked to sign an "Essay Release Form," which, for the high-choice condition, was used to reinforce the cover story and the choice to comply; the purpose of the low-choice conditions' release form was to maintain consistency between conditions (see Appendix B for the release forms). After signing the release form, the participants were given ten minutes to write his or her essay. Following the essay writing, all participants were given the affect and attitude measures and a manipulation check to gauge their perception of choice. Concluding the study, the participants were thoroughly debriefed and given a final chance to withdraw from the study once informed of the deception. See Table 2.1 for a breakdown of the procedure.

2.3 Settings and Materials

2.3.1 Laboratory Setting

The study was conducted in a laboratory housed in the University of Texas at Arlington's Life Sciences Building. The laboratory consisted of a short hallway that separates out into five small rooms. Each participant was scheduled to take part in the study individually, using one of the separate rooms containing a desk, chair, and computer. Before they participated in the laboratory study, participants completed an online study through the Psychology Department's EMS system, which can be retrieved from any computer with internet access, but requires participant-specific login information. The data collected in the EMS study consisted of demographic, attitude, and individual differences measures.

2.3.2 Demographic Information

Basic demographic information including gender, race/ethnicity, and age were collected in the online portion of the study. Please see Appendix C for the demographic items.

Table 2.1 Procedure of Laboratory Study by Condition

Tuition Rates			Abortion Rights		
Low-Choice (Control)	High-Choice AFF/ATT	High-Choice ATT/AFF	Low-Choice	High-Choice AFF/ATT	High-Choice ATT/AFF
Cover story	Cover story	Cover story	Cover story	Cover story	Cover story
	Agreement	Agreement		Agreement	Agreement
List of arguments	List of arguments	List of arguments	List of arguments	List of arguments	List of arguments
Release form	Release form	Release form	Release form	Release form	Release form
Write essay	Write essay	Write essay	Write essay	Write essay	Write essay
Affect	Affect	**Attitude**	Affect	Affect	**Attitude**
Attitude	Attitude	**Affect**	Attitude	Attitude	**Affect**
Choice	Choice	Choice	Choice	Choice	Choice

2.3.3 Attitude Embeddedness

To investigate any differences in attitude strength, importance, and embeddedness, participants were asked to indicate for each attitude how important the topic was to them (attitude importance), how strongly they felt about the topic (attitude strength), and how much their religious, ethical, and/or political beliefs influenced the attitude (attitude embeddedness). Each question was asked for both tuition rate increases and abortion rights and participants responded on a 9-point Likert scale ranging from 1 (*completely disagree*) to 8 (*completely agree*) to the question, see Appendix D for the list of items).

2.3.4 Preference for Consistency Scale (PFC)

Cialdini, Trost, and Newsom's (1995) Preference for Consistency Scale was used to assess the participant's level of PFC (see Appendix E for the scale items). A PFC score was calculated from the average responses to the 18-item survey (consisting of statements such as,

"It is important to me that my actions are consistent with my beliefs"), which was answered on a 9-point Likert scale ranging from 1 (*completely disagree*) to 9 (*completely agree*). The reliability coefficient in the current sample was .87.

2.3.5 Need for Cognition Scale (NFC)

Cacioppo, Petty, and Kao's (1984) 18-item Short Form of the Need for Cognition Scale was used to assess the participant's level of NFC (see Appendix F for the scale items). Participants responded to statements such as, "I really enjoy a task that involves coming up with new solutions to problems" on a 9-point Likert scale ranging from 1 (*completely disagree*) to 9 (*completely agree*). The reliability coefficient for the scale was .89 in the present study and the responses from the survey items were averaged to compute a NFC score.

2.3.6 Choice Manipulation Check

To verify that the choice manipulation was successful, participants responded on a 9-point Likert scale ranging from 1 (*completely disagree*) to 9 (*completely agree*) to the question, "How much choice do you feel you had in terms of which position to take in your essay?"

2.3.7 Strength of Essay Score

A relatively high rate of noncompliance was initially anticipated, due to the expected difficulty and unwillingness one may have in writing an essay against an embedded attitude. A compliance score was to be calculated by having the essays coded for strength of argument and whether the participant wrote counterattitudinally. Surprisingly, only seven participants did not comply when asked (or told, as in the low-choice conditions) to write an essay against their prior attitude. Due to the low number of noncompliers, analyses on direct compliance were not feasible. Instead, a strength of essay score was calculated. Two independent raters coded each essay in terms of individual statements and overall arguments. Each statement and argument could be rated as being: supporting, against, personal/anecdotal, informative/explanatory, regurgitated (restatements from the List of Arguments supplied), and/or undermined (making a statement/argument and then undercutting it). The coders were

unaware of the participant's prior attitude and condition. The intraclass reliability coefficient of consistency between the two raters was .91. To compute a strength score with the statements , one point was added for each personal/anecdotal and informative/explanatory statement, the difference between the sentences supporting and against the overall essay position was calculated and added, one half of a point was awarded for regurgitated sentences, and the number of undermined sentences was subtracted. The procedure was repeated with the arguments. The sentence and argument scores were then added together and divided by two to calculate an average strength of essay score.

2.3.8 Affect Scales

Participants' affect was measured using a scale adapted from Devine, Monteith, Zuwerink, and Elliot (1991), which consisted of 24 items describing various feelings, such as "uncomfortable" and "anxious." The items were answered on a 9-point Likert scale ranging from 1 (*completely disagree*) to 9 (*completely agree*), and the participants were instructed to answer based on how they were feeling right then. To produce affect scales, a principal components analysis was conducted on the 24 items with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin measure verified the sampling sufficiency for the analysis, KMO = .93, which is considered "superb" by Hutcheson and Sofroniou (as cited in Field, 2009), and all individual 0item KMO values were > .88, which is well above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity was significant, $\chi^2(276) = 2647.99$, $p < .001$, indicating that the between-item correlations were effectively large for PCA.

An initial analysis was run to acquire eigenvalues for each component of the affect data. Three components had eigenvalues over Kaiser's criterion (1), and combined explained 67.8% of the variance. Table 2.2 presents the factor loadings after rotation.

The assembled items suggest that the first factor represents general negative affect, the second factor represents general positive affect, and the third factor could be described as characterizing discomfort. A scale for general negative affect was assembled from the 14 items

Table 2.2 Summary of Exploratory Factor Analysis for Affect Indices

	Rotated Factor Loadings		
Item	Negative Affect	Positive Affect	Discomfort
Shame[b]	**.878**	-.197	.189
Guilty[b]	**.849**	-.247	.187
Embarrassed[b]	**.824**	-.186	.156
Angry at myself[b]	**.800**	-.216	.313
Disgusted with myself[b]	**.780**	-.118	.073
Negative	**.743**	-.202	.336
Disappointed with myself[b]	**.697**	-.155	.370
Annoyed at myself[b]	**.692**	-.267	.361
Regretful[b]	**.681**	-.263	.437
Uncomfortable[a]	**.629**	-.226	.409
Self-critical[b]	**.603**	-.087	.418
Bothered[a]	**.599**	-.399	.525
Frustrated	**.588**	-.318	.411
Uneasy[a]	**.576**	-.398	.485
Content	-.531	**.528**	-.229
Friendly	-.182	**.782**	-.158
Happy	-.347	**.774**	-.153
Energetic	-.089	**.757**	-.002
Optimistic	-.072	**.737**	-.179
Good	-.495	**.719**	-.168
Anxious	.206	.050	**.764**
Distressed	.176	-.200	**.731**
Tense	.357	-.200	**.726**
Concerned	.267	-.185	**.631**
Eigenvalues	12.77	2.09	1.41
% of Variance	53.22	8.70	5.89

a = items also included on the final Discomfort Scale; b = items also included on the Self-directed Negative Affect Scale.

of the first factor indicated from the factor analysis. The reliability coefficient (Cronbach's α) for the Negative Affect Scale was .96 for this sample. A scale for general positive affect was

assembled from the six items of the second factor indicated from the factor analysis. The reliability coefficient in this sample for the Positive Affect Scale was .88. The Discomfort Scale was constructed from the four items from the third factor of the factor analysis, plus *uncomfortable*, *bothered*, and *uneasy*, items that Elliot and Devine (1994) used to create their discomfort scale. The resulting 7-item scale had a reliability coefficient of .88. Finally, to investigate feelings of negative affect specifically towards the self, a scale was constructed including items that are more self-directed (e.g. *guilt*, *disappointed with myself*). The final 9-item Self-Directed Negative Affect Scale had a reliability coefficient of .94. Scores for all of the affect scales were computed by taking the average of all the items included on that particular scale.

2.3.8 Attitude Change

Attitude change was gauged by collecting the attitude measurement before the study and again during the study. Participants were asked about their attitudes regarding tuition rate increases and abortion rights during the online study. Depending on whether they were in one of the tuition rate increases or abortion rights conditions, participants were asked the relevant attitude question again during the laboratory study. To measure attitudes on increasing tuition rates, participants responded on an 8-point Likert scale ranging from 1 (*completely disagree*) to 8 (*completely agree*) to the statement, “Tuition rates at UTA should be increased substantially to provide more funding opportunities for the University.” To measure attitudes on abortion rights, participants responded on an 8-point Likert scale ranging from 1 (*completely disagree*) to 8 (*completely agree*) to the question, “In general, do you agree or disagree with the 1973 *Roe v. Wade* Supreme Court decision that established a woman’s right to an abortion?”

CHAPTER 3

RESULTS

3.1 Demographics

Differences in demographics were not anticipated, but were inspected nonetheless. To explore any gender effects, a one-way Multivariate Analysis of Variance (MANOVA) was conducted with gender on all of the dependent variables (post-attitude, negative affect, positive affect, discomfort, self-directed negative affect, preference for consistency and need for cognition) and the covariate (pre-attitude) used in the present study. There was not a significant multivariate main effect of gender on the dependent variables, *Wilks' λ*= .89*, F*(8, 116) = 1.71, *p* > .05.

To explore any differences in race/ethnicity, a one-way MANOVA was conducted with race/ethnicity on all of the dependent variables (post-attitude, negative affect, positive affect, discomfort, self-directed negative affect, preference for consistency and need for cognition) and the covariate (pre-attitude) used in the present study. There was not a significant multivariate main effect of race/ethnicity on the dependent variables, *Wilks' λ*= .69*, F*(32, 418.32) = 1.40, *p* > .05.

To investigate if age was a predictor of any of the DVs, several linear regression analyses were performed on age, regressing on the various DVs. Age was not a significant predictor of any of the dependent variables. Therefore, no significant effects on the dependent variables were found for gender, race/ethnicity, or age.

3.2 Choice Manipulation

A one-way between subjects Analysis of Variance (ANOVA) was conducted to compare the effect of choice condition on the perceived amount of choice in the low-choice and two high-choice conditions. The assumption of homogeneity of variance was violated; therefore, a

Brown-Forsythe *F*-ratio is reported. There was a significant effect of condition on perceived choice, $F(2, 122.20) = 38.53$, $p < .001$, $\eta^2 = .37$. Post hoc comparisons using the Games-Howell correction indicated that the mean score for the low-choice condition ($M = 2.63$, $SD = 2.01$) was significantly different from the two high-choice conditions ($M = 6.68$, $SD = 2.40$; $M = 6.47$, $SD = 2.80$), see Figure 3.1. These data indicate that the choice manipulation was successful, as individuals in the low-choice conditions reported that they had significantly less choice in which position to take in their essay than those in the high-choice conditions.

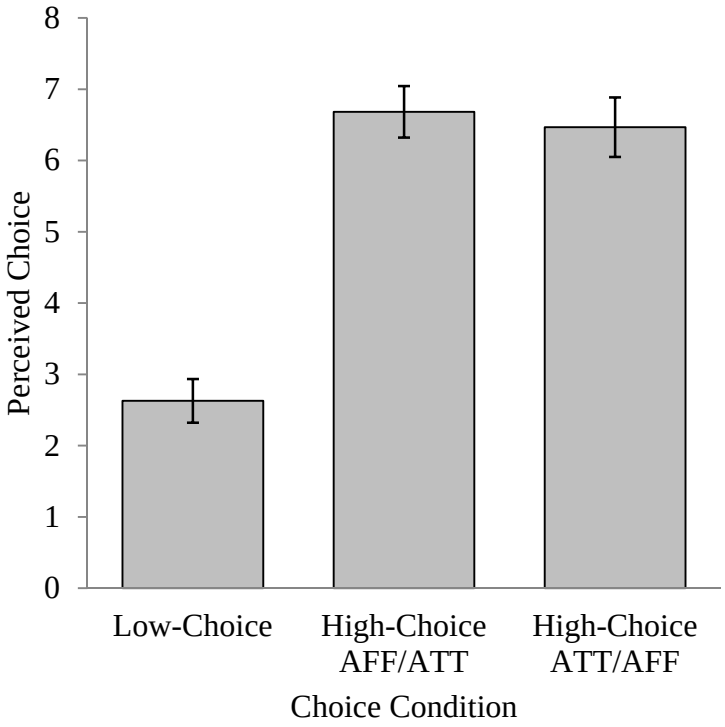

Figure 3.1 Means of Perceived Choice by Choice Condition

3.3 Strength of Essay

The possibility was considered that individuals who wrote stronger essays might have experienced higher levels of dissonance than those who wrote weaker essays. To see if there were differences in essay strength in the various conditions of this study, a 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and

high-choice ATT/AFF) factorial ANOVA was conducted on the strength-of-essay measure. The results revealed a significant main effect of attitude type $F(1,131) = 4.69$, $p < .05$, $\eta_p^2 = .04$, indicating differences in essay strength between the tuition rates and abortion rights conditions. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the abortion rights conditions wrote stronger essays ($M = 6.53$, $SE = .28$) than those in the tuition rates conditions ($M = 5.40$, $SE = .28$). There was no significant main effect of choice condition, $F(2,131) = .63$, $p > .05$ and no significant attitude type by choice condition interaction, $F(2,131) = .37$, $p > .05$.

To examine the relationship between strength of essay and affect, several simple regression analyses were conducted to determine if strength of essay was a significant predictor of general negative affect, positive affect, discomfort, and/or self-directed negative affect. Essay strength did not significantly predict general negative affect, $b = -.05$, $t(129) = -.80$, $p > .05$, positive affect $b = .08$, $t(129) = 1.38$, $p > .05$, discomfort, $b = -.02$, $t(129) = -.26$, $p > .05$, or self-directed negative affect, $b = -.07$, $t(129) = -.96$, $p > .05$.

To examine the relationship between strength of essay and attitude, a multiple regression analysis was conducted to determine if strength of essay was a significant predictor of attitude change. This was accomplished by hierarchical linear regression with the pre-attitude entered into the first block of the model, the centered strength of essay score entered into the second block, and regressing on the post-attitude. After controlling for the pre-attitude, strength of essay did not significantly predict the post-attitude, $b = -.15$, $t(122) = -1.72$, $p > .05$.

In summary, individuals in the abortion rights conditions tended to write stronger essays than those in the tuition rates conditions, but this difference did not seem to impact attitude change or affect. It is possible that these differences are due to the fact that arguments in support of and against abortion rights are more prevalent and familiar than arguments in support of or against tuition rate increases.

3.4 Attitude Embeddedness

To investigate the general hypothesis that attitudes about tuition rates and abortion rights differ in their level of embeddedness, a one-way between subjects ANOVA was conducted to compare the effect of attitude type on reported embeddedness. There was a significant effect of attitude type on embeddedness, $F(1,128) = 66.32$, $p < .001$, $\eta^2 = .34$. The participants in the abortion rights conditions ($M = 5.97$, $SD = 2.15$) reported that their attitude towards abortion rights was more embedded than those in the tuition rates conditions ($M = 2.97$, $SD = 2.02$) reported that their attitude towards tuition rate increases was embedded.

To further explore the differences between isolated and embedded attitudes, attitude strength and importance was investigated. A one-way between subjects ANOVA was conducted to compare the effect of attitude type on reported attitude strength. There was no significant difference of attitude type on reported strength of attitude, $F(1,130) = 2.67$, $p > .05$, indicating that the participants in the tuition rates and the abortion rights conditions felt just as strongly about their respective attitudes. Finally, a one-way between subjects ANOVA was conducted to compare the effect of attitude type on reported attitude importance. There was a significant effect of attitude type on attitude importance, $F(1,131) = 5.51$, $p < .05$, $\eta^2 = .04$. Unexpectedly, the participants in the tuition rates conditions ($M = 6.88$, $SD = 1.41$) reported that their attitude towards tuition rate increases was more important than those in the abortion rights conditions ($M = 6.27$, $SD = 1.56$) reported that their attitude towards abortion rights was important.

In summary, these results indicate that participants felt just as strongly about their attitudes about both tuition rate increases and abortion rights, but that attitudes about tuition rate increases were reported as more personally important, and attitudes about abortion rights were reported as more embedded, see Figure 3.2.

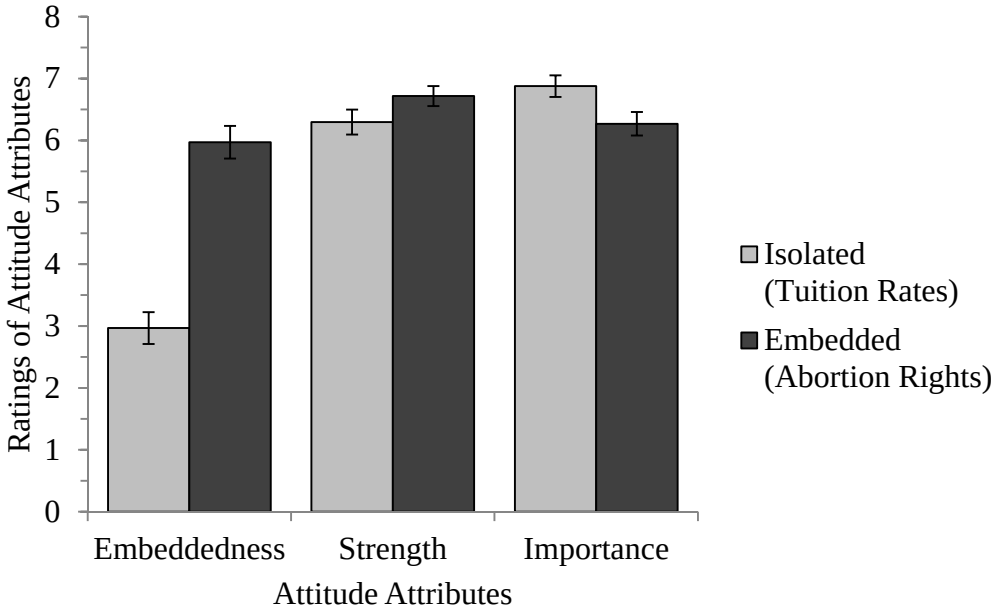

Figure 3.2 Mean Ratings of Attitude Embeddedness, Attitude Strength, and Attitude Importance by Attitude Type

3.5 Affect

To test Hypothesis 1, that there would be differences in reported affect based on attitude type and choice condition, several ANOVAs were conducted on the specific affect indices generated from the study sample. See Figure 3.3 for the effects of attitude type on negative affect, discomfort, and self-directed negative affect.

3.5.1 Negative Affect

A 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on reported general negative affect. The initial analysis revealed a significant value for Levene's test statistic, indicating a violation of the assumption of homogeneity of variance. Transformations did not resolve the violation, thus a more stringent alpha level of .01 was used for evaluation (Tabachnick & Fidell, 2007). As anticipated, there was a significant main effect of attitude type $F(1,131) = 11.40$, $p < .01$, $\eta_p^2 = .08$, indicating differences in reported negative affect in the

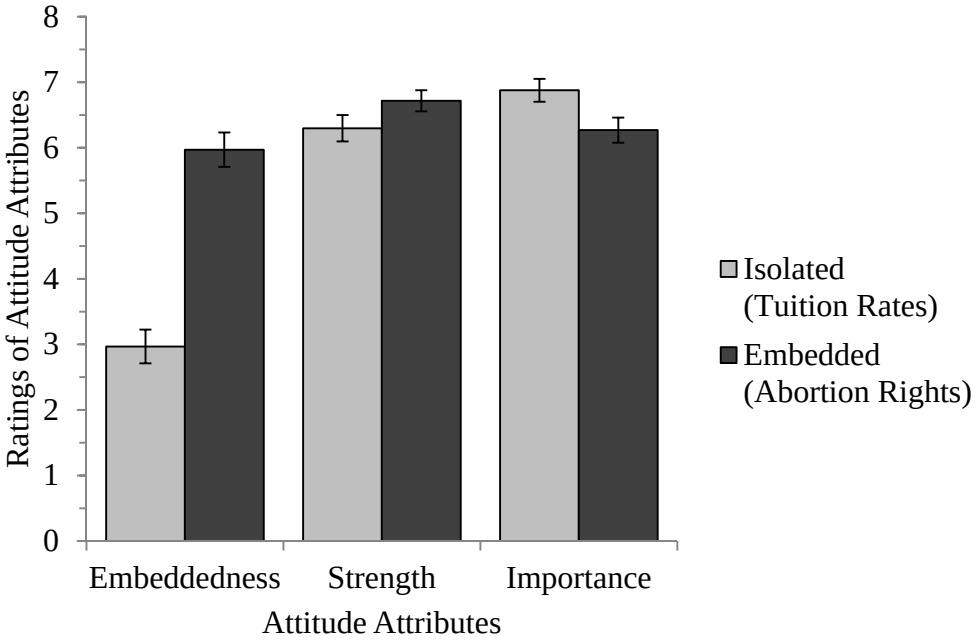

Figure 3.3 Mean Ratings of Negative Affect, Discomfort, and Self-Directed Negative Affect by Attitude Type

tuition rates and abortion rights conditions. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the abortion rights conditions report more negative affect (M = 3.17, SE = .21) than those in the tuition rates conditions (M = 2.15, SE = .22). Surprisingly, there was no significant main effect of choice condition, $F(2,131) = .06$, $p > .01$ and no significant attitude type by choice condition interaction, $F(2,131) = .24$, $p > .01$.

3.5.2 Positive Affect

A 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on reported general positive affect. There was no significant main effect of attitude type, $F(1,131) = 3.68$, $p > .05$, no significant main effect of choice condition, $F(2,131) = .66$, $p > .01$, and no significant attitude type by choice condition interaction, $F(2,131) = .02$, $p > .05$.

3.5.3 Discomfort

A 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on reported discomfort. As anticipated, there was a significant main effect of attitude type $F(1,131) = 5.26$, $p < .05$, $\eta_p^2 = .04$, indicating differences in reported discomfort in the tuition rates and abortion rights conditions. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the abortion rights conditions reported more discomfort ($M = 3.78$, $SE = .23$) than those in the tuition rates conditions ($M = 3.04$, $SE = .23$). Surprisingly, there was no significant main effect of choice condition, $F(2,131) = .60$, $p > .05$ and no significant attitude type by choice condition interaction, $F(2,131) = 1.08$, $p > .01$.

Recall that it was also hypothesized that even if dissonance reduction did occur through attitude change on an embedded attitude, discomfort levels would remain higher than with an isolated attitude. This difference would be found by comparing the high-choice ATT/AFF conditions within the attitude types. Although the interaction was not significant (as predicted above), the pairwise comparisons (using a Bonferroni correction) were evaluated for this particular purpose. There were no significant differences in self-reported discomfort between the participants in the tuition rates high-choice ATT/AFF condition ($M = 3.40$, $SE = .40$) and those in the abortion rights high-choice ATT/AFF condition ($M = 3.86$, $SE = .39$). Remarkably, there were prominent differences between the tuition rates low-choice condition ($M = 2.49$, $SE = .41$) and the abortion rights low-choice condition ($M = 3.90$, $SE = .40$), with the participants in the abortion rights conditions reporting significantly higher levels of discomfort. Participants in the low-choice conditions were predicted to experience low levels of dissonance, making this finding unexpected.

3.5.4 Self-Directed Negative Affect

A 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on reported

self-directed negative affect. The initial analysis revealed a significant value of the Levene's test statistic, indicating a violation of the assumption of homogeneity of variance. Transformations did not resolve the violation, thus a more stringent alpha level of .01 was used for evaluation (Tabachnick & Fidell, 2007). As anticipated, there was a significant main effect of attitude type, $F(1,131) = 11.75$, $p < .01$, $\eta_p^2 = .09$, indicating differences in reported self-directed negative affect in the tuition rates and abortion rights conditions. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the abortion rights conditions reported more self-directed negative affect ($M = 3.04$, $SE = .21$) than those in the tuition rates conditions ($M = 2.02$, $SE = .21$). Surprisingly, there was no significant main effect of choice condition, $F(2,131) = .03$, $p > .01$ and no significant attitude type by choice condition interaction, $F(2,131) = .39$, $p > .01$.

In order to determine if self-directed negative affect is associated with dissonance in general, as Stice (1992) reported, or when central attitudes are concerned, as Elliot and Devine (1994) argued**,** a hierarchical linear regression was conducted. The centered discomfort score was entered into the first block of the regression, the dummy-coded attitude type variable (tuition rates= 0; abortion rights = 1) was entered into the second block, and they were regressed on reported self-directed negative affect. This model was significant, $F(2,131) = 105.53$, $p < .001$, $R^2 = .62$. After controlling for the discomfort scores, attitude type was a significant predictor of self-directed negative affect, $b = -.51$, $t(129) = 2.63$, $p < .05$, indicating that individuals in the abortion rights condition had higher levels of self-directed negative affect, or guilt.

In summary, differences were expected in reported affect based on attitude type and choice condition. Expected differences were found in attitude type, with the participants in the abortion rights conditions reporting higher levels of general negative affect, discomfort, and self-directed negative affect. The expected choice condition effects were not found, as there were no significant main effects of choice condition on any of the affect scales. To further investigate

what was occurring in the choice conditions, one-way ANOVAs were conducted with choice condition on negative affect, discomfort, and self-directed negative affect, but each attitude type was analyzed separately. Although the results were still not significant, the means suggested that participants who wrote a counterattitudinal essay on tuition rate increases displayed the expected trends on the negative affect and self-directed negative affect (but not discomfort) measures. Specifically, the participants in the low-choice condition reported the lowest scores on both the negative affect and self-directed negative affect scales, the AFF/ATT condition reported the highest, and the ATT/AFF condition, after assumed attitude change, reported being lower than the AFF/ATT condition. Opposite effects were seen in the participants who wrote a counterattitudinal essay on abortion rights (see Figures 3.4 and 3.5 for graphs of the estimated marginal means).

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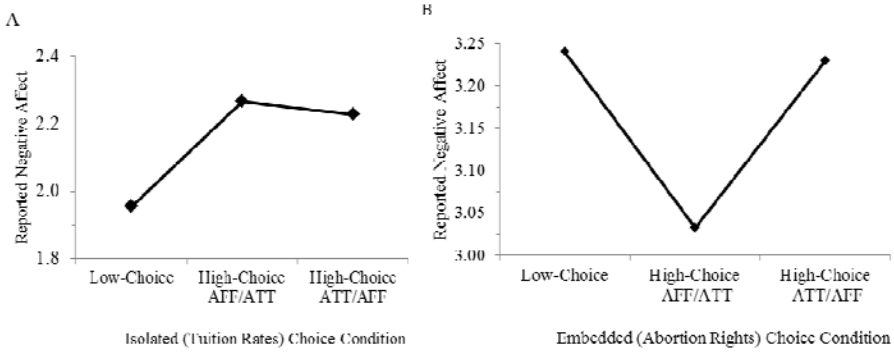

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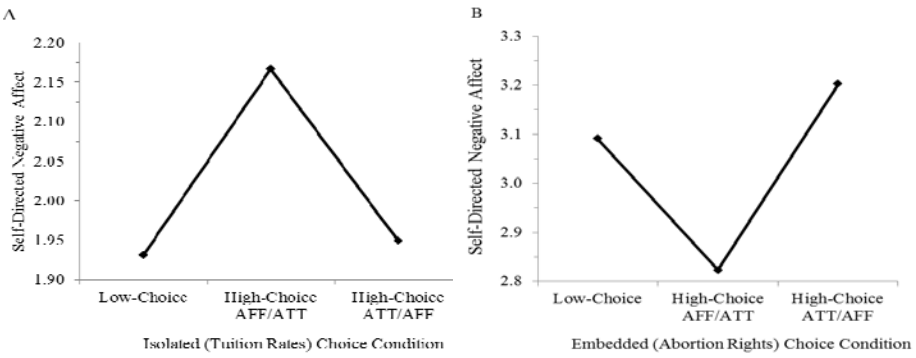

Figure 3.4 Mean Ratings of (1) Negative Affect on Choice Condition for (A) Isolated, and (B) Embedded Attitudes and (2) Self-Directed Negative Affect on Choice Condition for (A) Isolated and (B) Embedded Attitudes

3.6 Attitude Change

Hypothesis 2 stated that there would be differences in attitude type and choice condition on attitude change. As a preliminary analysis to look for overall change, regardless of directionality, a 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on the absolute value for the attitude difference score (post-attitude – pre-attitude). As anticipated, there was a significant main effect of attitude type, $F(1,125) = 11.39$, $p < .01$, $\eta_p^2 = .09$, indicating attitude change differences in attitude type. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the tuition rates conditions had more overall attitude change ($M = 2.83$, $SE = .22$) than those in the abortion rights conditions ($M = 1.76$, $SE = .22$) see Figure 3.5.

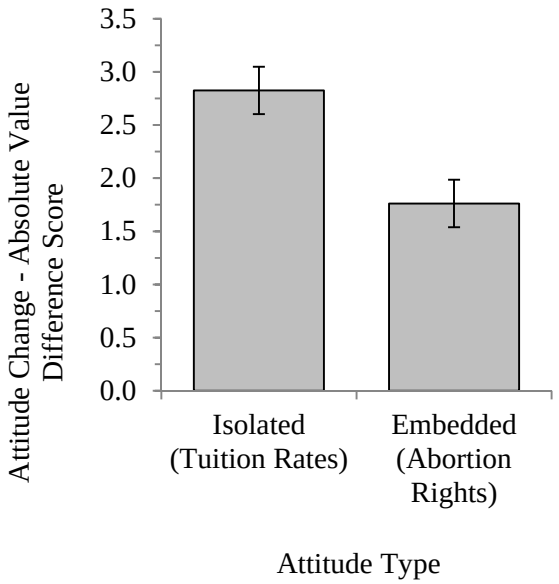

Figure 3.5 Mean Attitude Change with an Absolute Value Difference Score by Attitude Type

There was also a significant main effect for choice condition, $F(2,125) = 5.13$, $p < .01$, $\eta_p^2 = .08$. Further investigation with post-hoc tests using a Bonferroni correction indicated that participants in the low-choice conditions displayed less overall attitude change ($M = 1.62$, $SE = .27$), than those in both high-choice conditions ($M = 2.43$, $SE = .27$; $M = 2.83$, $SE = .27$), though pairwise

comparisons indicated that only the difference between the low-choice and high-choice ATT/AFF conditions was significant, see Figure 3.6.

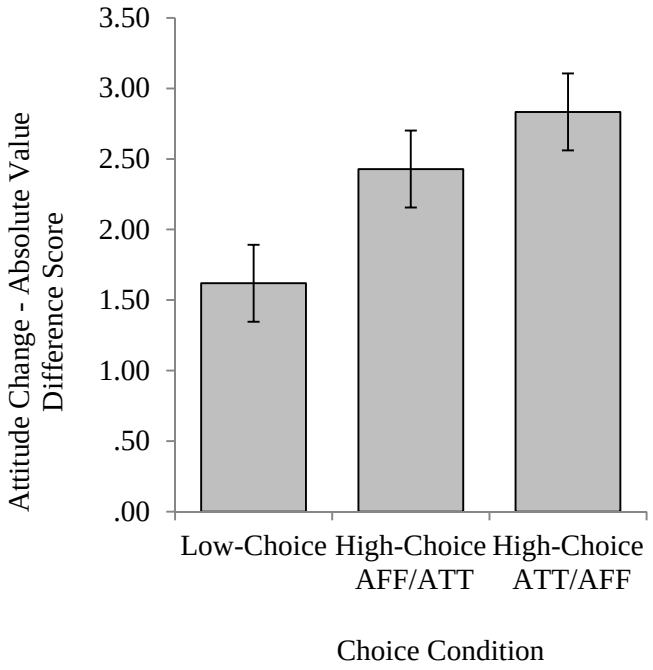

Figure 3.6 Mean Attitude Change with an Absolute Value Difference Score by Choice Condition

The interaction between attitude type and choice condition was not significant, $F(2,125) = 2.38$, $p > .05$, though pairwise comparisons did indicate significant differences ($p < .01$) in the low-choice and high-choice ATT/AFF conditions between attitude type, with the participants in the tuition rates low-choice condition displaying more attitude change ($M = 2.43$, $SE = .39$) than those in the abortion rights low-choice condition ($M = .810$, $SE = .39$), and the participants in the tuition rates high-choice ATT/AFF condition displaying more attitude change ($M = 3.57$, $SE = .39$) than those in the abortion rights high-choice ATT/AFF condition ($M = 2.10$, $SE = .39$), see Figure 3.7. Using an absolute value difference score was intended to be a limited, first-glance look at attitude change, without respect to the direction of attitude change. Some participants may have changed their attitudes proattitudinally, which would not be captured by this analysis.

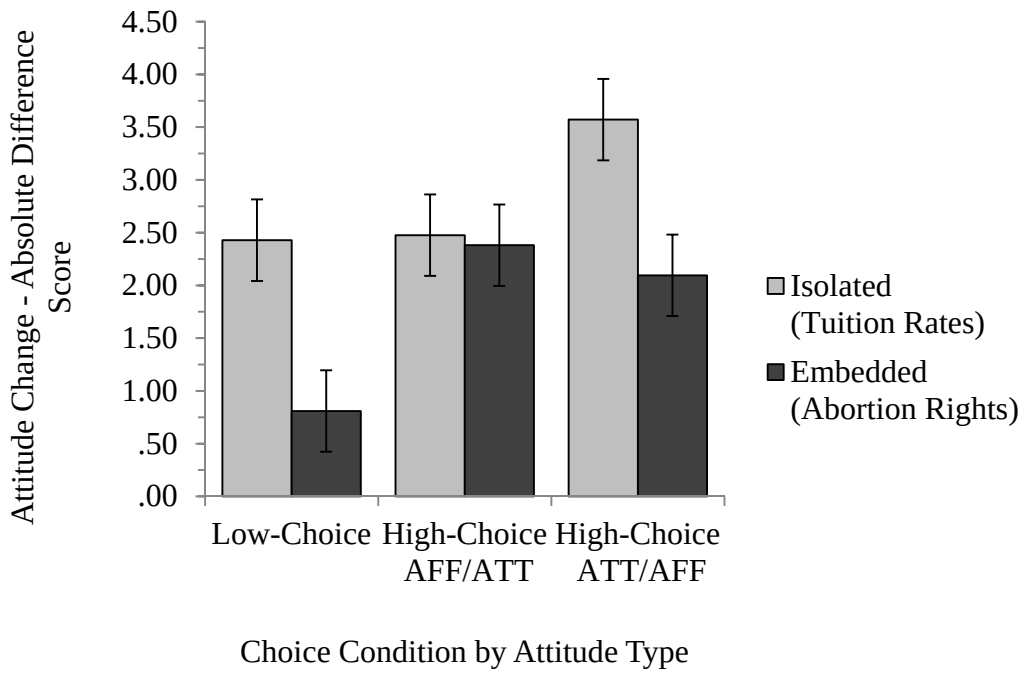

Figure 3.7 Mean Attitude Change with an Absolute Value Difference Score by Attitude Type and Choice Condition

To test for attitude change while considering directionality, an attitude change ratio was calculated as a measure of how much actual change occurred from the original position toward the counterattitudinal position relative to the amount of possible change that could occur toward the counterattitudinal position. Because attitude was measured on an 8-point scale, 1-4 indicates levels of disagreement and 5-8 indicates levels of agreement. The first step in calculating the attitude change ratio was to determine the actual numerical change by taking the difference between pre-attitude and post-attitude. Next, the rate of possible change was calculated by taking the difference between the pre-attitude and the counterattitudinal scale end (the counterattitudinal scale end for agreement was 1 and for disagreement was 8). Finally, actual change was divided by possible change to produce the change ratio. For example, a participant reported a 3 on the pre-attitude measurement (somewhat disagree) and after writing

a counterattitudinal essay indicated that their post-attitude was a 5 (slightly agree). The attitude change ratio in this case would be calculated as:

1. Pre-attitude (3) – Post-attitude (5) = Actual change (-2)
2. Pre-attitude (3) – Scale end (8) = Possible change (-5)
3. Actual change (-2) / Possible change (-5) = Counterattitudinal Change Ratio (.40)

Using a change ratio accounts for how much counterattitudinal change occurred *within* the amount of change that was possible. Because the change ratio is computed counterattitudinally by using the scale end of the opposite side from where the participant began, a person who changed his or her attitude proattitudinally ended up with a negative score.

To investigate differences in counterattitudinal change, a 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANOVA was conducted on attitude change ratio. There was a significant main effect of attitude type $F(1,125) = 12.83$, $p < .01$, $\eta_p^2 = .10$, indicating attitude change differences in attitude type. Further investigation with post-hoc tests using a Bonferroni correction revealed that the participants in the tuition rates conditions displayed a higher percentage of counterattitudinal attitude change ($M = .49$, $SE = .05$) than those in the abortion rights conditions ($M = .23$, $SE = .05$), see Figure 3.8.

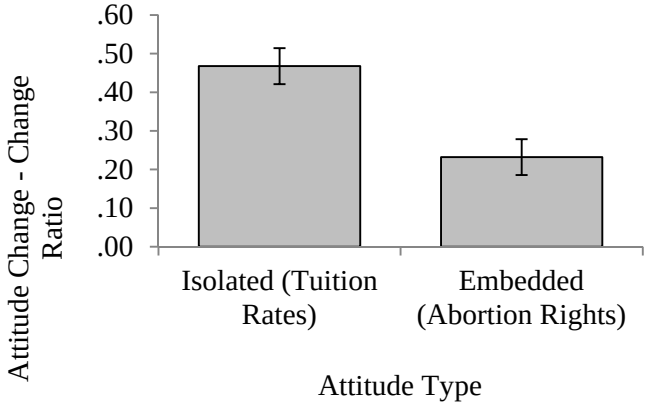

Figure 3.8 Mean Counterattitudinal Change Ratio by Attitude Type

However, there was neither a significant main effect for choice condition, $F(2,125) = 1.97$, $p > .05$, nor an interaction between attitude type and choice condition, $F(2,125) = .81$, $p > .05$. Still, pairwise comparisons did indicate significant differences in the low-choice ($p < .01$) and high-choice ATT/AFF ($p < .05$) conditions between the two attitude types, with the participants in the tuition rates low-choice condition displaying a higher percentage of attitude change ($M = .39$, $SE = .08$) than those in the abortion rights low-choice condition ($M = .13$, $SE = .08$), and those in the tuition rates high-choice ATT/AFF condition displaying a higher percentage of attitude change ($M = .55$, $SE = .08$) than those in the abortion rights high-choice ATT/AFF condition ($M = .23$, $SE = .08$).

To further investigate the intricacies of attitude change, a 2 (attitude type: tuition rates and abortion rights) X 3 (choice condition: low-choice, high-choice AFF/ATT, and high-choice ATT/AFF) factorial ANCOVA was conducted on post-attitude, with the pre-attitude scores as the covariate. Because a majority of participants' pre-attitude indicated disagreement about tuition rate increases and a majority of participants' pre-attitude indicated agreement about abortion rights, separate regression lines were expected in regard to attitude type. Therefore, only interactions with the pre-attitude covariate were analyzed. There was a significant two-way attitude type by pre-attitude interaction $F(1,125) = 9.45$, $p < .01$, $\eta_p^2 = .08$, indicating attitude change differences in attitude type, see Figure 3.9.

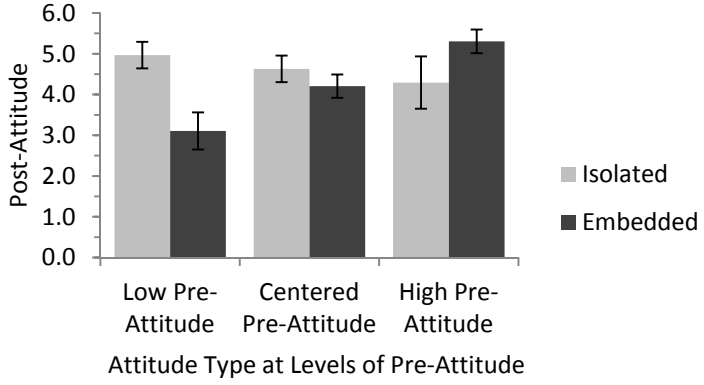

Figure 3.9 Means of Post-Attitude by Attitude Type for Three Levels of the Pre-Attitude

There was also a significant two-way choice condition by pre-attitude interaction, $F(2,125) = 3.26$, $p < .05$, $\eta_p^2 = .05$, indicating attitude change differences in choice condition. Most importantly, there was a significant three-way attitude type by choice condition by pre-attitude interaction, $F(2,125) = 3.10$, $p < .05$, $\eta_p^2 = .05$, see Figure 3.10.

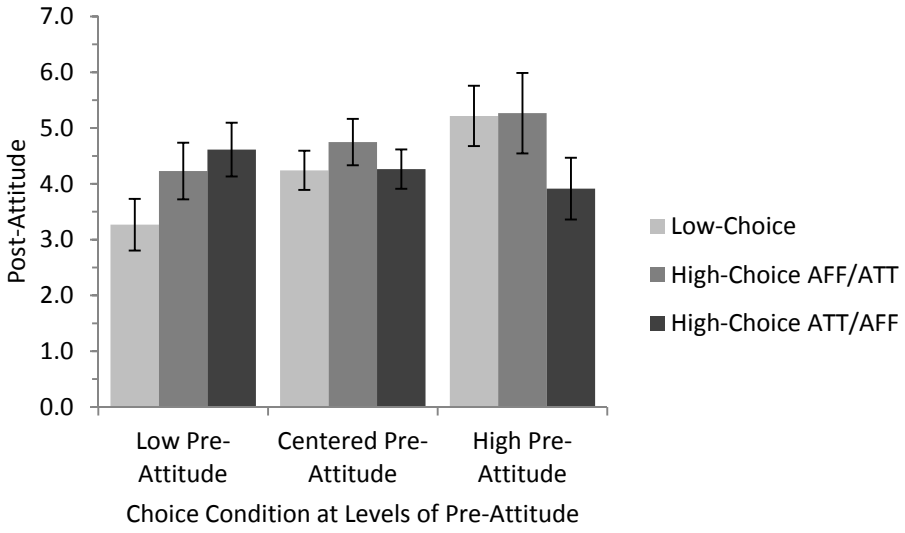

Figure 3.10 Means of Post-Attitude by Choice Condition for Three Levels of the Pre-Attitude

To further investigate this three-way interaction, multiple comparison post-hoc tests using a Bonferroni correction were conducted on three points along the pre-attitude scores range: a mid-level using the centered mean (0.00), a low level using the centered mean minus one standard deviation (-2.44) and a high level using the centered mean plus one standard deviation (+2.44). The results were significant only at the low level of the pre-attitude. When pre-attitude scores were low (indicating a starting point of disagreement), there were significant differences between attitude type in the low-choice condition, with higher levels of attitude change in the tuition rates condition ($M = 4.62$, $SE = .58$) than the abortion rights condition ($M = 1.92$, $SE = .73$). There were also significant differences between attitude type in the high-choice ATT/AFF condition, with higher levels of attitude change in the tuition rates condition (*M*

= 6.14, *SE* = .57) than the abortion rights condition (*M* = 3.08, *SE* = .78), see Table 3.1. Attitude type differences in the high-choice AFF/ATT condition were not significant. These results indicate that the effects are being driven by those participants who originally disagreed with tuition rate increases significantly changing their attitudes in favor of tuition rate increases, particularly in the low-choice and high-choice ATT/AFF conditions, see Figure 3.11.

To further investigate why this effect was not found in participants who originally agreed with tuition rate increases, participants were split into groups based on their initial agreement versus disagreement with respect to raising tuition rates. A one-way between subjects ANOVA was then conducted to compare the effect of the original attitude about tuition rate increases on reported embeddedness. This effect was significant, $F(1,60) = 6.07$, $p < .05$, $\eta^2 = .09$. The participants who originally agreed with tuition rate increases reported that their attitude towards tuition rate increases was more embedded (*M* = 4.44, *SD* = .65) than those who originally disagreed with tuition rate increases (*M* = 2.72, *SD* = .27). These findings support the hypothesis that there are differences in the magnitude and results of cognitive dissonance based on an attitude's embeddedness.

3.7 Individual Differences

3.7.1 Preference for Consistency (PFC)

To test Hypothesis 3, that individual differences in the preference for consistency have moderating effects on the magnitude and effects of dissonance, linear regression analyses were used. To examine the relationship between PFC and the relevant affect measures, several simple regression analyses were conducted to determine if PFC was a significant predictor of general negative affect, discomfort, and/or self-directed negative affect. Contrary to predictions, PFC did not significantly predict general negative affect, $b = -.15$, $t(129) = 1.77$, $p > .05$, discomfort, $b = -.14$, $t(129) = 1.56$, $p > .05$, or self-directed negative affect, $b = -.16$, $t(129) = 1.78$, $p > .05$.

Table 3.1 Multiple Comparisons of Post-Attitude by Attitude Type and Choice Condition Interaction with Three Levels of Pre-Attitude

Comparison	Adjusted Mean Difference	Standard Error of Difference	Adjusted 95% CI	
			Lower Bound	Upper Bound
Tuition Rate Increases				
Pre-attitude = -.272				
Low-choice vs. High-choice AFF/ATT	0.48	0.80	-1.46	2.41
Low-choice vs. High-choice ATT/AFF	1.53	0.81	-0.44	3.49
High-choice AFF/ATT vs. High-choice ATT/AFF	2.00	0.79	0.08	3.93
Pre-attitude = 0				
Low-choice vs. High-choice AFF/ATT	0.32	0.83	-1.70	2.33
Low-choice vs. High-choice ATT/AFF	0.05	0.72	-1.71	1.81
High-choice AFF/ATT vs. High-choice ATT/AFF	0.36	0.83	-1.66	2.39
Pre-attitude = .272				
Low-choice vs. High-choice AFF/ATT	1.11	1.66	-2.93	5.15
Low-choice vs. High-choice ATT/AFF	1.62	1.37	-1.71	4.95
High-choice AFF/ATT vs. High-choice ATTA/FF	2.73	1.67	-1.33	6.79

Table 3.1 Continued

Comparison	Adjusted Mean Difference	Standard Error of Difference	Adjusted 95% CI	
			Lower Bound	Upper Bound
Abortion Rights				
Pre-attitude = -.272				
Low-choice vs. High-choice AFF/ATT	2.40	1.12	-0.32	5.13
Low-choice vs. High-choice ATT/AFF	1.17	1.06	-1.42	3.75
High-choice AFF/ATT vs. High-choice ATT/AFF	1.24	1.15	-1.57	4.04
Pre-attitude = 0				
Low-choice vs. High-choice AFF/ATT	0.70	0.70	-1.02	2.41
Low-choice vs. High-choice ATT/AFF	0.09	0.68	-1.57	1.75
High-choice AFF/ATT vs. High-choice ATTA/FF	0.61	0.71	-1.11	2.32
Pre-attitude = .272				
Low-choice vs. High-choice AFF/ATT	1.01	0.70	-0.69	2.71
Low-choice vs. High-choice ATT/AFF	0.99	0.71	-0.75	2.72
High-choice AFF/ATT vs. High-choice ATT/AFF	0.03	0.72	-1.72	1.77

Note. The pre-attitude variable was centered.

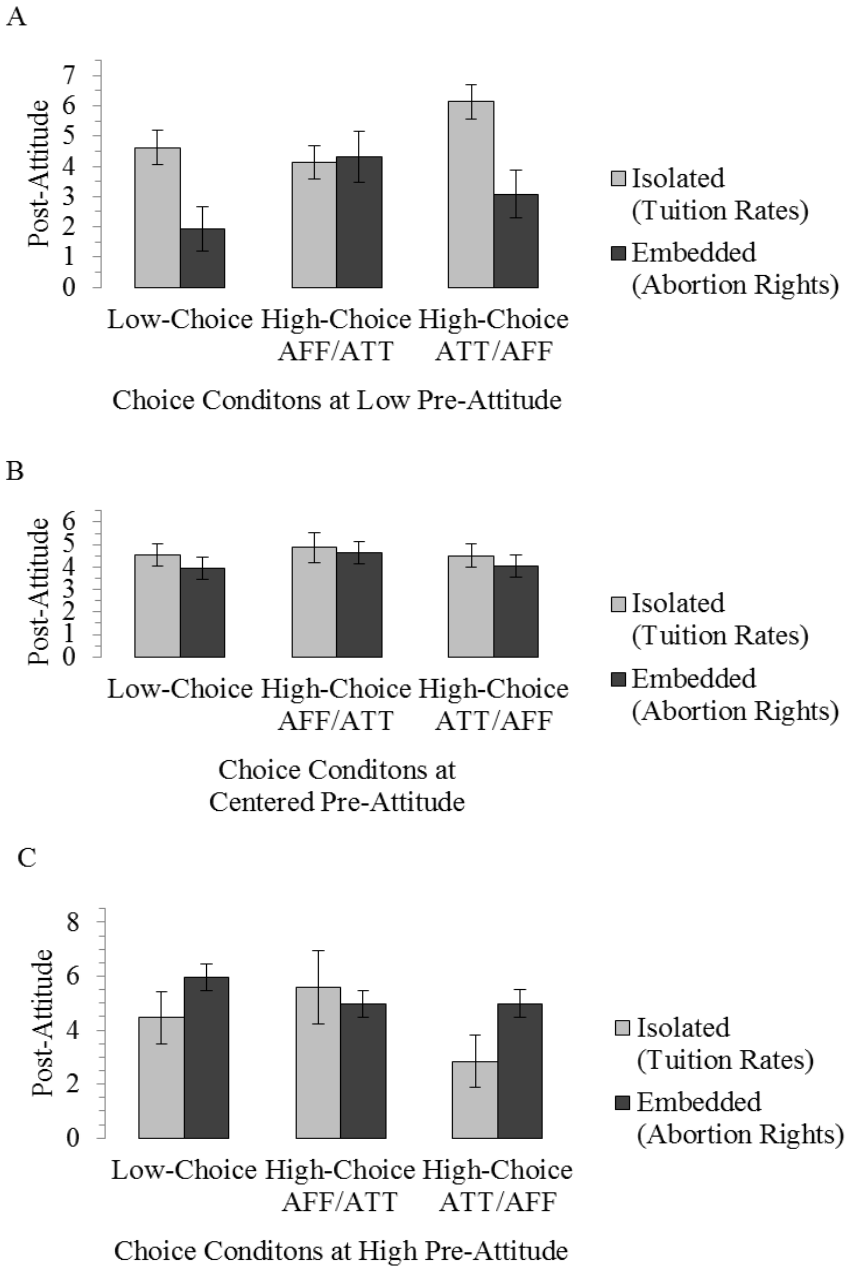

Figure 3.11 Means of Post-Attitude on Choice Condition by Attitude Type for (A) Low Levels of the Pre-Attitude, (B) Centered Levels of the Pre-Attitude, and (C) High Levels of the Pre-Attitude

To examine the relationship between PFC and attitude change, a multiple regression analysis was conducted. This was accomplished by hierarchical linear regression with the pre-

attitude entered into the first block of the model, the centered PFC scale score entered into the second block, and regressing on the post-attitude. After controlling for the pre-attitude, PFC did not significantly predict the post-attitude, b = -.08, t(122) = -.85, p > .05; therefore, moderation analyses to investigate if PFC moderated the relationship between attitude type and attitude change were not conducted.

3.7.2 Need for Cognition (NFC)

To test Hypothesis 4, that individual differences in the preference for consistency have moderating effects on the magnitude and effects of dissonance, linear regression analyses were used. To examine the relationship between NFC and affect, several simple regression analyses were conducted to determine if NFC was a significant predictor of general negative affect, discomfort, and/or self-directed negative affect. Unexpectedly, NFC did not significantly predict general negative affect, b = -.01, t(129) = .07, p > .05, discomfort, b =.02, t(129) = 1.56, p > .05, or self-directed negative affect, b = -.01, t(129) = -.14, p > .05.

To examine the relationship between NFC and attitude change, a multiple regression analysis was. This was accomplished by hierarchical regression with the pre-attitude entered into the first block of the model, the centered NFC scale score entered into the second block, and regressing on the post-attitude. This model was significant, F(2,124) = 10.06, p < .001, R^2 = .14. After controlling for the pre-attitude, NFC was a significant predictor of post-attitude, b =.30, t(122) = 3.59, p < .001. To test whether NFC had a moderating effect on the relationship between attitude type and attitude change, a moderated multiple regression was conducted. To control for the pre-attitude score on the post-attitude score, pre-attitude was entered into the model's first block. The centered NFC variable and the dummy-coded attitude type variable were entered into the second block, and to be able to clarify any interaction effects, the interaction variable was entered into the third block. However, the NFC by attitude type interaction was not significant, b = -.01, t(120) = .01, p > .05, so further analyses focused on moderation were unwarranted.

CHAPTER 4

DISCUSSION

The hypothesis that there are distinct differences in embedded versus isolated attitudes was explored using an induced-compliance cognitive dissonance paradigm that directly compared the two types of attitudes. The current findings demonstrate that reactions to dissonance differ depending on the type of attitude for which the inconsistency occurs. These differences were evident in both the experience of negative affect and the level of attitude change. Whether the attitude is embedded or isolated seems to be the crucial variable that underlies these differences.

4.1 Attitude Embeddedness

It was anticipated that because an embedded attitude is connected to a larger framework of related attitudes and values, dissonance with an embedded attitude would result in higher levels of negative affect and lower levels of attitude change than dissonance with an isolated attitude. As expected, the participants who wrote counterattitudinal essays against an embedded attitude (abortion rights) did experience significantly higher levels of general negative affect, discomfort, and self-directed negative affect than those who wrote a counterattitudinal essay against an isolated attitude (tuition rate increases). In addition, the participants who argued against an embedded attitude displayed significantly less attitude change than those who advocated against an isolated attitude. These findings support the hypothesis that the type of attitude that is involved in counterattitudinal advocacy may influence the effects.

Festinger's (1954) concept of a dissonance ratio states that as the number and importance of dissonant cognitions increases, the magnitude of dissonance increases, but a further distinction should be made between attitude importance and attitude embeddedness. The current findings support Rokeach's (1968) suggestion that individuals might hold isolated

attitudes that are perceived as important, deeply regarded, and protected, but that these attitudes are insignificant due to their few relationships with, and limited repercussions on, other attitudes. Attitudes about tuition rate increases were perceived as significantly more important than attitudes on abortion rights, even though the magnitude of dissonance was apparently felt more strongly in individuals in the abortion rights conditions. It was the attitude's embeddedness that predicted the magnitude and consequences of dissonance, not its perceived importance. Attitude strength was also not a factor, because both the embedded and the isolated attitude were reported as being comparably strong.

It is presumed that because an embedded attitude has more connections to other cognitions, it is more resistant to change, because attitude change on one embedded attitude would likely produce more inconsistency within the attitude structure than that caused by the initial dissonant elements. Therefore, attitude change may not be an effective mode of dissonance reduction in the case of embedded attitudes, as evidenced by the participants in the abortion rights conditions displaying significantly less attitude change than those in the tuition rates conditions.

4.2 Choice

It was expected that Elliot and Devine's (1999) choice condition effects in regard to affect would be replicated, with higher levels of negative affect and discomfort in the AFF/ATT condition than in the ATT/AFF and low-choice condition, respectively. The current study did not replicate these overall effects of choice condition pertaining to affect. However, when analyzed separately within each attitude type, it was found that the participants who wrote against an isolated attitude demonstrated effects parallel to those conventionally found, though the results were not significant. The participants in the isolated low-choice groups reported the lowest levels of negative affect, discomfort, and self-directed negative affect, which is to be expected, because the low-choice group is assumed to experience little dissonance and serves as a baseline condition. But the participants who wrote against an embedded attitude displayed

effects that were completely opposite of what was anticipated. The embedded low-choice group reported notably high levels of negative affect, discomfort, and self-directed negative affect. These outcomes suggest that the type of attitude, whether embedded or isolated, may alter the traditional choice effects that have been demonstrated regularly in dissonance studies restricted to isolated attitudes. Choice has been viewed as necessary to produce dissonance (Brehm & Cohen, 1962; Wicklund & Brehm, 1974). But, evidently, having little choice in counterattitudinal advocacy with an embedded attitude is more distressing than when individuals do have a perceived choice in their position. It is possible that individuals in the high-choice groups used some sort of justification or self-affirmation (Steele & Liu, 1983) to reduce their dissonance that was unavailable to those in the low-choice groups. Several participants commented that they did not want to write counterattitudinally, but that they really wanted to help the researcher "because she was so nice." It could be that the participants in the embedded high-choice conditions reduced their dissonance by focusing on being helpful to the researcher instead of the cognitive inconsistency. In contrast, the participants in the embedded low-choice condition did not have this opportunity and the "I was just following directions" rationalization that may have worked for the isolated low-choice condition was not enough justification to be effective with an embedded attitude.

4.3 Individual Differences

Both Abelson (1968) and Glass (1969) called attention to the lack of success in the study of individual differences in cognitive dissonance. Unfortunately, the current study has done little to improve this deficiency. It was thought that individuals higher in preference for consistency (PFC) would report higher levels of negative affect and lower levels of attitude change, because of their predisposition towards establishing an attitude structure and maintaining consistency within that structure, but these hypotheses were not supported. It was also predicted that the need for cognition (NFC) would have moderating effects on attitude change and affect. Because the participants who score higher in NFC tend to enjoy pursuing

intellectual activities and thinking things through, it was proposed that they would have lower levels of negative affect than the participants who do not tend to enjoy contemplation, but NFC was not a significant predictor of general negative affect, discomfort, or self-directed negative affect. Because individuals who score higher in NFC have a predilection to create various connections among associated attitudes, presumably resulting in attitudes that are more resistant to change, it was thought that NFC would moderate the relationship between attitude change and attitude type, with the participants higher in NFC displaying lower levels of attitude change. Although NFC was a significant main-effect predictor of attitude change, it did not moderate the relationship between attitude type and attitude change, as hypothesized. Research into the role of individual differences in cognitive dissonance warrants further investigation and clarification if their effects (if any) are to be understood.

4.4 Limitations and Future Directions

One major limitation of the current study is that attitude change is the only dissonance reduction strategy that was explicitly tested. It is acknowledged that attitude change is probably not the optimal reduction strategy for individuals experiencing dissonance with an embedded attitude, because this change could trigger a domino effect of inconsistency within the larger cognitorium, necessitating a substantial restructuring of the cognitive framework to restore consistency (Ostrom & Brock, 1968; Pilisuk, 1962; Rokeach, 1960). The current study was specifically designed to restrict the dissonance reduction strategy to attitude change since it has been the strategy traditionally studied (Devine, et al., 1999). This study intended to serve as a starting point to investigate differences in cognitive dissonance with embedded versus isolated attitudes by attempting to replicate a standard induced-compliance paradigm while varying the type of attitude. Because individuals do not tend to change their embedded attitudes, alternative methods of dissonance reduction may be employed instead. Future studies should investigate the use of other strategies to reduce dissonance, such as trivialization (Simon, Greenberg, & Brehm, 1995) and denial of responsibility (Gosling, Denizeau, & Oberlé, 2006).

Another interesting method of potentially dealing with dissonance was observed during the current study. Several participants who had written a counterattitudinal essay on the embedded attitude, abortion rights, indicated that the only way they could write the essay was by using sarcasm. It was as if they caricaturized their idea of what someone with extreme opposing beliefs might argue and composed their essays in this manner. It may be that some people can only argue against their embedded attitudes by using satire or the personification of a fictional "other." This strategy may be a way of creating a psychological distance between their own embedded attitude and their (temporary) act of counterattitudinal advocacy, thus lessening the effects of the inconsistency. Future studies examining the use of sarcasm as a dissonance reduction strategy could shed further light on the question of whether certain individuals tend to use exaggeration or parody as a way of dealing with dissonance that involves an embedded attitude.

The majority of dissonance studies have been limited not only to isolated attitudes, but also to participants who fall on just one side of an attitude continuum. When the data for only those individuals whose original attitude indicated disagreement with tuition rate increases were analyzed, the current study revealed similar results to others that have been traditionally been reported, with respect to attitude change and choice effects. However, when one examines the data for individuals who originally agreed with tuition rate increases and those who either agreed or disagreed with abortion rights, the results completely change. It appears, therefore, that the practice of restricting the study to include only participants on one side of an isolated attitude reveals only one part of the bigger picture of how attitudes are affected by cognitive dissonance. Lifting these restrictions may begin to reveal what lies beyond our current understanding. Future studies should consider opening up the spectrum and range of the attitudes that are studied to enable a more complete understanding of the overall effects of cognitive dissonance.

APPENDIX A

LIST OF ARGUMENTS

Arguments Against Increasing Tuition Rates

1. A comparison of inflation statistics from the Bureau of Labor Statistics and the College Board reveals that since 1978, the cost of attendance at community colleges and 4-year public and private colleges and universities has tripled, with tuition increases rising at an average of double the general inflation rate.

2. Grant funding has not kept up with the hikes in college costs, leaving students in a position of having to take out ever-larger amounts of money in student loans, particularly in the current economic climate, as more families struggle with unemployment, stagnant wages, and curtailed sources of credit.

3. Colleges and universities have raised prices even more than the gross numbers show by providing less education per dollar -- trimming the school year, requiring and offering fewer classes, arbitrarily declaring three-credit classes to be four-credit classes, cutting the length of classroom periods, and spending less money on libraries and other educational programs.

4. Some educators are concerned that the new price tags will discourage poor students from applying and will price out middle-class families that make too much to obtain financial aid, but not enough to easily afford college.

5. There's a certain cruelty to a rise in education costs amid an economic slump: it makes the single most effective tool to help the underemployed and jobless out of their rut become all the more unreachable.

Arguments In Support Of Increasing Tuition Rates

1. Most students do not pay the retail price for college; they pay a discounted rate, thanks to financial aid packages, which have kept pace pretty well with tuition increases. When grants and other non-loan student aid are factored in, the net cost of college -- what students and their parents actually paid to be educated -- rose less than 5% for most students between the 1992-93 academic year and 1999-2000, according to the National Center for Education Statistics.

2. Despite two decades of rising prices, 68% of full-time undergraduates attending four-year colleges still pay less than $8,000 in annual tuition and fees. The payoff: post-college incomes that are 60% higher than those of high school graduates and that, on average, mean $1 million more in lifetime income.

3. The quality of higher education is improving, which costs money. Most agree that smaller classes and closer contact between students and professors improve the educational experience. In addition, greater availability of counselors, advisors, and tutors improves the chances of a student succeeding. In a study of college costs, the National Association of College and University Business Officers (NACUBO) found that instruction and student services comprised the majority of higher education costs.

4. Prices increase as colleges compete for students. Students and their families choose a college, in part, based on the quality of its educational offerings and facilities. The presence of star faculty, extensive athletic facilities, or other features may convince a student to attend. The power of market competition is demonstrated by the influence that the annual *U.S. News and World Report* guide to colleges and universities has on enrollment. Colleges that do not offer these extra attributes may suffer from lost enrollment.

5. The historical fact that enrollments have increased as tuition has gone up, combined with the fact that the share of students going to the most expensive private colleges and universities has not diminished, supports the conclusion that the value of a postsecondary education is increasing.

Arguments Against Abortion Rights

1. Legalizing abortion greatly increases the number of abortions. In various surveys, 40-85% of the women said they would not have had an abortion if it had been illegal. Data from foreign countries having far longer experience with legalized abortion than we have had in the United Sates, suggest that legalization has no effect on the criminal abortion rate. In at least three countries, the criminal abortion rate has actually risen since legalization.

2. There are many complications that may arise from an abortion, including: ectopic pregnancies, pelvic inflammatory disease, subsequent infertility and miscarriages, future premature births, and placenta praevia. An abortion can also result in a perforated uterus requiring an emergency hysterectomy. The reported immediate complication rate is no less than 10%. Studies of long-term complications frequently report complication rates between 25-40%.

3. In the Bible, our worth as a human being or our "personhood" does not depend on how far along on life's journey we have come. Instead, we are beings who are made in the image of God (Gen. 1:27). Each person is valuable because God created him or her that way.

4. The Supreme Court's decision of *Roe v. Wade* clearly stated that it does not know when life begins and then violated the very spirit of this legal principle by acting as if it just proved that no life existed in the womb. The decision also separated personhood from humanity. In other words, the judges argued that a developing fetus was a human (i.e., a member of the species *Homo sapiens*) but not a person. Since only persons are given 14th Amendment protection under the Constitution, the Court argued that abortion could be legal at certain times. This left to doctors, parents, or even other judges the responsibility of arbitrarily deciding when personhood should be awarded to human beings.

5. Abortion proponents often justify abortion because of the claim that every child should be wanted and that wanted children are less likely to be abused than those who are "unwanted." However, child abuse statistics show that since abortion was legalized in 1973, child abuse has risen dramatically, although over one million unwanted children are aborted every year. A recent study shows that those mothers who have a prior history of abortion, in fact, abuse their children more than those who do not have a history of abortion.

Arguments In Support Of Abortion Rights

1. Laws against abortion do not stop abortion; they simply make it less safe. The number of women who get abortions does not change when it goes from being legal to illegal, or vice versa. The only thing that changes is more women die. Every year, 78,000 women die from unsafe abortions.

2. Control over her body and the freedom to decide the course of her life is critical to a woman's civil rights. When a woman is pregnant, it is her body that goes through all the stress of

pregnancy. If she decides not to have a pregnancy, she should be able to do so. Denying her the right to her body is violating her most basic freedom.

3. There are already countless thousands, or hundreds of thousands, of homeless, orphaned, or unwanted children in the world. These children, scattered across the globe, lack proper nutrition, healthcare, education and shelter. They never have the opportunity to truly be children – to play, laugh, and be happy and carefree. Instead, they live in poverty and fear, are abused, and often die before they reach adulthood.

4. Abortion is a safe medical procedure. The vast majority of women - 88% - who have an abortion do so in their first trimester. Medical abortions have less than 0.5% risk of serious complications and do not affect a woman's health or future ability to become pregnant or give birth.

5. Legalized abortion has contributed significantly to recent crime reductions. Crime began to fall roughly 18 years after abortion legalization. The 5 states that allowed abortion in 1970 experienced declines earlier than the rest of the nation, which legalized in 1973 with *Roe v. Wade*. States with high abortion rates in the 1970s and 1980s experienced greater crime reductions in the 1990s. In high abortion states, only arrests of those born after abortion legalization fall relative to low abortion states. Legalized abortion appears to account for as much as 50% of the recent drop in crime.

APPENDIX B

ESSAY RELEASE FORMS

Essay Release Form (High-Choice)

I understand that the purpose of this study is to investigate if my writing and argument styles are influenced by personality traits and I choose to participate of my own free will. I agree to write an essay in my own words. I am aware that my arguments will be read and assessed by undergraduate or graduate research assistants and agree to release my essay for further analysis. I am also aware that my participation is completely voluntary and that I can stop participating at any time while still receiving credit.

I hereby release my essay for further analysis.

Signature: _____ Date: _____

Essay Release Form (Low-Choice)

I hereby release my essay for further analysis.

Signature: _____ Date: _____

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

1. What best reflects or represents your gender?

   ☐ Male

   ☐ Female

2. How old are you? _____

3. What best reflects or represents your racial or ethnic background?

   ☐ American Indian or Alaskan Native

   ☐ Asian

   ☐ Black or African American

   ☐ Native Hawaiian or Other Pacific Islander

   ☐ White/Anglo-American

   ☐ Hispanic or Latino

   ☐ Other/Multiracial

4. What year are you in school?

   ☐ Freshman

   ☐ Sophomore

   ☐ Junior

   ☐ Senior

5. What is your major? _____

APPENDIX D

ATTITUDE SCALE

Attitude Scale

Instructions: Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. You are free to decline to answer any question, though declining to answer is considered a response.

1	2	3	4	5	6	7	8
☐	☐	☐	☐	☐	☐	☐	☐
COMPLETELY DISAGREE	MOSTLY DISAGREE	SOMEWHAT DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY AGREE	SOMEWHAT AGREE	MOSTLY AGREE	COMPLETELY AGREE

1. Tuition rates at UTA should be increased substantially to provide more funding opportunities for the University.
2. The issue of tuition rates is very important to me.
3. I feel strongly about my opinion on the issue of tuition rates.
4. My religious, ethical, and/or political beliefs influence my opinion on the issue of tuition rates.
5. In general, do you agree or disagree with the 1973 *Roe v. Wade* Supreme Court decision that established a woman's right to an abortion?
6. The issue of abortion is very important to me.
7. I feel strongly about my opinion on the issue of abortion.
8. My religious, ethical, and/or political beliefs influence my opinion on the issue of abortion.

APPENDIX E

PREFERENCE FOR CONSISTENCY SCALE (PFC)

Preference for Consistency Scale (PFC)

Instructions: Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. You are free to decline to answer any question, though declining to answer is considered a response.

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐
COMPLETELY DISAGREE	MOSTLY DISAGREE	SOMEWHAT DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	SOMEWHAT AGREE	MOSTLY AGREE	COMPLETELY AGREE

1. I prefer to be around people whose reactions I can anticipate.
2. It is important to me that my actions are consistent with my beliefs.
3. Even if my attitudes and actions seemed consistent with one another to me, it would bother me if they did not seem consistent in the eyes of others.
4. It is important to me that those who know me can predict what I will do
5. I want to be described by others as a stable, predictable person.
6. Admirable people are consistent and predictable.
7. The appearance of consistency is an important part of the image I present to the world.
8. It bothers me when someone I depend upon is unpredictable.
9. I don't like to appear as if I am inconsistent.
10. I get uncomfortable when I find my behavior contradicts my beliefs.
11. An important requirement for any friend of mine is personal consistency.
12. I typically prefer to do things the same way.
13. I dislike people who are constantly changing their opinions.
14. I want my close friends to be predictable.
15. It is important to me that others view me as a stable person.

16. I make an effort to appear consistent to others.

17. I'm uncomfortable holding two beliefs that are inconsistent.

18. It doesn't bother me much if my actions are inconsistent.*

* Reverse scored.

APPENDIX F

NEED FOR COGNITION SCALE (NFC)

Need for Cognition Scale (NFC)

Instructions: Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. You are free to decline to answer any question, though declining to answer is considered a response.

1	2	3	4	5	6	7	8	9
☐	☐	☐	☐	☐	☐	☐	☐	☐
COMPLETELY DISAGREE	MOSTLY DISAGREE	SOMEWHAT DISAGREE	SLIGHTLY DISAGREE	NEITHER AGREE NOR DISAGREE	SLIGHTLY AGREE	SOMEWHAT AGREE	MOSTLY AGREE	COMPLETELY AGREE

1. I would prefer complex to simple problems.
2. I like to have the responsibility of handling a situation that requires a lot of thinking.
3. Thinking is not my idea of fun.*
4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.*
5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.*
6. I find satisfaction in deliberating hard and for long hours.
7. I only think as hard as I have to.*
8. I prefer to think about small, daily projects rather than long-term ones.*
9. I like tasks that require little thought once I've learned them.*
10. The idea of relying on thought to make my way to the top appeals to me.
11. I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn't excite me very much.*
13. I prefer my life to be filled with puzzles that I must solve.

14. The notion of thinking abstractly is appealing to me.
15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.*
17. It's enough for me that something gets the job done; I don't care how or why it works.*
18. I usually end up deliberating about issues even when they do not affect me personally.

* Reverse scored.

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