

Cognitive Dissonance in College: Focusing on the Classroom Experience

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Dedication

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Abstract

Background: According to cognitive dissonance theory, when individuals encounter information at odds with their existing values, beliefs, experience, or knowledge, they may experience cognitive dissonance, and consequently engage in dissonance reduction behaviors. The college experience in general, and highly diverse college campuses in particular, are spaces with significant potential for students to encounter dissonance-arousing information. Student responses to such experiences have important implications for conceptual development, which may be facilitated through improved academic material and practices. Past research on cognitive dissonance in college students employing qualitative methods is limited. **Purpose:** The overall goal of this study is to explore primarily qualitatively, the wider scope of cognitive dissonance experiences of college students, driven by the following questions: 1) What are some thematic trends in dissonance arousing topics important to college students, and the specific settings and contexts in which such topics became relevant? 2) What are students' cognitive, affective, and behavioral responses to dissonance arousing experiences? Specifically, what information-seeking behaviors do they engage in upon such experiences? 3) Are there any significant systematic relationships between any features of the dissonance experiences and students' cognitive, affective, and behavioral responses to them?

Methods: The sample consists of undergraduate students enrolled in courses listed in the University of Houston SONA research participation system. The study employed a within-stage mixed-model design. At Phase 1, 49 undergraduate college students responded to an online survey with open-ended and closed-ended items, using the Qualtrics data collection software. At Phase 2, an independent sample of eight

undergraduate students from the same participant pool participated in 12- to 45-minute semi-structured face-to-face interviews on campus. Data analysis was conducted using thematic analysis for the qualitative data, and frequency counts and chi-square tests of independence for the quantitative data. **Results:** Topics of cognitive dissonance for undergraduate college students were widely varied, and the second most frequently reported context of dissonance encounters was the classroom setting. Interview data showed dissonance experiences involving classmate behavior, instructor behavior, and course content. Undergraduate students' self-reports of responses to classroom dissonance experiences consisted of overall negative affect and cognitive and behavioral responses which demonstrated varying levels of disengagement behaviors consisting of withdrawal from the physical classroom environment, avoiding engagement with class content, and superficial engagement with class content. Students also reported positive affective, cognitive, and behavioral responses to dissonance experiences at large. Chi-square results yielded a relationship between positive affective responses and behavior change. **Conclusion:** Qualitative data found evidence for maladaptive responses to cognitive dissonance experienced in the classroom setting and demonstrated that college classroom dissonance encounters have the potential to lead to disengagement from class material and thus hinder learning at least in the short run. Future research should explore classroom practices aiming to minimize such negative experiences, as well as practices that can facilitate ways in which such experiences--when they do occur--can be transformed into cognitive growth experiences, enhancing the well-being of students.

Keywords: cognitive dissonance, college student learning, college classroom, disengagement behaviors, instructor behaviors

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Chapter I

Introduction

According to the theory of cognitive dissonance (Festinger, 1962), when individuals experience an inconsistency between any two cognitions they hold, this creates a state of mental discomfort called cognitive dissonance, which they strive to overcome by way of certain responses. One of the dissonance arousing contexts is when individuals encounter information or behavior that starkly contrasts with their existing values or beliefs. The theory holds that in such circumstances, individuals will engage in an effort to restore a state of mental comfort called consonance by either changing their existing belief systems or by changing the reality of the conflicting cognition by either downplaying its importance or by adding new dimensions to it. This process often involves a search for new information which will fulfill any of these functions.

Efforts to reconcile newly encountered information with existing cognitions are considered to have the potential of promoting conceptual growth. However, depending on the magnitude of dissonance and the individual's response to it, dissonance can also result in a mental resistance which may stifle conceptual growth. From a developmental perspective, drawing on Erikson's (1946) developmental theory positing that early adulthood constitutes one of the critical stages in development, Gurin, Dey, Hurtado and Gurin (2002) have argued for the critical importance of the higher education diversity experiences at the stage of meaning-making in the cognitive developmental process. Bowman and Brandenberger (2012) further conceptualize the college experience to be a context with the potential of creating change in an individual at a conceptual level due to exposure to the unfamiliar. Upon encountering new ways of thinking, beliefs, and values,

individuals have the opportunity to review their own, and form their unique, more sophisticated perspectives, contributing to conceptual development.

One of the key elements contributing to cognitive growth within the college experience has been identified as experiencing the unfamiliar (Gurin et al., 2002) through interaction with diverse peers which may involve differences across and within class, religion, sexual orientation, race, or ethnicity. Interaction with diversity in turn challenges students' existing values and beliefs and therefore prompts them to understand and possibly adjust their views (Gurin et al., 2002). Empirical support for the link between diversity experiences and cognitive processes came from a study by Bowman and Brandenberger (2012). This study demonstrated that interactions with diversity (as measured by assessing the self-reported frequency of interactions with people differing "from the participant in terms of race, social class, national origin, values, religion, or political views" (p. 187)) are positively associated with "experiencing the unexpected," and that "experiencing the unexpected is associated with greater belief challenge" (p. 191). Experiencing belief challenge consists of one form of cognitive dissonance, namely, encountering information or behavior at odds with existing values or beliefs (Festinger, 1962).

Due to the developmental significance of college learning, and the cognitive growth implications of experiencing the unexpected in the college setting, it is important to explore the variety of college student experiences with cognitive dissonance. Past studies, found in the literature search reported on below, on cognitive dissonance in college students have largely employed either controlled clinical trials, experimental replication, or correlational methodologies. There appears to be a dearth of qualitative

research providing a deeper look into the variety and nature of such dissonance arousing experiences in the college student population.

A literature search involving six databases (Academic Search Complete, Education Source, ERIC, Psychology and Behavioral Sciences Collection, APA PsychInfo, and Social Sciences Full Text) for peer reviewed articles published between 1959 and 2020, using the key words “cognitive dissonance or belief challenge” in the abstract, and “college students or university students or undergraduates or higher education” in the abstract yielded 486 hits. Further limiting the search by methodology to “qualitative study, field study, and interview” yielded 17 hits.

Out of the studies which employ qualitative inquiry done on cognitive dissonance experiences specifically in the college student population, one involved experiences outside of the college setting (Carpenter & Peña, 2017); one looked exclusively into leadership practices (Collier & Rosch, 2016); and others came from research in the field of diversity in higher education (McFalls & Cobb-Roberts, 2001; King et al., 2011).

Research at large in the field of diversity in higher education appears to be conducive to exploration of cognitive dissonance experiences by way of the inherent encounters with the unfamiliar. However, due to its focused vantage point of diversity and its dynamics, this research has specifically discovered interpersonal interactions with diverse peers (Gurin et al., 2002; Hurtado, 2005; King et al., 2011; Bowman, 2010, 2011, 2013; Bowman et al., 2011) and structured initiatives which aim to provide knowledge on diversity related content and opportunities for intentional contact with diverse peers (McFalls & Cobb-Roberts, 2001; Gurin et al., 2002; Gorski, 2009; Bowman, 2010; Bowman et al., 2011; see also Bowman, 2011). Furthermore, as it relates

to cognitive dissonance and cognitive growth, a meta-analysis found significant associations between diversity experiences (which assume encounters with the unfamiliar) and cognitive development operationalized as advanced cognitive tendencies and improved cognitive abilities (Bowman, 2010). Nonetheless, the diversity point of reference falls short of capturing the wider range of cognitive dissonance experiences which may extend beyond interaction with diverse peers or diversity course content, such as interaction with non-peers and course content at large.

The element of diversity can be considered both a limiting factor as well as an opportunity in exploring cognitive dissonance experiences in college students. This study aims to make use of the diversity element by recruiting undergraduates in the highly diverse student population of University of Houston. At the same time, however, it will adopt a broader approach in its research questions by engaging in an exploratory effort to identify the wider range of cognitive dissonance experiences of college students, the settings and contexts in which they occur, and students' cognitive, affective, and behavioral responses to such encounters. It is expected that insight into such experiences will help explore any cognitive growth implications of dissonance arousing experiences in the college setting at large, beyond those that involve encounters with diverse peers and diversity courses.

Review of literature will start with providing background on the theory of cognitive dissonance, then explore studies which provided theoretical and empirical insight linking cognitive dissonance to psychological development. This will be followed by a review of studies addressing the college diversity relevance of cognitive dissonance experiences and cognitive growth outcomes. Then, the specific research questions will be

laid out. The methods section will explain data collection, materials, and procedures and preview the data analysis process. The result section will report on findings organized by research questions. The discussion section will provide a brief overview of the study objectives, followed by a discussion of the relevant findings and an observation of study limitations, and end with a discussion of derived conclusions, their implications for student learning and well-being in higher education settings, and study contributions.

Chapter II

Literature Review and Research Questions

Background

The topic of cognitive dissonance has been explored in a wide variety of fields, given the various types of dissonance experiences initially identified by Festinger (1962) in the theory of cognitive dissonance which will be elaborated on in the next section. The particular type of cognitive dissonance which involves exposure to information at odds with one's existing beliefs, knowledge or experience is particularly pertinent to the discussion of cognitive growth of university undergraduate students. Considerable amount of literature exists with regard to a variety of cognitive dissonance experiences in college students. However, these studies, as indicated by the methodology labels for the studies yielded by the literature search described previously in the Introduction, are mostly experimental or correlational in design. Those studies which occur in naturalistic settings and qualitative in design have either been carried out specifically within the diversity in higher education framework (McFalls & Cobb-Roberts, 2001; King et al., 2011), or are limited to experiences of first-generation college students' familial conflicts (Carpenter & Peña, 2017) and as such, fall short of capturing the wider range of cognitive dissonance experiences in the college setting at large, in a detailed manner. This study seeks to fill this gap by exploring the wider range of college cognitive dissonance experiences with the use of mixed methodology.

In the next section, a background on cognitive dissonance theory, and research on cognitive dissonance which has implications for college student learning, and overall

mental well-being will be provided. Next, the review literature on its implications for psychological development will be reviewed. Use of the term psychological development in the heading of this section is intended to capture references to the various forms of cognitive growth outcomes such as cognitive abilities and cognitive tendencies used throughout the literature review, as well as more general mental well-being implications explored as a result of the present study. The last section of the literature review will look at literature specifically on college diversity experiences. Literature on college diversity experiences is particularly relevant to the scope of this study, because this line of research is one that simultaneously incorporates variables pertinent to cognitive dissonance experiences and those that have cognitive growth implications. Finally, the present study section will present a summary of the most pertinent literature and conclude with study research questions.

Cognitive Dissonance Theory

The theory of cognitive dissonance (Festinger, 1962) originally identified several types of cognitive dissonance experience applicable to certain areas of inquiry, which lead to research under relevant paradigms. These distinct types of dissonance involved contexts of decision making; forced compliance; social influence; and voluntary and involuntary exposure to information. Given the initially identified types of cognitive dissonance, the theory of cognitive dissonance has produced research in the field of decision making, referred to as the “free choice paradigm”; in exploring consequences of effort expenditure, referred to as the “effort-justification paradigm”; in exploring after effects of behavior inconsistent with held beliefs and attitudes, referred to as the “induced-compliance paradigm”; and also in exploring responses to encounters with

information inconsistent with prior belief, referred to as the “belief-disconfirmation paradigm” (E. Harmon-Jones & Mills, 2019, p. 5-7). Among these paradigms, comparatively less research has been generated based on the belief-disconfirmation paradigm (C. Harmon-Jones & E. Harmon-Jones, 2018). Each of these studies involving exposure to information inconsistent with held beliefs was either experimental (Festinger, et al., 1956; Burris, et al., 1997; Levy et al., 2018) or quasi-experimental (Batson, 1975) in design.

Festinger (1962) defines “cognition” as “any knowledge, opinion, or belief about the environment, about oneself, or about one’s behavior” (p. 3) and states that when individuals encounter or experience a contradiction between any two cognitions about a given situation, they will experience a sense of inner disequilibrium he terms “dissonance” which is the opposite of “consonance.” For example, a person who smokes will most likely experience cognitive dissonance upon coming across information on the lung cancer risk associated with smoking. Festinger further states that this state of dissonance will be a motivating factor for the individual to reduce dissonance, thereby pursuing consonance.

One of the various types of cognitive dissonance involves exposure to information which is dissonant with one’s existing thoughts or feelings toward the subject matter. This can happen both intentionally while seeking knowledge about the particular subject matter, or involuntarily by way of accidental exposure, inevitable exposure which may or may not be forced, or through social interactions.

In any of these cases, where the exposure causes cognitive dissonance due to the incompatibility of an existing cognition with that the newly encountered cognition, the

individual will attempt to reduce the dissonance either by changing either of the cognitions or by adding a new cognition. The former can happen either by changing the existing, held cognition (i.e., one's own thought, attitude, or behavior if applicable), or by changing the environment by changing the cognitive elements reflecting that environment. The latter, adding a new cognition, may sometimes involve "seeking out information" (Festinger, 1962, p.144). Applied to the smoking example, the smoker will either accept the new information and stop smoking (i.e., change existing cognition and stop smoking), discredit the research (i.e., changing the environmental cognition by way of mentally challenging the veridicality of the cognition about lung cancer risk), or mentally foreground one's health behaviors such as exercising and a healthy diet (i.e., adding a new cognition: existing health behaviors compensating for any potential risk posed by smoking).

According to the theory, a moderate level of dissonance will lead individuals to seek information which is consonant with the held cognition and therefore which will help reduce dissonance. However, when the level of dissonance between any two cognition elements approaches maximum levels, described by Festinger (1962) as "the total resistance to change of the less resistant element" (p. 28), individuals are expected to seek information which will further increase dissonance, thereby justifying a change in one of the cognitions (Festinger, 1962, p. 172). Empirical research conducted to further explore this notion typically involved experimental manipulation of exposure to voluntary and involuntary information. In one study for example, Miller (1977) presented subjects with a ranking format which allowed them to indicate preferences for information which would either support or oppose their held position in a given scenario.

As such, the measures in this research involved choosing from readily presented information seeking reactions to readily available information. Similarly, later cognitive dissonance research involving exposure to information inconsistent with held beliefs also involve experimental manipulation. Examples of experimental studies are Burris et al. (1997) and Gawronski et al. (2014).

Experimental findings do not clarify the nature and patterns of naturally occurring (and not chosen from readily available) information seeking behavior ensuing from natural (and not induced) dissonance arousing experiences. In order to understand whether and what kinds of information seeking behavior takes place after individuals experience cognitive dissonance in natural settings, a qualitative study, exploring the self-reports of information seeking consequences of such experiences is needed. To the author's knowledge, there are no studies which directly explore information seeking consequences of cognitive dissonance using qualitative methods. Each of the available studies employing the variables of interest used experimental manipulation (Ehrlich et al., 1957; Adams, 1961; Behar, 1967; LoSciuto & Perloff, 1967; Frey, 1982; Burris et al., 1997; Gawronski et al., (2014); Levy et al., 2018).

Cognitive Dissonance and Psychological Development

Because the original theory had implications for a wide range of areas such as decision making, compliance behaviors, and social influence, it attracted research from a variety of fields and disciplines. Looking specifically at research within psychology, the theory of cognitive dissonance has been invoked under a number of distinct psychological paradigms. Such distinct paradigms were pointed out early on by Hilgard (1977) as, "first-force," "second-force," "third-force," and "fourth force" psychology.

First force refers to the behaviorist school which focused on experimental manipulation; second force represents, for the most part, the psychoanalytic approach focused on the pathological and therefore is familiar in clinical psychology; third force represents humanistic psychology with its emphasis on human thriving and exploring the positive aspects of human potential; and finally, fourth force, also known as “transpersonal psychology,” which seeks empirically to explore paths to self-actualization and other forms of transcendental experiences (pp. 211-212).

Looking at cognitive dissonance from the perspective of second force psychology, for example, Chow and Thompson (2003) frame it as a “feeling of unpleasantness deep in the unconscious,” the assessment of which could be used as a psychoanalytic tool to identify unconscious sources of pain in an individual. Chow and colleagues developed the Cognitive Dissonance Test (DISS) (Cassel & Chow, 2002b; Chow, 2001). The test was meant to help individuals identify and become conscious of areas of cognitive dissonance in order to plan out ways to remove them. Based on the hypothesis that cognitive dissonance poses a hindrance to personal growth, Chow and Thompson (2003) studied the relationship between measures of cognitive dissonance and personal development on college and university students. The authors interpreted the negative correlation between measures of cognitive dissonance as measured by the DISS (Cassel & Chow, 2002b; Chow 2001) and personal development as measured by The Personal Development Test (Cassel & Chow, 2002a) as support for their hypothesis that cognitive dissonance hinders personal development and therefore should be identified through psychoanalysis. The connection the authors make between their findings and distinct psychological paradigms is noteworthy. They add that “while second force psychology is

used to pinpoint problems created in our subconscious, third force psychology has been created to gauge human thriving” (Chow & Thompson, 2003, p. 738), relegating the experience of cognitive dissonance to a pathological state which is antithetical to growth.

The finding in Chow and Thompson’s (2003) study is limited to observing a correlation between certain levels of cognitive dissonance based on the test they developed, and a given measure of personal development at a given time point. It does not take into account phenomenological aspects, such as the test takers’ perceptions about their individual experiences. It is necessary to understand perceptions because individuals’ perception of their role in activities influences development (Demetriou et al., 2017). Therefore, it will be of value to discover individuals’ perceptions of their individual cognitive dissonance experiences.

On the other hand, research on cognitive dissonance from the third-force psychology perspective has found it to be related to several positive cognitive growth outcomes. The experience of conflict at large has been described as a prerequisite of growth and education (Thelen, 1960). Moreover, in Piaget’s (1972) theory of cognitive development, the experience of disequilibrium plays a central role in the mechanisms by which transitions are made between the stages of conceptual development. As individuals encounter cognitions which do not match their existing schemas, they are driven into the processes of assimilation and/or accommodation of the newly encountered cognitions, which continually form new schemas. Joyce (1984) further emphasizes the affective aspect of such experiences and states that specifically, the discomfort felt in dissonance is needed for further development. Similarly, in the transformation theory of adult learning

and development, a “disorienting dilemma” is often the trigger for a significant personal transformation (Mezirow, 1994).

Bringing together Piaget’s (1972) concept of the role of disequilibrium in cognitive development, and Erikson’s (1946) developmental theory positing that early adulthood constitutes one of the critical stages in identity development, Gurin et al. (2002) argued for the critical importance of the higher education experiences. Going to college is considered a life transition, and such transitions have significant implications for change because individuals experience unfamiliar situations which require new information seeking (Ruble, 1994). Gurin et al. (2002) draws attention to the element of “novelty and unfamiliarity that occurs upon the transition to college [and] opportunities to identify discrepancies between students with distinct pre-college social experiences” (p. 334). Gurin et al. (2002) further emphasized the significance of experiences specifically with diversity in higher education due to its feature of serving as “a source of multiple and different perspectives” (p. 334) influencing meaning-making and learning in the developmental process.

Bowman and Brandenberger (2012) further conceptualize the college experience to be a context with the potential of creating change in the individual conceptual levels due to what they operationalize as “experiencing the unexpected” (p. 182). Upon encountering new ways of thinking, beliefs, and values, individuals have the opportunity to review their own, and form their unique perspectives, contributing to conceptual development. The key element in interaction with diversity is the process of experiencing the unexpected, either coursework, or through interaction with diverse peers which may involve differences across and within class, religion, sexual orientation, race, or ethnicity.

Interaction with diversity challenges students' existing values and beliefs and therefore prompts them to understand and possibly adjust their views (Gurin et al., 2002).

Empirical support for this model came from Bowman and Brandenberger's (2012) study which demonstrated that both positive and negative interactions with diversity are positively associated with "experiencing the unexpected," and that "experiencing the unexpected is associated with greater belief challenge" (p. 191). Experiencing belief challenge is one form of cognitive dissonance, namely, encountering information or behavior at odds with existing values or beliefs (Festinger, 1962).

Studies have found empirical support for the cognitive growth implications of cognitive dissonance experiences. Much of this evidence comes from research on college students' experiences with diversity. Significant associations have been found between diversity experiences and cognitive growth outcomes (Gurin et al., 2002; Hurtado, 2005; Bowman, 2011) as well as longer term personal growth outcomes (Bowman et al., 2011). The next section further reviews literature on college diversity experiences in order to gain further insight into some elements of diversity experiences which have relevance to cognitive dissonance and their implications for cognitive growth.

College Student Experiences with Diversity and Cognitive Growth

In a meta-analysis of college diversity experiences and cognitive development outcomes, Bowman (2010) has pointed out two separate forms of cognitive outcomes and three overall forms of diversity. The two cognitive outcomes are cognitive skills such as problem solving and critical thinking, and cognitive tendencies such as need for cognition and attributional complexity. He identifies three overall forms of student experiences with diversity: structural diversity, interactional diversity, and classroom diversity.

Structural diversity refers to the demographic composition of the student body. Interactional diversity includes the frequency and quality of informal social interactions with diverse peers on campus or residential halls. Classroom diversity is a term used to encompass student encounters with diversity within all curricular and co-curricular instruction and activities. One of the conclusions drawn from some of this research is that, although structural diversity on its own is not found to be sufficient for cognitive growth outcomes, it is considered a necessary condition for the promotion of cognitive growth (Gurin, 1999). In the meta-analysis, Bowman (2010) found an overall positive association between diversity experiences and cognitive development, and more specifically interpersonal interactions with racial diversity, and suggested educational benefits (growth in leadership skills, psychological well-being, intellectual engagement) when they occurred frequently (and not rarely or moderately) (Bowman, 2013).

On the other hand, some research hypothesizes, based on cognitive dissonance theory, that if students encounter ideas, values, and beliefs highly dissonant with their existing views, learner resistance may also take place (Walton, 2011). According to Festinger's (1962) initial hypothesis, individuals are driven by the need to reduce dissonance upon confrontation with ideas and beliefs inconsistent with their own. Resisting the newly encountered ideas is a conceivable response. Walton (2011) suggests that this hypothesis is supported by citing empirical evidence demonstrating psychological processes such as the biases assimilation effect (Lord et al., 1979); perseverance effect (Anderson et al., 1980); selective exposure (O'Keefe, 1990); refutation and self-validation (Zuwerink Jacks & Cameron, 2003) in responses to counter-attitudinal messages. Each of these responses involves a resistance to the

dissonant message, respectively, by assuming relative credibility of consonant information over dissonant information; refusal to modify beliefs despite contradicting evidence; tendency to look for information supporting held attitudes and to avoid those which refute them; and strongly accepting counter arguments and attitudes that reinforce validity of one's own perspective. Harmon-Jones and Harmon-Jones (2018) have also more recently speculated on the mechanisms involved in the resistance process by proposing that when exposed to information inconsistent with preexisting cognitions, experience of dissonance can interfere with effective action due to the psychological disruption caused by no longer being able to rely on information which had been useful up to that point.

Looking at the contradictory response to dissonance, Walton (2011) points out the need to consider the conditions under which higher education students may display learner resistance, and brings together a series of suggestions for educators to incorporate into their curriculum so that dissonance arousing material could function effectively in promoting conceptual growth. One such condition he highlights is the significance of subjective importance in student dissonance experiences, and hence engaging students in topics that they see as relevant. In developing effective dissonance arousing curricular content, it will be of value to explore current topics which students deeply value, and identify any possible trends.

Present Study

As a minority serving institution and a campus recently ranked as the second most diverse major research university in the nation, with students from over 137 nations from across the world (University of Houston Center for Diversity and Inclusion, 2018),

University of Houston offers an ideal setting to explore possible dissonance arousing topics important to students coming from a wide range of backgrounds. Using mixed methods, this study will contribute to identifying the range of, and any trends in, dissonance arousing experiences among undergraduate college students on a diverse campus. Knowing which topics deeply involve students may inspire ways of dissonance arousal that defuses potential learner resistance (Walton, 2011). Hence one research question is, “What are some thematic trends in dissonance arousing topics important to undergraduate college students?”

According to the original cognitive dissonance theory (Festinger, 1962), when individuals experience cognitive dissonance, one of the dissonance reduction strategies is to seek information which, depending on the magnitude of dissonance, will either confirm, refute, or modify the held cognition. Experimental studies exploring this phenomenon have tested responses to readily presented information, and as such do not provide ground-up evidence about the variety of information seeking behaviors that may be adopted. The current study further seeks to explore specifically, “What information seeking behaviors do undergraduate students engage in, upon experiencing cognitive dissonance?”

Moreover, it is suggested that diversity experiences in college provide a ground for experiencing the unexpected (Gurin et al., 2002), which in turn prompts individuals to seek information (Ruble, 1994), which contributes to conceptual development. However, as Walton (2011) has pointed out, conditions under which dissonance arousal takes place and the responses to them can be varied, possibly leading to negative resistance feelings and behaviors. In a study on resistance to counter attitudinal messages, Zuwerink Jacks

and Devine (2000) found both cognitive and affective processes operating. Therefore, this study will also seek to address the question, “What are undergraduate students’ cognitive and affective responses to dissonance arousing experiences?”, in addition to their behavioral responses.

Next, regarding the diversity contexts in which dissonance arousing experiences take place, the literature seems to suggest that interpersonal interactions with diverse peers, as well as classroom diversity experiences which involve purposeful teaching of diversity content (Bowman, 2010) are associated with cognitive growth. However, previous studies within the diversity framework pose a couple of limitations with regard to gaining insight into the cognitive growth implications of dissonance experiences. One is that these studies were investigating exclusively diversity experiences. As such, their cognitive dissonance relevance is found more as a speculation, rather than a direct inquiry into the role of cognitive dissonance as a path to the cognitive growth outcomes of diversity experiences. Second, the inquiries are limited to exploring a limited set of contexts, namely, interaction with diverse peers and with courses designed purposefully to address diversity issues. This limitation leaves out other social interactions at large, and other classroom experiences, or university wide experiences where cognitive dissonance may be experienced. It is thus one of the purposes of this study to engage in a qualitative exploration, by way of initially identifying the cognitive dissonance arousing experiences themselves, and working ground-up, to explore the contexts in which they took place. Thus, another question to be answered is, “In what specific settings and contexts do cognitive dissonance experiences take place?”

Finally, any significant relationship between any of the variables will be explored. Data obtained to address the research questions is expected to be useful in identifying any potential relationships across the answers to these questions. Purely exploratory in nature, this question seeks to find--if any--elements of the cognitive dissonance experiences that have any notable patterns of association with college student learning and personal development. Specifically, it is useful to see whether there is any relationship between the settings and contexts of dissonance experiences and students' cognitive, affective, or behavioral responses to them.

To sum up, with the advantage of the highly diverse student population at the University of Houston, this study aims to discover dissonance arousing encounters of students, specifically in response to exposure to information or behavior inconsistent with their existing values, beliefs, or knowledge. The specific research questions to be investigated are as follows:

1. What are some thematic trends in dissonance arousing topics important to college students, and the specific settings and contexts in which such topics became relevant?
2. What are students' cognitive, affective, and behavioral responses to dissonance arousing experiences? Specifically, what information seeking behaviors do they engage in upon such experiences?
3. Are there any significant systematic relationships between any features of the dissonance experiences and students' cognitive, affective, and behavioral responses to them?

The study seeks to answer these questions in two phases. Study Phase 1 aims to identify the overall range of cognitive dissonance experiences of undergraduate college students through an online survey with both open-ended and closed-ended items. Study Phase 2 aims to explore in further detail students' cognitive dissonance experiences specifically in the classroom setting, through one-to-one interviews, analyzed by content analysis.

Chapter III

Method

Participants

Undergraduate students aged 18 and above at the University of Houston were recruited utilizing a non-probability sampling procedure. Participants were drawn from the University of Houston SONA research participation pool, which consists of students enrolled in classes offered by the College of Education and the College of Liberal Arts and Social Sciences (CLASS). Participants received one and two hours of research credit respectively in Phase 1 and Phase 2 of the study. In Phase 1, 49 students participated (mode age 19, $M = 21$, $SD = 3$). Tables 1 and 2 show other demographic characteristics of participants for each phase of the study.

Table 1

Demographic Characteristics of Participants in Study Phase 1

Demographics	<i>N</i>	<i>%</i>
Gender		
Female	31	63.3
Male	18	36.7
College of major		
Liberal Arts and Social Sciences	29	59.2
Natural Sciences and Math	5	10.2
Education	4	8.2
Technology	3	6.1
Business	3	6.1
Engineering	2	4.1
Arts	1	2.0
Honors	1	2.0
Undeclared	1	2.0
Race/Ethnicity		
(Self-report of race/ethnicity)		
Hispanic	17	34.7
(Hispanic)	13	26.5
(Hispanic/Latino)	2	4.1
(Latino)	1	2.0
(Latina)	1	2.0
White	1	2.0

(White)	14	28.6
(White/Caucasian)	10	20.4
(Caucasian)	1	2.0
(Middle-East)	1	2.0
(Arab)	1	2.0
Asian American	1	2.0
(Asian)	10	20.4
(Asian (Indian))	8	16.3
(Indian)	1	2.0
African American	1	2.0
(African American/Black)	7	14.3
(African American)	3	6.1
(Black)	2	4.1
Multiracial	2	4.1
(Vietnamese-White)	1	2.0
Year of study		
First	14	28.6
Second	16	32.7
Third	12	24.5
Fourth	5	10.2
Fifth year or more	2	4.1
First Generation College Student Status		
Yes	13	26.5
No	36	73.5

Note: The groups printed in bold under the Race/Ethnicity category represent the university-defined categories of race/ethnicity, while the regular print under each category represent participant's self-reports of their race/ethnicity.

Phase 2 of the study employed an independent sample from the SONA online research participant pool and consisted of face-to-face semi-structured interviews with eight undergraduate students. Participants were recruited based on their affirmative response to a short list of screen questions and an offer to participate. Participants reported on their demographic characteristics by filling out a brief survey (see Appendix B for Demographic Information sheet attached at the end of the interview protocol) at the end of their face-to-face interview. Data obtained from these sheets is presented below in Table 2.

Table 2*Demographic Characteristics of Participants in Study Phase 2*

Participant number ^a	Age	Gender	Major	Race/Ethnicity	Year of Study at UH	First-gen College Student Status
P1	20	Female	Psychology/ Minor in Quantitative Social Science	Hispanic	3	No
P2	20	Female	Psychology	Vietnamese- Chines Asian American / Asian	1	No
P3	20	Female	Education	Hispanic	2	Yes
P4	19	Male	Psychology	African American	1	No
P5 ^b	-	Male	-	Hispanic	-	-
P6	19	Female	Psychology	Asian	1	Yes
P7	25	Female	Psychology	Hispanic	2	No
P8	19	Female	Education/ Teaching and Learning	African American	1	No

^aParticipants were assigned numbers based on the order in which they participated in the interview.

^bThe demographic information sheet for this participant was not obtained. The cells with information are based on interview data.

Materials and Procedures

The study consists of two phases. Phase 1 of the study used a 17-item online survey titled “Cognitive Dissonance in College” (see Appendix A for copy of survey), which consists of a combination of open-ended and closed-ended items presented over the Qualtrics data collection software. Within the SONA online research participation platform, students were provided the link to the study. Exclusion of age below 18 was set as a study filter. Upon reading the online consent form and agreeing to participate, students were provided access to the external online survey in Qualtrics. The first item in the survey asks respondents to describe a critical dissonance arousing experience during

their time as an undergraduate student, using a minimum of 250 words. This first item reads as follows: *“As a college student, think of a critical instance where you remember coming across any information or behavior at odds with the values or beliefs deeply important to you. This can be an encounter with actual people or an encounter with any course material or course assignment or other campus wide project or activity. Please describe the experience in as best detail as you can; including the context, setting, any people or materials involved, your thoughts and feelings during and after the encounter in a minimum of 250 words.”*

The subsequent items seek to obtain details about this critical incident, as well as brief demographic information. Items 2 through 8 are aimed at understanding the affective, cognitive, and behavioral consequences of the experience. Items 9 through 11 ask about the context and setting of the dissonance arousing experience. Finally, the last six items ask for responses to the following demographic information: age, gender, major, race/ethnicity, year of study at UH, and first-generation college student status.

Phase 2 of the study employed face-to-face interviews (see Appendix B for interview protocol and demographic information sheet) to look specifically into the dissonance arousing experiences encountered in face-to-face classes. Within the SONA system, the study “Dissonance in the College Classroom” was made available to students who were 18 or above, and those who responded “yes” to the following pre-screening item: *“Can you think of a time during any face-to-face class you attended here at UH, in which you felt like a certain perspective, belief, or thought was being pushed on you, or you did not feel comfortable expressing your own opinion?”*. Students were then presented with a script which provided a brief overview of the study and an opportunity

to sign up for an interview to further elaborate on their relevant experience. Duration of the interviews ranged between 12 to 45 minutes. Two participant interviews lasted 12 minutes; three of them lasted within a 40 to 45-minute range; and three lasted approximately 20 to 30 minutes.

Research Design

This study employed a within-stage mixed model design (Johnson & Onwuegbuzie, 2015). This model includes a combination of qualitative and quantitative data and procedures at various stages of the research, with a consideration for decisions regarding time order of the methods (concurrent versus sequential), as well as the emphasis (dominant status versus equal status) placed on either of the paradigms involved in the approaches.

As it relates to the current research, both paradigms are involved at various stages of the study which constitute the study objectives, data collection, and data analysis with varying emphasis at different times. At study objectives stage, this study was interested in exploring the range of cognitive dissonance experiences of college students as well as the frequency of the distinct experiences. Thus, the study objectives required both paradigms to be employed at both data collection and data analysis stages. In the first phase of the study, the quantitative paradigm dominated the data analysis in a sequential manner, as it involved first coding and then quantifying the qualitative responses to observe frequencies. The second phase of the study can be considered completely qualitative in that its objective was to gain more detailed insight into the cognitive dissonance experiences of college students in the classroom setting, and thus employed semi-structured interviews, which were then analyzed using qualitative methodology.

Qualitative data was approached using the method of thematic analysis, which is described as a “method for identifying, analyzing and reporting patterns (themes) within data” (Braun & Clarke, 2006, p. 79). According to Braun and Clarke’s positioning of thematic analysis, it is a qualitative “method in its own right” (p. 78), different than considering it as a tool which can be used across a variety of methods (Boyatzis, 1998). Thematic analysis requires certain decisions to be made while approaching the data, and follows a six-phase model of getting familiarized with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, finalized by the production of the report (Braun & Clarke, 2006).

One of the decisions in thematic analysis concerns the demarcation of what constitutes a “theme” and consequentially, the level of detail devoted to exploring a given theme. Another decision relates to the approach taken in identifying themes, and whether the approach is inductive and data driven or theoretical and thus analyst driven. For the current study, decisions about the demarcation of themes and the level of detail in their reporting were made based on iterative process between the data and the research questions as well as the theories driving the research questions. As such, this study initially employed an online survey containing both qualitative and quantitative data. After data analysis, an observation was made about the significant features of the data which merited a closer, more detailed look due to their potential implications for the overall study purpose. This in turn led to the development of a second phase to the study, face-to-face interviews.

Analysis

Study Phase 1 consists of an online survey with a combination of open and closed ended items. Responses to the open-ended items were first analyzed using thematic analysis, and then coded using a combination of NVivo qualitative software and Excel spreadsheet. Then, both open and closed-ended items were analyzed using non-parametric tests available in SPSS. Responses to items after the initial item asking to report on a critical experience were coded and treated as categorical variables in performing frequency counts as well as chi square analyses to test for any potential relationships between the variables. Responses to the initial item were initially analyzed using NVivo qualitative data analysis software to generate initial codes and search for themes through lexical tallies, then further analyzed using Excel spreadsheet to review, define, and name the themes. Based on findings of these analyses, Phase 2 of the study was designed as a subsequent qualitative study employing semi-structured face-to-face interviews.

Phase 2 of the study focused on contexts of direct instruction, namely face-to-face classroom experiences which involved instances of dissonance arousal for college students. The interview protocol for the interviews was developed based on the themes identified in the responses to the online survey, with the aim of obtaining a more in-depth understanding of the cognitive dissonance experiences of undergraduate students, specifically in the face-to-face classroom instruction setting. In order to increase trustworthiness of the study, data obtained from the interviews and relevant coding were cross read by an expert debriefer who is a social psychology professor with extensive expertise in qualitative research. After transcription of the interview data, the researcher and the expert debriefer coded themes independently for each interview transcript. After

each independent analysis, they met to discuss the themes they identified and to detect potential inconsistencies, until a consensus was reached regarding the demarcation of themes. In the light of these themes, they discussed other parts of the interviews that provided more evidence of these themes. After analysis and cross-reading of all eight interview transcripts, the overall themes were fine tuned to consensus to meet study objectives.

Chapter IV

Results

Results will be reported organized by research question, and with reference to the relevant phase of the study for each research question. Because Phase 1 of the study employed an online survey, it will be referred to as the “survey” portion, while Phase 2 will be referred to as the “interview” portion as it consisted solely of face-to-face interviews. For the first two research questions, results will be reported for both phases of the study with varying detail. That is, results of the survey for each of the questions will be reported in the form of naming the responses given by the participants in a succinct manner, while results of the interviews will be reported in the form of presenting excerpts from the relevant data and looking into themes and meanings derived from this data. Regarding the third research question, results will be reported for the survey data only, since the relevant analysis is applicable only to this first phase of the study.

Research Question 1) What are some thematic trends in dissonance arousing topics important to college students, and the specific settings and contexts in which such topics became relevant?

Overview of Settings and Contexts of Dissonance

Data pertaining to this first question was explored in several stages of data collection and analysis. Initially, in the survey, 49 undergraduates responded to an item inquiring about a dissonance arousing experience encountered in general as a college student in a variety of college settings. Where the open-ended responses to this item contained any information about the setting in which the incident took place, the recorded information was used. In addition, a separate item inquired specifically about the setting

of the incident. Taken together, both these sets of responses were used to create categories of setting and context, which were then used to perform a frequency count. A breakdown of the reported settings, and the more specific contexts in which dissonance experiences occurred, as reported in this survey, are presented in Table 3.

Table 3

Settings & Contexts of Undergraduate Experiences of Cognitive Dissonance in Phase 1

On campus	21
Non-university religious group protest	12
Academic advisor	1
Research participation	1
Focus group participation	1
Various locations	3
Dorm	1
Fraternity	2
In-class	14
Instructional content	5
Class discussion	4
Peer interaction	3
Instructor interaction	1
Class choice	1
Out of campus	5
Unspecified	9

In consideration of any potential implications for higher education practices, of particular interest out of these settings were the on-campus and in-class encounters. Nearly half the on-campus responses (total 12 out of 21) made reference to a religious group outside of the library, preaching against certain forms of beliefs and behaviors, throughout the semester. Because the preaching individuals were described as being a group perceived as not affiliated with the university, examining these instances from the perspective of educational implications was irrelevant. Similarly, instances which happened in on-campus non-academic settings such as the dorm, fraternity, and various locations on campus were also considered less relevant compared to academic settings.

Therefore, the remaining on-campus instances which were academic in nature, along with in-class experiences were examined in closer detail.

Out of 49 responses, 13 involved encounters academic in nature. The majority of these encounters took place in the classroom setting and involved reaction to instructional content, class discussion, and interaction with the instructor. Two of them involved a research engagement (one as a participant on an online survey, and the other, as a focus group participant), and one involved an interaction with an academic advisor. Most of the classroom experiences involved coming across either instructional material or classroom discussions which contained information at odds with existing values and beliefs. While most of these reports contained self-observation of a realization of this conflict and efforts to resolve it, others contained language expressing perceived offense. In three of the encounters, participants expressed negative emotions targeted at the message conveyor. In one, this was an instructor whom the participant perceived as pushing their own ideological agenda onto class material; in another it was an academic advisor who was perceived as not attending to the needs of the student; and in another, it was the design of a research which was perceived as forcing the respondent into choosing between answer choices in a way that suppressed the participants' expression of beliefs.

Examining the above set of results from Phase 1 within the framework of cognitive dissonance theory, the realization of a given conflict and efforts to resolve it can be considered as the process by which the individual struggles toward restoring consonance, and as such can be a productive part of the learning process. However, in cases where the dissonance leads to negative affect toward a target perceived as being responsible for the negative affect, this may possibly constitute what Walton (2011)

refers to as an overbearing magnitude of dissonance which may potentially result in learner resistance. In the context of potential learner resistance, out of these three encounters, the one encounter which took place in the classroom setting, involving the perceived bias of the instructor, emerged as a type of dissonance arousal context of particular interest. It lends itself to special attention in two regards. One is that it involves a setting which is purposefully designed for direct instruction, which makes it immediately susceptible to potential learner resistance. The other aspect of the encounter worth additional attention is that it involves a dynamic in the teaching process which is malleable. That is, if it is possible to find out whether a specific statement or behavior of the instructor triggered this negative affect from the student, it may be possible to examine such statements and behaviors, their instructional value, and consequently to make recommendations as to how more adaptive forms of instruction can be achieved.

An observation about the distribution of dissonance arousing experiences by setting and context prompted Phase 2 of the study, in which data was obtained through face-to-face interviews with 8 undergraduate students, inquiring about dissonance experiences that took place specifically in the face-to-face classroom setting. A frequency count of the topics students reported on in both phases, by the settings and contexts in which they occurred, is presented in Table 4.

The first column in Table 4 provides a list of the topics reported by students in both phases of the study. It combines responses from both the online survey with 49 participants, and the interviews with 8 participants. The second and third columns show the number of times a given topic was reported in a given setting or context in Phase 1, and Phase 2 of the study respectively. Because some participant responses contained

more than one topic category, the total count of the topics is greater than the total number of participants. In Phase 1 of the study, students indicated, on an item in the online survey, the settings of dissonance arousing experience. Table 4 shows the four main categories of settings and contexts students reported on. The complete list of the reported settings and contexts can be found in Table 3. The four main categories included in Table 4 are on-campus, in-class, off-campus, and unspecified. In Phase 2 of the study, students were interviewed on their experiences of cognitive dissonance within a face-to-face classroom setting. The category headings for Phase 2 differ from Phase 1 because in Phase 2, all the encounters took place in the in-class setting. Their distinguishing features were the more specific contexts which represent the trigger incidents that led to a given dissonance experience. The third column shows the three main categories of contexts which are classmate behavior, instructor behavior, and course content.

Table 4

Topics of Cognitive Dissonance by Setting & Context in Phase 1 & Phase 2

Topic of Dissonance	Phase 1 ^a				Phase 2 ^b		
	On-Campus	In-Class	Off-Campus	Unspecified	Classmate Behavior	Instructor Behaviors	Course Content
Abortion	1	-	-	1	1	-	-
Alcohol	2	-	1	-	-	-	-
Animal testing	-	-	-	-	-	-	1
Antinatalism	-	-	-	1	-	-	-
Biased Instruction	-	1	-	-	-	3	1
Child physical punishment	-	1	-	-	-	-	-
Classroom cyber bullying	-	-	-	-	-	-	1
Democratic participation	1	-	-	-	-	-	-
Family values/dynamics	-	2	-	1	-	-	1
Financial dependence	-	-	-	1	-	-	-

Fraternities	2	-	-	-	-	-	-
Gun regulation	-	-	1	-	-	-	-
Hurricane Harvey	1	-	1	-	-	-	-
Immigration/Minority Politics	-	1	-	-	-	-	2
Interpersonal disrespect	2	-	-	-	2	-	-
Intra-personal dissonance	1	1	-	-	1	-	2
Judgmental classroom climate	1	-	-	-	1	-	-
LGBTQ	1	1	-	-	2	-	-
Love versus anti-war/hatred	-	-	-	1	-	-	-
Mental health	1	1	1	-	-	-	-
Non-dissonance	-	-	-	2	-	-	-
Premarital sex	1	-	-	-	-	-	-
Professional development	-	-	1	-	-	-	-
Racism	1	-	-	-	1	1	-
Religion	12	3	-	-	2	-	1
Sexual assault	-	-	-	1	-	-	-
Slavery in America	-	-	-	-	1	-	-
Social justice	1	-	-	-	-	-	1
Substance abuse	1	-	-	-	-	-	-
Teamwork	-	1	-	-	-	-	-
Theory of Evolution	-	2	-	-	-	-	-
Underrating instruction	-	-	-	-	-	1	-
Vaping	-	-	-	-	-	-	1
Worry for grade	-	-	-	-	-	-	3

^a Based on data from open ended responses to Item 1 on the online survey inquiring about a critical experience as a college student. The item wording starts as follows: “As a college student, think of a critical instance where you remember coming across any information or behavior at odds with the values or beliefs deeply important to you.”

^b Based on data from face-to-face interview responses to items inquiring about face-to-face classroom encounters during attendance at UH where students may have felt like a certain perspective, belief, or thought was being pushed on them, or they did not feel comfortable expressing their own opinion.

Considering their educational implications, classroom experiences of cognitive dissonance reported in this second phase of the study through interviews were examined more closely for any themes meaningful in terms of learning in higher education. Themes that emerged from the results of the interviews conducted with eight undergraduate students to address this concern are reported below.

Contexts within the Classroom Setting

Reporting of classroom experiences of cognitive dissonance will be based on categories of contexts which are organized by the trigger incidents which led to the dissonance experience. These categories consisted of course content, classmate behavior, and instructor behavior. This section will be limited to providing a brief description of these incidents without going into detail about the participants' reactions to them. The only exception will be with Participant 1, for whom the reported incident seems to have been the most impactful in terms of the immediate behavioral consequences. A brief mention of this case will be made here in attempt to better reflect the impact of the trigger incident. Its details, though, as well as details pertaining to the incidents reported by the other participants, will be provided under the section on cognitive, affective, and behavioral responses to the trigger incident. Responses of the participants are labeled with numbers 1 through 8, representing each participant based on their order of participation in the interviews. For example, the third participant interviewed is labeled P3. One final note about the reporting of interview responses is that throughout the results section, some of the student reports of incidents may repeat due to having relevance to more than one theme. As such, a single incident may be referred to as an example of several different themes.

Course Content. Some students reported on cognitive dissonance experiences involving the subject material of the course itself.

One student was disturbed to find out in her biotechnology class that animal testing is an unavoidable component of the field, and that any future career in biotechnology research would inevitably involve animal testing which she considered as involving "... values ... that I did not agree with fully" (P3). For another student taking a Contemporary Asian American History class, being presented the notion of model minority as a myth, led to a state of confusion, in which she reflected on how the negative regard she had been holding about the behavior of her parents suddenly found an alternative explanation which she wasn't sure how to interpret. The realization that her parents may have actually been under the influence of the model minority myth without knowing it, holding her to unrealistic standards and giving her a hard time while growing up, left the student uncertain about her own emotions toward her parents.

Two of the students reported feeling conflicted about having to write an essay which pressed them to express facts or theories they were not aligned with and thus felt uncomfortable having to regurgitate. For one of the students, one essay was about the principles of capitalistic economy. The student pointed out that "There was a rushed essay ... and pretty much had to write about something I didn't firmly believe in but had to do so in order to pass the class" (P3). In another instance of a paper writing assignment, in response to the follow up question about what ways she felt she wrote something that she didn't believe in, she stated that she "had to write about how there is a potential danger by letting immigrants coming to the U.S." (P3). For another participant, it was about transgender topics. The student's comment goes as follows:

Like I was less likely to write an essay expressing my beliefs about like how I think ... I was more likely to write an essay about what they discussed in class. You literally just shove the spoon right back into his own mouth like, you gave me this, I'm gonna give the same thing back to you basically. ... So I just gave it back to him. (P4)

For another student the topic was slavery in America. She explained;

For my history class, it was like the last discussion, there was one particular chapter over slavery, and one of the students, he had a different opinion [that] the owners--the slave masters, felt like didn't really treat [them that badly] because in my opinion--I feel like they do. They treated the slaves like, as properties. In his opinion, they didn't treat them like property. They knew they were human beings and what not. I just disagreed with it. Other people kind of agreed. (P8)

Classmate Behavior. For some, the incident that brought on cognitive dissonance was the behavior of the classmates either in response to a given participant's own behavior, or in response to the instructor, or the instructional content at large. Participant 1, for instance, reported having experienced dissonance when, upon making a comment during a class lecture, one of her classmates posted to all the others, through social media specific to that class, a derogatory meme as a reaction to the student's comment. Specifically, the meme read, "... didn't pay thousands of dollars to hear undergraduates' anecdotes there." Upon seeing this post on her phone right after making the comment, the student experienced a dissonance that involved a combination of negative emotions, self-reflective thoughts, as well as extreme withdrawal, each of which will be discussed in detail later. In another instance, classmate behavior that caused dissonance was when

some of the classmates severely reacted to the instructor, objecting with raised voices to the right answer of a multiple-choice question and insisting that the instructor was wrong. Upon this, the student (P1) defended the instructor and provided evidence from the textbook about why the instructor was right. A while later, she saw back-to-back postings by a peer from that class, insulting her about her behavior. This was another cause of dissonance, and the student's reaction to it will be discussed later in the relevant section.

For another student (P5), who identified as bisexual, the dissonance came about upon hearing, in a course on LGBTQ, classmates sitting together during class, making jokes which he perceived as offensive towards some individuals who identify as LGBTQ. Yet for another student (P4), seeing more students express their opinion on a controversial topic, namely LGBTQ rights, was a source of dissonance as the participant himself expected that most would refrain from expressing their ideas about the sensitive topic, as he did himself.

Participant 8, quoted above, felt dissonance upon hearing a classmate express an opinion she considered to contradict facts. Namely, the other student commented that slaves in America were not treated as property. The student observed that there were other students who seemed to agree and back that student's opinion, which further reinforced the dissonance. Another student (P6), who identified as a Muslim female, experienced dissonance upon hearing another female student who identified as a Muslim speak against an Islamic female dress code in an unfavorable manner. One other student (P7) shared her experience of dissonance upon being praised by fellow students for not having chosen abortion after an abusive relationship, when in reality she had a balanced

view of both options. The fact that she was pro-choice, but had happened to choose not to have an abortion, caused dissonance when she was praised for a pro-life decision.

Instructor Behavior. One instructor behavior which was a source of dissonance was when the student perceived the instructor as “dumb[ing the material] down” by making statements such as referring to a statistical symbol as “little x” (P1). Another instance was when the instructor corrected an essay topic which was intended to be a topic of choice in a way that the student considered “flip[ing] it around” completely, where now the essay, “instead of it supporting this,” changed in a way to now “have it support something else instead” (P1).

Similarly, another student reported on a time when he felt that the instructor was forcing a certain perspective during lecture. This was implied in the student’s description of his reaction to the lecture-related essay writing assignment and the ensuing reluctance to express his own genuine thoughts in the essay and instead to, “literally just shove the spoon right back into his own mouth like, you gave me this, I’m gonna give the same thing back to you basically” (P4). Another instructor behavior that was reported as causing a dissonance was when the student observed the instructor during a lecture on cultural differences referred to a certain African tribe in an unfavorable tone, implying racism. She describes her observation as “...and the way she said, it's just like, oh, it's just like some African tribe, you know, like some tribe in Africa. And like, the way she said, it was just kind of like, brushing it off as if it meant nothing ..., they're uncivilized, they're sort of like living in this tribe” (P7).

Yet for another student it was actually the absence of an instructor behavior that contributed to the dissonance. In a women’s studies course, during a topic on Muslim

women, a female student who identified herself a Muslim, upon hearing another student (whom she knew to be Muslim as well) make a negative comment about Islam, reported feeling discomfort and deciding not to say anything in response. She additionally pointed out that "... the teacher didn't really like say anything, either. Like she didn't like, question" (P6). Here, the student seems to have expected the instructor to open the floor for further discussion which may have facilitated her to overcome her inhibition and state her own views. The student's reference to a lack of instructor feedback points to the role of non-behavior of instructors where expected, in cognitive dissonance experiences.

Research Question 2) What are students' cognitive, affective, and behavioral responses to dissonance arousing experiences? Specifically, what information seeking behaviors do they engage in upon such experiences?

Participant reports of cognitive, affective, and behavioral responses will be reported for both the survey and interview portions of the study under each respective category. Information seeking behavior will be reported under behavioral responses.

Cognitive Responses

In the survey, students' cognitive responses were captured in the items asking whether, due to the encounter, there were any changes in their ideas, or if they made any decisions in their life.

Out of 49 respondents, 16 reported change in their ideas and/or made a decision after the encounter. The open-ended responses to change in ideas can be summarized as self-reflection, self-realization, a realization of others, contemplation, gaining new insight or new perspective or belief, a change in perspective, change in emotions, increase in self-worth or self-confidence, a new resolve, a new plan, commitment, reinforcement,

increased resolve, increased seeking, increased belief and contemplation. Participant self-reports are presented in Table 5.

Table 5

Self-reports of Participant Cognitive Responses to Dissonance Experiences in Phase 1

Change in Ideas	Change in Decisions
“It would probably have me, when/if the time comes, think the situation through and think of all possibilities.”	“To lead by example rather than forcing my beliefs upon others, especially in a crude manner.”
“Realized that religion is not rational, and cannot be defended or defeated by reason.”	“I decided that to defeat people like that, I need intelligence on my side.”
“I realized that I can’t fight hate by hate.”	“I made the decision not to trust people as easily as I used to.”
“Emotionally, yes. Because it had me contemplating a life decision.”	“Living in the immediate and acknowledging that my stances and feelings hold the same value as someone who is older or makes more money.”
“It became increasingly difficult for me to trust other men who I considered to be my friends, in fear that they may take advantage of me.”	“I’ve made the choice not to leave class early.”
“To have more value in my own feelings and that I can’t sacrifice my own freedoms for the sake of some superficial stability.”	“I decided that I would help any people I found who felt that they can’t get themselves to properly engage in the democratic process of America by suggesting to them that they can trust the words of experts who engage in the democratic process responsibly themselves. It also convinced me even more so to not behave or think negatively towards these people.”
“It strengthened my belief to set my priorities straight.”	“Yes, I’ve made more contacts and feel more comfortable networking.”
“I used to think poorly of people who I felt were not responsible enough to properly engage in America’s democratic process, and thought that the solution was for them to not be so irresponsibly lazy. However, I then realized that people who do this are certainly not necessarily nefarious and that a little bit of insight is all it can take for them to change.”	“It helped influence why I enjoy my minor: human development and family studies”
“Yes, helped me look at the industry in a different perspective.”	“It made me want to keep striving for greatness.”
“It made me feel like sneaking in alcohol was not that bad after all.”	“It made me seek my belief even more...”
“I was starting to look at different projects and experiences from different perspectives and applying to personal attitudes and goals.”	“I decided I will not rely on any one advisor or one person’s advice in

“Even the staff is not interested in my hard work, I am alone on my journey to get this degree.”

“I didn’t view those that took Adderall as negatively.”

“It changed my belief that to be successful, you would have to do everything on your own. It’s okay to have some help sometimes. It doesn’t make you less of a person or lessens your accomplishments.”

“I empathized more with the Vietnamese here.”

“He made me realize what God really means by going and spreading His word. He also made me realize what my beliefs were regarding this issue.”

general, but to seek several opinions when necessary.”

“That’s not the way to get a new Christian follower.”

“I approach life specifically in certain ways.”

“I definitely don’t see things the same way, and now I find myself being more religious overall just pondering over some questions I have about life and purpose of the universe, really theological questions.”

In the interviews, student’s cognitive responses to classroom experiences of dissonance can be summed up under thoughts of negative judgment, perceived lack of peer support, new/increased knowledge/insight/understanding, further thought/reconsideration/self-doubt/dilemma, and self-image concerns and avoidance goals.

Thoughts of Negative Judgment. These included negative judgment of peer behavior, instructor behavior, and perceived negative judgment of others towards self.

Negative Judgment of Peer Behavior. One of these judgments involved a negative evaluation of peer behavior, while others consisted of a perception of an overall negative attitude of one or more classmates. An example of the former was present in one participant’s reaction to a loud objection students in class had to the instructor’s announcement of the right answer to a test question: “... it was just rude to yell at your professor when you haven't read the textbook... they were being very rude to the professor ... it was just so disrespectful” (P1).

Another participant stated a negative judgment of behavior of some of their peers in class as he pointed out the views they expressed regarding LGBT concerns, saying, “when students or like peers who like didn't necessarily understand, they like voice their opinion to- I guess it's not- obnoxious is not the word but more so like it was really like a close minded opinion” (P5). The same participant also pointed out that when he presented his own perspective, he perceived them as “giving that like air of non-acceptance” (P5).

Negative Judgment of Instructor Behavior. Some of these judgments involved perceived coercion of a certain viewpoint, another involved perceived subtle racism, and one instance involved what the participant thought of as the instructor presenting material in a manner below the class's level. This last observation was based on her statement, “I feel like he dumbs it down, sort of ... the whole class is getting taught it in like a weird way” (P1). Regarding the perceived subtle racism, one participant when reporting on the instructor's presentation of cultural differences and practices, commented about the instructor's tone:

And so it was early on in the semester, and one of the chapters in the book was talking about how different cultures, different things, right, yeah. And so in the book, it said, in some African tribes, you have to kill a man to be considered a man. And I don't remember all the specific details. But when the lecture started talking about this, she was just like, emphasizing the difference in cultures. Like here in America, we don't do those sort of things, right. And the way she said, it's just like, Oh, it's just like some African tribe, you know, like some tribe in Africa. And like, the way she said, it was just kind of like, brushing it off as if it meant nothing. And like, the way she was just like, oh, it's just, it's just an African tribe,

you know, and it was like this idea of like, they're uncivilized, they're sort of like living in this tribe. And [my feeling] was just kind of like, can you have a little more respect. This is somebody's culture, and then [you're] forgetting about that there is violence still seen here. And a lot of people, especially here in the University of Houston, do experience that sort of violence. As far as like, gang violence, where you do have to--like initiation--you do have to do these horrible assaults in these things. And like people suffer from that every day. And it's, it's not just some African tribe, it's across the street, you know, and you have to be sensitive to all the other cultures, especially like in the place like the University of Houston, since it is so diverse, and you have so many other cultures around, that I was just kind of like, I didn't like the way she said it, I didn't like the way she came about it. And like, she just moved on with her topic. And it was just giving no importance to that other culture. And the idea that like that, like the students you're teaching to, that is their culture, you know, and they have suffered from this violence, and not just like, brush it off as if, you know, they're just, they're savages, sort of, like this idea of like, they're uncivilized. You know, it's just, it's some tribe in Africa, this isn't--this doesn't affect me, this isn't here, where we're cultured, we're civilized, we live in a society. And it's like, that still happens here. Violence is experienced everywhere (P7).

Here the participant criticizes the instructor for the tone in which she presents a certain cultural practice in a way that implies a lack of acknowledgment of the existence of different variations of the same practice in other cultures, and namely the current dominant culture. She is also criticizing the instructor for a lack of cultural sensitivity

given the presence of the diverse student body she is teaching. As such, the participant develops a negative judgment of the instructor as holding a racist attitude.

Several other reports of negative judgment of instructor behavior involved participants' perception of the instructor as imposing a certain view or way of thinking. One participant describes her experience in a class where the instructor assigned an essay for which students were instructed to initially submit a thesis that they would support. Then the instructor would edit the thesis and provide feedback to help modify the thesis before students could develop their essays. The participant reported that the instructor edited the thesis to a degree where she herself no longer endorsed it, noting that "although ... it was supposed to be like a self-chosen sort of thing" (P1).

There were other instances where participants expressed their negative judgment of the instructor behavior, in less direct and more implied manners, when reporting on a similar essay writing experience which involved suppressing the views they held. One of the participants reported as follows:

Like I was less likely to write an essay expressing my beliefs about like how I think, this is that about transgender people. I was more likely to write an essay about what they discussed in class. You literally just shove the spoon right back into his own mouth like, you gave me this, I'm gonna give the same thing back to you basically. I was not ... it would not be opinionated, ... so I just gave it back to him (P4).

His use of the force-feeding metaphor is clear in pointing out the coercion he experienced during the lecture, which then seems to have influenced how he would express himself in the essay writing as well. Similarly, another participant implied negative judgment of an

instructor behavior when reporting on a similar experience of having to write an essay where they had to express ideas they didn't endorse. She pointed out, "There was a rushed essay ... and I pretty much had to write about something I didn't firmly believe in but had to do so in order to pass the class" (P3).

In another instance where students commented on their interpretation of Plato's cave analogy, the participant commented that the instructor "... was more so ... talking at us, not with us, sort of situation ..." and that she negated student comments by saying, "It's not about that and it's like, it was just—no ... and then told us ..." (P1), pointing out how the instructor was imposing a single correct interpretation of the analogy.

Perceived Negative Judgment of Others Towards Self. In several instances, participants expressed perceived negative judgment from either peers or the instructor towards themselves. One participant expressed the negativity felt even when she was in a different class than the class where the dissonance arousing incident had occurred, due to the presence of classmates from that other class. She remarked, "it was still the same judgment, sort of" (P1). Another participant pointed out that as a bisexual in an LGBT course,

classmates and I would voice my opinion but at the end of the day like my opinion to them means nothing ... like I guess my ethnicity and my race too--I feel like I don't like [slight suppressed giggle] like if I like voice my opinion towards someone who's like, I guess like Caucasian, I feel like my opinion isn't going to be as valid. (P5)

In another instance, one of the participants held herself back from responding to the instructor regarding what she considered was a culturally insensitive remark with the

belief that her student role would prevent the instructor from valuing her opinion. She reported having thought, “Is she really going to listen to a student?... Would it really change her mind; would it really make her see the difference” (P7).

Perceived Lack of Peer Support. Several of the participants commented on the social support dynamic in the classroom at the time they experienced dissonance. Several of these were very direct in pointing out the influence of social support in their level of confidence about maintaining or expressing their stance about a given matter. In one participant’s response however, this influence was less explicitly stated.

One participant, after seeing derogatory comment about student participation, in the social media platform for their classroom, stated, “So I typically I raised my hand, it's not like I was interrupting the professor, so I knew I was in the right but the lack of support I had in the group messaging was surprising and so I felt uncomfortable” (P1). Similarly, another participant, when explaining some factors that made him avoid expressing his views, mentioned: “I was not very comfortable talking about my views on the issue ... to take a side and I’m in a situation where I’m not just debating with one person ... debating with the entire class” (P4). Another participant also pointed out the element of social support influencing his decision regarding participating in class discussion. He stated, “If I voice my opinion towards someone who’s like, I guess like Caucasian, I feel like my opinion isn't going to be as valid unless I have like a group of people like backing me up so if I'm the only one like in the classroom saying this is like ... I don’t think like my opinion will matter” (P5). Finally, one participant was not explicit in pointing out the influence of perceived peer support, although her remark

about a comment another student made did imply it: “I just disagreed with it. Other people kind of agreed ...” (P8).

New/Increased Knowledge/Insight/Understanding. One participant reported regarding the conflict between her personal experience and the newly learned material in class;

My parents ... were so strict. But and I always attributed this like, oh, it's Asian culture. It's just their own problem ... but what my professor said was like, they treat you like this because they want you to be better because of the like the standards of the model minority myth that's so prevalent among Asian Americans that they have to push you so hard to that extent ... So yeah, that was a new insight that I gained... at a more personal level I think that I have a lot more understanding of my parents. (P2)

Another participant reported on increased awareness of the consequences of speech. She pointed out, “... just becoming more aware of just like how your words are perceived, because, you know, I don't think that she did it maliciously ... I don't think that she was like openly being, you know, racist or anything. But it was sort of like a racist view that she had” (P7).

Further Thought/Reconsideration/Self-Doubt/Dilemma. For one participant, the dissonance involved a dilemma about how to make sense of the new information she was exposed to, and further a reconsideration of her ideas on the matter. She described her thought process as follows:

In my head I was like two different battles going on. It's like, oh, no your parents are doing this because it's like, it's their personal problems, not because of society-

cuz I always grew up knowing, thinking that America was like, all good and what not. So it's uneasiness, and I just had to rethink a lot of things. Um, yeah it's just a social conflict going on in my head, because I don't know who to blame at that point. (P2)

Another participant, after hearing a classmate reject the notion that slaves were treated as property, explained her thought process as follows: “I was also trying to understand ... what he’s saying, trying to see it from his perspective. Like, maybe I was wrong ... for like, feeling this way” (P8). It is interesting to note here that she uses feelings and thoughts interchangeably. In her initial reporting of the incident she had stated,

There was one particular chapter over slavery, and one of the students, he had a different opinion. The owners--the slave masters, felt like ... they didn't really treat- because in my opinion- I feel like they do. They treated the slaves like, as properties ... In his opinion, that like, no ... they didn't treat them like property.

They knew they were human beings and what not. I just disagreed with it. (P8)

After having initially referred to her peer’s statement as well as her stance as an “opinion,” she uses the word “feeling” to express herself. Similarly, she is questioning herself about how she “feels” about this matter.

Self-Image Concerns and Avoidance Goals. Two related themes emerged out of almost all of the participants’ responses regarding their choice to hold back their reactions to the dissonance arousing incidents. One was a general tendency to avoid certain outcomes, and the other was more specifically to avoid being perceived in a certain way. As such, five out of seven participants who stated that they held themselves

back from expressing their thoughts in response to the dissonance arousing experience reported a motivation to avoid a certain self-image.

One of these avoided self-images was standing out as joke material in class. One participant avoided dropping out of the class group messaging--as a reaction to what she considered inappropriate remarks from classmates--out of fear of standing out. She stated, "So when the first person left [the group's message string] after standing up for students who talked, people liked it--liked that she left--and I didn't want to be one of the students that ... got made fun of in absence just because I wasn't there. You know? ... So I didn't want to stand out any more than I already did. So I'm staying in the group" (P1). Similarly, another participant avoided voicing his opinion, pointing out, "I don't want to be like, the next joke or I don't want to be like, oh, that kid who was like super defensive in this class and this and that and just like, be known for that" (P5).

Another of such self-images was being perceived as an offensive individual. One participant avoided voicing his opinion during a class discussion on transgender issues, afraid to "sound too harsh ... a little bit too insensitive" (P4) given the presence of a classmate whom he knew identified as transgender. Similarly, another participant who identified himself as bisexual stated that he stayed away from talking about his personal experience at occasions of personal disclosures during class, in the presence of a certain classmate he himself had developed hostile feelings against due to having felt hostility from him. He pointed out, "I guess like, I don't want to be perceived or where I'm going to be like taken as this like offensive person" (P5). On a separate occasion where students were required to write an essay on vaping after having heard the instructor voice views against vaping, the participant stated that he avoided voicing his real opinion in the essay

pointing out, “it’s not like you want to just outright [come across as] exact opposite from somebody” (P4), making reference to the course instructor.

Participants expressed avoiding being labeled with regard to their self-image. One of the participants, while explaining why she chose not to respond to a classmate’s remarks pointed out, “And then it was also like a woman's class; I didn't want to seem like I was like anti-feminists, because obviously I'm not” (P6). Another participant explained how she held herself back from commenting on what she considered a culturally insensitive remark by listing a host of labels she avoided. She stated:

...sort of like this idea of like, you know, the girl that's like, aaah, you know, everything has to be politically right. And sort of like, there's like, that looked down upon of, like, if you mentioned something, it's just like ah, just another crazy feminists or like, that idea of like, you know, if a woman's loud or not, that, like, people aren't going to judge me about like, about being woman or anything, but it's like ... It's like, you know, when people say, like, oh, there goes that crazy liberal, you know, it's not that I'm trying to be ... on a political side here is just being culturally sensitive, shouldn't be a political side (P7).

Similarly, another participant pointed out how he avoided elaborating too much on his own views on LGBT issues “and not just come out really like, really like left sided on the whole situation” (P5).

In addition to avoiding certain labels, participants expressed a range of other avoidance goals as well. Some participants expressed fear of being wrong about the opinion they would provide during class discussions. One of the participants pointed out that he avoided speaking up to defend a certain marginalized group out of fear he might

“say something ... that would make the situation worse because I could be like, I could be not well informed about something and then like, turns out like the other person who knows a lot more than me and they end up like, I feel like, probably [out of] my place” (P5). Similarly, another participant mentioned there were times when she doesn’t “feel like educated enough about the topic... Like sometimes there were discussions where I just didn't know enough to like put my own input in” (P6). Another participant commented on her hesitation to speak up against something that she thought to contradict historical facts saying, “I didn't say anything. Because I, I didn't know how to word it or how to say ... I wanted to say something. I was just too anxious to say something ... I was also trying to understand ... what he’s saying, trying to see it from his perspective. Like, maybe I was wrong ... for like, feeling this way” (P8).

A couple of participants expressed hesitations about the fit of the given classroom setting in expressing their opinions. One participant pointed out, “I didn't feel like that was the time and place to argue with her” (P6). Likewise, another participant said, “But I just felt like, when you're in class, everybody really worries about like, what's going to be on the exam. And so, I didn't want to speak up and bring up this topic of issue when ... in certain classes, ... we do have open discussion, it just felt like I would have been disrupting class” (P7).

There were reports of various other avoidance goals. One participant stated that although she disagreed with the comments of another classmate, “I didn't want to like, force my opinion on her so then I didn't say anything” (P6). One participant mentioned avoiding self-disclosure in a setting such as the classroom where social bonds are weak. He pointed out how he was unable to be open about his thoughts and feelings to someone

he felt was very different from him, contrasting him with his close social circle saying, “My friends would be like, no, I mean, just like, totally be myself with them” (P4).

Finally, another participant brought up how he refrained from voicing his opinion due to wanting to avoid any explanation that would imply neediness. He pointed out, “I like explaining myself, but I don't like explaining myself to receive validation” (P5).

Grade Worry Influencing Quality of Class Engagement. This particular avoidance goal among the cognitive responses was interesting to highlight under a distinct heading because it is one that the participants themselves explicitly linked to a significant withdrawal behavior (i.e., superficial engagement with class material) which will be reported next, under behavioral responses to the dissonance arousing experience. One participant, in describing her dissonance expressed, “There was a rushed essay ... and pretty much had to write about something I didn't firmly believe in but had to do so in order to pass the class” (P3). Another participant, when asked whether the experience affected the way he interacted with class material, said, “So when I wrote my essay, I'm not going to write a joyful song about vaping. Because I know the professor is going to grade it, you're more likely to wanting to impress the professor, because he's the one grading the paper” (P4). Finally, another participant commented on how he engaged in classroom discussions saying, “Like I'd rather just like, sit down and just do my work and just like discuss whatever I needed to for the grade” (P5).

Affective Responses

In the survey, students' affective responses to the dissonance arousing experience were captured in one closed-ended item asking, “Overall, how would you describe this

experience?” and a follow-up open-ended item asking for elaboration on what makes them describe the encounter in that way.

Out of 49 respondents, 19 reported experiencing “overall positive” affect; 16 reported “overall negative” affect; 11 reported “almost equally positive and negative” affect; 6 reported “not really positive or negative” affect.

A thematic analysis of the follow-up responses of those who reported overall positive affect showed reasons such as the incident creating a sense of comfort after seeing others approve of and support the individual’s self-identity or self-efficacy; discovering something about the self upon challenging a bias or witnessing differences of values and beliefs, or upon experiencing personal inconsistency or emotional conflict due to external pressure; discovering something about the other upon acknowledging value differences of the other or upon experiencing reinforcement of self-belief through others’ beliefs, or witnessing the unfamiliar or the unexpected; appreciation of the moment upon observing a sense of love; experiencing a sense of self-enrichment or reinforcement upon resolving conflicting emotions, thoughts or beliefs, or upon witnessing something unexpected; and experiencing self-challenge upon a competing need versus value.

Those who reported having overall negative affect stated reasons such as experiencing disapproval, discomfort, sadness, or uselessness upon witnessing offensive acts or speech of others directed towards others or the self, or upon witnessing belief or value difference; discovering something about the self or the other upon exposure to unexpected insight or experiencing discontent with needed service; experiencing self-disapproval or self-deprivation upon acting inconsistent with own value; experiencing

evaluation or correction of the other; and experiencing personal involvement regarding difference of view due to recollection of past trauma.

Participants who reported having experienced both negative and positive affect equally stated reasons such as experiencing a sense of comfort upon receiving non-judgmental treatment from the other where it would normally have been expected; experiencing new learning despite initial perceptions of biased teaching; experiencing disapproval from the other while reflecting on the potentially inspirational effect of their own open disagreement; acknowledging other's proactivity despite categorical disapproval of their actions; observing other's judgment of self; self-realization or learning of personal inconsistency or change in perspective; sense of joy from experiencing initially self-disapproved action; realization of presence of stress due to adopting unhealthy outlets in coping with others' expectations.

Finally, those who reported having experienced neither positive nor negative affect stated reasons such as having indifference or indecision about the subject matter despite the behavior or speech having caused dissonance; observing others' positive responses to dissonance arousing experience; not having ever experienced dissonance; having experienced discomfort upon engaging in offensive speech in response to others' offensive speech.; experiencing unexpected self-consistency upon encountering difference of belief.

In the interviews, student's affective responses to classroom experiences of dissonance as reported in the face-to-face interviews involved a wide range of emotions. Most of these could be described as negative emotions such as discomfort, anxiety, anger, embarrassment/feeling small, sadness, frustration, feeling suppressed, feeling annoyed,

and unpleasant surprise or shock. There were also other more ambiguous affective responses such as confusion, hesitation, and lack of courage.

Discomfort. Nearly all the participants reported having experienced some form of discomfort in response to the dissonance arousing incident in the classroom. One participant frequently named it:

and so it wasn't really appropriate and I was uncomfortable I left ..., and it just it made like me feel uncomfortable ... I didn't talk at all ... so I felt uncomfortable. And so she flipped through like three more slides and then I left ... I was uncomfortable about going back to class. I didn't want to go back to class ... knowing that there's a little bit of everybody [i.e. from the class the incident happened in] sprinkled everywhere ... It was just uncomfortable ... she [the offender] was saying how like, it was rude of me to say that, and it made me uncomfortable ... so I was more comfortable being in there [in class, when I knew] she wasn't in there ... (P1)

Another participant commented that “It was obviously uncomfortable” (P3) for her to have to work in groups to write collectively on a topic with students who she knew had very different opinions than herself. Another participant responded, “I was not very comfortable talking about my views on the issue of transgender ... issues. So because I knew if I actually said what I wanted to say, I would sound a little bit too insensitive--a little bit too harsh to the person” (P4). Another participant described the overall classroom environment he was in as “really feeling uncomfortable having that type of like air in the environment but it’s just the course is like--it's supposed to be more I guess a more accepting environment than other classes” (P5). Similarly, one participant talked

about her unease regarding comments made by a classmate saying, “And it just was like discomfort, because--but I didn't want to like, force my opinion on her so then I didn't say anything” (P6). Finally, another participant expressed her discomfort during the class indirectly by pointing to how she felt the opposite when she went to share the incident with her father after class. She explained, “I think, I didn't feel as uncomfortable as I felt in class ... like a release kind of thing” (P8).

Anxiety. After one of the participants defended the instructor regarding the answer to a test question her classmates were objecting to, she stated, “And to say they're wrong in front of your class. It's putting yourself out there a bit. And it made me you know, nervous ... It made me really anxious because I, I like that class. It only happened once a week. It's three hours. And not only that, but I waited. I have a four hour gap” (P1). Another participant pointed out how her anxiety prevented her from responding to the comment made by a classmate who she disagreed with. She said, “I wanted to say something. I was just too anxious to say something” (P8).

Anger. In response to the significant revision in content that the instructor made to the participant's thesis topic, she pointed out, “I know it made me sort of angry, because I don't get angry. Because I wanted to write about it [the thesis used to write the assigned essay], and I thought it was self-chosen, but it wasn't self-chosen” (P1). Another participant shared how he was surprised to observe himself exhibiting anger towards a classmate over the course of the classes they shared due to the negative judgmental attitude he was receiving from this classmate. He pointed out, “... six weeks and like having that person, my like personality changed from like being like a super like nice person to a ... hostile person towards him (P5).

Sadness. After seeing insults directed at herself in the class group messaging, the participant stated, “it made me cry” (P1).

Embarrassment/feeling small. One participant, after having to correct her peers during a disagreement between the class and the instructor, she shared having “felt small,” especially after seeing a very long classroom social media comment directed at her (P1).

Unpleasant surprise or shock. One of the participants shared that “once it was mentioned in class that there was a needle involved in animal testing for ... I think it was a protein or something along those lines. And that the needle had to be inserted into an animal's eye directly ... I felt a little shocked. I thought that there would at least be some sort of anesthesia placed in the animal before but apparently there wasn't” (P3). One commented about people participating in a discussion on transgender issues, “It was surprising--I find it more surprising that people were siding--like not ‘siding’ siding, but people were, majority was more open to the discussion than ... [slight pause] ... than expected” (P4).

Frustration. One participant, when commenting on the overall negative attitude he perceived from classmates, said, “It frustrates me knowing that this person or like any other individual doesn't like want to grasp like my perspective ... very like frustrating having like, having to explain myself from like a very young age like middle school, high school, and then coming to college. And it's like, am I really [very slight giggle] having this conversation again ... and it's like it's very much frustrating because I came to college, thinking like people are going to be opinionated but people are going to be respectful, people are going to be more mature, but it's like the complete opposite” (P5).

Feeling suppressed. The participant who had seen a negative comment in the class group messaging after she responded to the instructor's question in class pointed out, "I answered the questions. And in return, I got shut down." She further reported that after this incident, she tried actively not to participate in class. She commented, "I have to actively ... not. So it's not just me [pause] not participating. It's me saying, okay, 'don't raise your hand' sort of situation. It's not something that's just happening naturally. I have to actively work on not raising my hand to speak" (P1).

Feeling annoyed. One participant also expressed feeling annoyed when she heard the instructor's tone when discussing a foreign cultural practice. She said right at the beginning of the interview, just having started to talk about the incident in class, she said, "I felt, I don't know, kind of annoyed with how she said it, how she came about it" (P7).

Confusion. The participant who reported on a classmate's comment about slaves not having been treated as property as her classroom dissonance experience, pointed out how despite not agreeing with the classmate, she remained silent. In sharing her feelings, she indicated, "Aah, I didn't say anything. Because I, I didn't know how to word it or how to say ... I wanted to say something" (P8). Further, the participant who had experienced dissonance in response to the negative comments from a Muslim female classmate about the Muslim covering for women, described her feelings as follows: "The reading was just about, like, how there's different kinds of Muslim woman. And so I felt like, I felt like what she was saying was kind of counterproductive to literally what the reading was, because the reading was like telling you like there are this kind of women and there's this kind of women. And she was like, I don't like how it [Muslim female covering] expresses us. So I'm just like ... confused. And I didn't know what to say" (P6).

Hesitation / Lack of courage. Participant 8 also mentioned that even for other chapters following the chapter on slavery, she felt hesitant and somewhat unable to bring herself to share her comments. She pointed out, “It takes me a while to like build up what I want to say ... it could be something simple but to me ... (P8). For another participant, a hesitation to participate was due to her assumptions about the potential usefulness of her comment in changing the instructor’s perspective on what she considered to be a culturally insensitive, if not racist remark. She explained her thought process as follows:

And it was just like, what could I do? I don't, I don't know if it would have been right to say that in class and just kind of be like, hey, you know, because I didn't know, would it really matter to the lecture that she was talking about first off, and then um, I felt like I could have maybe e-mailed her and then like, Hey, I don't think you [were factual]. But would it really change her mind, would it really make her see the difference. And so ... I don't know if I'm using the right term but it's like, you're not being politically correct, I guess. But do you think that they will care? You know, is it really going to change the way she views things? Because she is already a professor teaching, like, if she didn't already become aware of how insensitive she is, by then, is she really going to listen to a student? You know what I mean, it's not just kind of like, there's just like, certain types of people that are never going to get it, because they've never experienced it themselves. And they have lived a more privileged life. So it's like, it's harder for them to become aware of, I guess, their privileges if that make sense. (P7)

Similarly, another participant pointed out how she was hesitant about the appropriateness of setting, as well as the receptiveness of the classmate she wanted to

respond to. She held her comment back, saying, “I just didn't feel like that was the time and place to argue with her ... I'm sure she's already had, like, I'm sure she thinks she knows what she's talking about” (P6).

Behavioral Responses

In the survey, students' behavioral responses were captured in the items asking whether due to this encounter, they chose a) to do or b) not to do something different in any area of their life that they otherwise would not have/have done. Out of 49 respondents, 11 answered yes to the former and 9 answered yes to the latter. Out of all of these, based on self-reports of the change expressed, 9 denoted an actual change in behavior, whereas the other statements, despite the item asking for behavioral change, denoted a change at the level of cognition only, such as ideas, decisions, plans, or even self-reinforcement or reflection on the behavior of others.

Also, an open-ended item asked about whether participants engaged in any information seeking efforts as a result of the dissonance experience. Out of 49 participants, 11 reported engaging in efforts to seek information regarding the conflicts. These efforts predominantly involved reaching out to external sources, with two unique information seeking processes. The external sources consisted of research, Google searches, article searches, reaching out to peers, professionals, advisors, more knowledgeable others, bible group, and other people at large.

One unique source of information indicated was “others in need.” This was expressed by a participant who had experienced dissonance upon witnessing the unexpected magnitude of help people provided to the victims of Hurricane Harvey. For this participant, a recognition of the state of people in need was a source of insight.

Another unique response to the question on forms of information seeking was “self-reflection.” For this participant, the internal process of self-reflection seems to have functioned as a source of information. One common element of both these responses is that they involved drawing from internal resources in the sense that the former incorporated insight gained from an observation, and the latter, some form of introspection upon experiencing the dissonance.

In the interviews, participant reports of behavioral responses to their dissonance arousing experience revealed a spectrum of disengagement behaviors related to class as well as more proactive behaviors. The following subsections start with reporting on the proactive behaviors, and continue with the withdrawal behaviors.

Proactive Behaviors. Students reported on proactive behaviors such as engaging in raising awareness and information seeking behaviors in response to their dissonance experience. Proactive behaviors were reported across all categories of dissonance experiences; classmate behaviors, instructor behaviors, and course content.

Raising awareness. One participant reported that as a result of the dissonance she experienced in class and the research she did in order to resolve it; she was motivated to raise awareness about this topic. During the interview she mentioned this as one of factors that drove her to decide to participate in the present research. She stated, “... and another reason was because I want to ... raise awareness of the issue” (P2).

Information seeking behaviors.

Several forms of information seeking behavior came out in the one-on-one interviews, namely reaching out to others, and doing research. There was also one unique

response which could be considered as a form of drawing information from internal resources.

Out of these, doing research was a form of information seeking expressed by one of the participants (P2), in response to what she perceived to be a discrepancy between the course content and her own personal experience of minority status. Upon finding out about the notion of “the model minority myth” and seeing it as an explanation of how certain minorities come to develop, through societal factors, an unrealistic expectation for themselves and their families to serve as model prototypes representing their minority identities in flawless ways, the participant expressed her confusion about how to interpret her own family’s high pressure exerting expectations of her. On the one hand, she had a lot of built up resentment towards these expectations which she constantly felt unable to accomplish, and thus had developed somewhat of a blaming attitude with regards to her parents’ parenting style. On the other hand, now having found out about the “model minority myth,” she considered whether this somehow societally imposed notion was responsible for her parents’ approach to parenting and that their behavior could be explained as a consequence of being under its influence as opposed to any blameworthy motivation on their part.

In response to this dilemma, one thing she expressed doing was further researching the “model minority myth”. As a response to the question further inquiring about the more specific way in which learning about the idea of the model minority myth involved dissonance for her, she pointed out, “... it's just something new that's brought into my mind. So I didn't disagree with it. But once I did a little bit research myself ... I started to agree”. She seems to have initially intellectually reacted to the idea when it

was first introduced during class, given her personal negative emotional experience of parents' parenting. However, after doing more research, she seems to have found the idea convincing. Regarding the process of dissonance and how learning more about the notion helped her interpret what she learned in class, she pointed out:

But and I always attributed this like, oh, it's [Asian] culture. It's just their own problem. That's why they treated me so badly. But what my professor said was like, they treat you like this because they want you to be better because of the like the standards of the model minority myth that's so prevalent among [Asian Americans] that they have to push you so hard to that extent. But at the end of the day, I think my parents still love me. So yeah, that was a new insight that I gained. (P2)

Here, the information she gained from further researching seems to have helped resolve the dissonance stemming from the discrepancy between her emotional reality based on her personal experience and the class content providing a rational argument for her parents' behavior which enables an acceptance of the behavior, serving to somewhat preclude the negative emotions that accompanied a sense of blame.

Another participant (P7) reported that the dissonance arousing incident prompted her to do more research on African culture and heritage. Upon experiencing cognitive dissonance due to what she perceived to be a subtly racist remark by the course instructor about African culture, the participant reflected on racism within her own community, namely the Hispanic community, and pointed out, "Latino culture can be racist" likely making reference to African culture as the target of racism, as her next remark was to

point out how she became interested in exploring African heritage as it relates to Latino culture. She stated:

I really became more interested as far as like, not Africa, but sort of like African heritage. And so what that means as far as like Latino culture, and bringing that into Latino culture, because it is so heavily influenced by, you know, African heritage that came over through slavery and everything like that. And so, at that same semester, I started taking a class of Latin American history. And so I became really interested in like, that sort of heritage that came over from that side. So not necessarily because I--well, I don't know--maybe it was influenced by that event. But later on, I just became so much more interested as far as like, valuing so much that came from that region, you know, and so I really, I guess, opened my eyes a lot more to like, the importance of it. (P7)

Another form of information seeking found in the interviews was reaching out to other people, namely family members for the participants in this set of interviews. One participant (P7) mentioned going and talking to her sisters about the dissonance arousing incident:

And so when I ranted to my sisters, and I texted them I was like, I can't believe it, like, you know, you wanted, not that you want to believe it not to be true, or that your stereotypes or prejudice are true, but like, you don't want it to be true. And then it was true. And it was just like, how can you be in such a diverse university, in such a diverse city, to live here and not be culturally sensitive, and to not realize what you're saying and the depth of your words. (P7)

Although she insistently described this as “ranting”, her sending a text message to her sisters right after the incident of having heard the instructor’s racist remark, confirming her prior bias towards people of a background similar to that of the instructor, seems to have served a search for validation.

For another participant, it was talking to her father about the incident. Upon hearing another student negate the idea that slaves in America were treated like property, the participant experienced dissonance and felt “too anxious to say something” (P8). As a way to resolve this dissonance, she reached out to her “... dad ... to get his opinion ... and what he thought about the situation, and to, you know ... asked him to give me like ... was I in the wrong for feeling like that?” (P8). She reported this to serve as a form of release in pointing out, “I didn't feel as uncomfortable as I felt in class ... like a release kind of thing” (P8).

One unique response was a negation of needing to search for any information. This participant, identifying as a Muslim woman who does not observe the Muslim covering, reported experiencing dissonance as a result of hearing another female Muslim in the class, also not observing the Muslim covering, comment negatively on the Muslim covering. In response to the question about whether she researched anything after the incident, responded by saying, “Not really, just because I feel like I kind of knew enough just growing up Muslim and like, having my own opinions about this. I didn't really need to do any—any more research” (P6).

Disengagement Behaviors. Participants reported on several forms of disengagement behaviors that occurred as a result of the dissonance they experienced during class. These ranged from attempts to completely avoid the classroom environment

and/or avoiding classmates; disengagement from class participation or class material either fully, or more in the form of superficial engagement. The disengagement behaviors occurred across all categories of dissonance experiences, that is, in response to peer behavior, instructor behavior, as well as course content.

Avoidance of class environment. One of the participants, due to feeling singled out in the class messaging after her class participation, actually requested to switch to another class, in an effort to remove herself physically from that specific classroom environment. She explained, “I was uncomfortable about going back to class. I didn't want to go back to class ... I messaged her to see if she had a different class, I could attend a different lecture time” (P1). She further explained that because that was the only section offered, she had to continue to attend the same class. In another instance, she once again felt singled out when she had to go against the rest of the class in defense of the instructor regarding a test question.

Both of these experiences developed a sense of unease for her, not only in the particular classes these incidents took place in, but in all other classes with students from those classes. After listing two different classes which shared students, she pointed out, “because of similar people in both ... It was still the same judgment, sort of ...” (P1). Even waiting for those classes to start out in the hallway with the other students of that class became a source of anxiety for her. She pointed out, “waiting outside those classrooms is like nerve wracking because I don't want to talk to them” (P1). Similarly, another participant expressed his avoidance of certain people in the classroom whom he perceived to hold a negative judgment about his identity, stating, “I'd rather just like walk the other way and just like not deal with it” (P5).

In response to a separate instance of dissonance where one of the participants expressed frustration with the instructor's style of what she referred to as "dumbing down the material," she pointed out that one way in which this affected her involvement in class was that she doesn't "usually go [emphasis] to that class anymore" (P1).

Disengagement from Class Material. In addition to avoidance of the class environment in general, and classmates, some participants also reported disengagement from class material and participation. For several of these participants, disengagement seemed to follow from discouragement due to variety of factors such as hesitations about decorum and utility value. For others, it took the form of active avoidance. Yet for others it was more related to loss of focus due to high emotional involvement. Finally, for others it was related to a loss of interest in the class due to a loss of valuing the instruction.

For one participant, the questioning of whether her comment would be useful in addressing what she considered the instructor's cultural insensitivity stopped her from voicing her opinion. She explicitly stated, "I wanted to say something to her. And I didn't. And I just, I've always thought about that" (P7). In response to a negative comment a classmate made about the Muslim female covering, another participant said, "But I didn't want to like, force my opinion on her so then I didn't say anything. So then I just kept shut and like, the teacher didn't really like say anything, either. Like she didn't like question" (P6). She further expressed how although she had things to say in response to her comment, she avoided voicing them. She pointed out:

She was like, you know, I am Muslim, but I just don't agree with how Islam forces women to like, dress a certain way. And I just wanted to be like, it doesn't force us to dress a certain way because I clearly don't wear a hijab. And like, she

didn't wear a hijab. It's like, how does it force you if you--if you have free will?

So it was just ... but I didn't like, say anything. (P6)

For several of these participants, disengagement from class took the form of active avoidance of participating in class. One participant pointed out regarding contributing to class discussions with personal experiences, "... and it's like that [very slight giggle] stop myself from ..." (P5), referring to talking about another part of his identity, talk which he considered a further psychological burden. He pointed out, "I try not to disclose my religion with the conversation because then there goes another topic about, it doesn't make any sense how you're a part of the LGBT community but then you're following God and the scripture says otherwise" (P5). Here the active avoidance is evident in his words, "stop myself from ... I try not to disclose" (P5). Another participant herself identified her active avoidance behavior and reported on it. She said, regarding one occasion of participating in class with a comment and seeing the offensive class social media remark afterward, "I haven't spoken in any of my classes since. So I haven't participated, because I typically am an active student participating and responding and what have you, but I haven't." She further described her experience in detail:

I just know that participating is sort of natural for me. So I have to actively ... not. So it's not just me [pause] not participating. It's me saying, okay, 'don't raise your hand' sort of situation. It's not something that's just happening naturally. I have to actively work on not raising my hand to speak ... I really had to restrain myself from like, speaking, and only speak when it was necessary. (P1)

The same participant pointed out how these experiences also affected her attention and focus in class. After the group messaging incident in which she felt singled out and

offended, she reported that she left the class after several slides and that when she went back to catch up on them, she stated, “I tried really hard to like, look and take notes and like, see what I was doing and like to see it, but I was just so caught up in my thoughts ...” (P1) After she describes her inability to focus on the slides after class, she pointed out a realization she had about her engagement with slides presented during class:

I noticed, ever since then, I've had my laptop out for the PowerPoint slides, and I haven't been looking up ... No longer looking up at the PowerPoint slides but, down at my computer ... from my own laptop instead of looking up and I don't know why. But I noticed that two days ago. (P1)

In another instance, when the instructor corrected the participant's interpretation of the Plato's Cave analogy, suggesting that there is a single correct interpretation, she pointed out, “and I didn't engage after that. Because there was no point if you're going to get shut down” (P1). In response to a separate classroom encounter mentioned earlier, involving what she considered to be the instructor's underestimation of the students' intelligence, the same participant stated, “Well, I don't really take notes in that class anymore, because it's pointless ... and when I read the textbook, I don't take many notes. So it's my least note written class” (P1).

Another participant pointed out how after observing what she considered a racist remark from the instructor in a class covering cultural differences, commented on her loss of interest in the class. She explained, “... I left that class, immediately afterwards, and I sort of lost interest in that class, because it was just like, how am I going to learn about

cultures and environment from this person who's like not even culturally sensitive" (P7).

Superficial Engagement with Class Work. Participants also reported on other instances where although they continued engaging with the material, this engagement lacked any genuine involvement and served practical purposes. One participant reported on a group essay assignment project in which students were placed in groups consisting of individuals who had opposing views on the given topic. In preparation for this paper, when the instructor formed groups for students to engage in discussion, she described their group interaction as follows:

We decided that we just have to work on the paper and only on that and to try to minimize the amount of personal beliefs like, ... like we try not to talk about the topic ... and more or less, it got to the point where we just had to e-mail each other each other's, like body paragraph ... and just look at basic, basic review, such as grammar and spelling. And if that was all right, then it was okay to submit it to the professor. (P3)

Similarly, another participant reported on an essay writing experience which involved an intentional inhibition of expression of their opinions. The participant described it as follows:

I was less likely to write an essay expressing my ... I was more likely to write an essay about what they discussed in class. You literally just shove the spoon right back into his own mouth like, you gave me this, I'm gonna give the same thing back to you basically... it would not be opinionated, it'd be subjective ... so I just

gave it back to him [without providing any] personal opinion ... I totally distanc[ed] ... myself from the essay. (P4)

Regarding another task which involved expression of opinions, but in the form of participation, one participant described his engagement as “Like I’d rather just like, sit down and just do my work and just like discuss whatever I needed to for the grade” (P5). Finally, another participant explicitly stated how she limited her engagements with class to as much as needed for grades. She said, “I still engaged in like, the material as far as like my grades, but like, attendance wasn’t mandatory. So, why go anyways” (P7).

Research Question 3) Are there any significant systematic relationships between any features of the dissonance experiences and students’ cognitive, affective, and behavioral responses to them?

This question applied only to the categorical variables in the survey portion of the study. To answer this question, an exploratory series of chi-square tests of independence was conducted on all variables which corresponded to all items on the survey which appeared after the initial open-ended item inquiring about the critical incident, in order to explore any significant relationships. To this end, while some of the variables were used as originally created in a way that corresponded one-on-one to the items on the survey, others were either newly created or recoded based on data from a combination of items on the survey. The following table presents the corresponding items to the variables analyzed, the binary variables used in the chi-square analysis, and the corresponding explanation of each coding.

Table 6*Coding and Recoding of Variables from Phase 1 Used in the χ^2 Tests of Independence*

Corresponding Item number^a	Binary Variables	Explanation of Recoding
2 (p.6)	<i>Positive affective responses</i>	Any response containing positive affect was collapsed and recoded as a binary variable. All responses which contained “Overall positive” or “Almost equally positive and negative” were assigned a value of “1”, and all other responses, “2”.
	<i>Negative affective responses</i>	Any response containing negative affect was collapsed and recoded as a binary variable. All responses which contained “Overall negative” or “Almost equally positive and negative” were assigned a value of “1”, and all other responses, “2”.
3 (p.6)	<i>Self-developmental references</i>	Open-field responses to the follow-up question on affective responses were coded as a new binary variable. All responses which contained reference to some form of self-developmental gain were assigned a value of “1”, and all other responses, “2”.
5-8 (p.7)	<i>Any change</i>	Responses to all four items inquiring about a change in ideas, decisions, or behaviors were collapsed and recoded as a binary variable. Each set of responses (by a given participant) containing a “Yes” to any of these four items were assigned a value of “1”, and all other responses, “2”.
10 (p.8)	<i>Non-course involvement</i>	Responses to the item inquiring about whether the dissonance experience involved any course were coded as a binary variable. All “N/A” responses were assigned a value of “1”, and “Yes” responses, “2”.

^a See item order for corresponding item number on the original survey (Appendix A). The original survey does not incorporate item numbers. The item numbers listed here correspond to the items in the order they appear beginning right after the consent item. Page numbers of the items are noted in parenthesis for ease of reference.

Based on results of a series of chi-square tests of independence, the following relationships were found to be significant, with medium to large effect sizes based on Cramer's V values.

Positive Affective Responses and Any Change

Positive affective responses to the dissonance arousing experiences were related to any cognitive or behavioral change, $\chi^2(1) = 4.18, p < .05$, Cramer's $V = 0.3$. In other words, more people who expressed any positive affect as a result of the dissonance arousing experience also reported on a change in either their ideas or decisions they have made due to the encounter, or any behavioral change they exhibited as a result of the encounter.

Negative Affective Responses and Non-Course Involvement

Negative affective responses to the dissonance arousing experiences were related to non-course involvement, $\chi^2(1) = 5.82, p < .05$, Cramer's $V = 0.3$. More people who expressed any negative affect reported on an experience that did not involve any course. In other words, more of the negative affect arousing experiences involved an experience that was outside of a course setting or content.

Positive Affective Responses and Self-Developmental References

Positive affective responses to the dissonance arousing experiences were also related to self-developmental references in the follow-up open ended responses to affective responses, $\chi^2(1) = 16.6, p < .001$, Cramer's $V = 0.6$. In other words, more people who experienced any positive affect provided a self-developmental reference when elaborating on their affective response.

Self-Developmental References and Any Change

Self-developmental references were also related to any cognitive or behavioral change. $\chi^2(1) = 8.05, p < 0.01$, Cramer's $V = 0.4$. In other words, more people who made self-developmental references in their affective responses reported on having experienced change either in their ideas, decisions, or behavior, due to their dissonance arousing experience.

Chapter V

Discussion

Overview of Study Objectives

The overall objective of this study was to explore cognitive dissonance experiences of college students in a highly diverse setting, with reference to potential implications for their learning. Toward this end, the first goal was to explore the range of topics important to college students, identifying critical incidents that triggered experiences of cognitive dissonance for each student, and exploring the various settings and contexts in which these experiences occurred. These topics have potential implications for informing instructional content and processes in higher education, considering the notion that learners must personally relate to and value a given content in order for them to construct their own meanings (Poplin, 1988). The theory of cognitive dissonance suggests that one type of dissonance occurs when an individual is exposed to information at odds with their existing thoughts or feelings regarding the subject matter (Festinger, 1962). Identification of topics which triggered cognitive dissonance for students provided an opportunity to explore, ground-up, what such personally relevant content might be for college students in a diverse setting. Further, exploring the specific contexts where such experiences took place was aimed at discovering contexts which would lend themselves to implications for higher education, in their level of malleability to relevant interventions.

Another point of consideration was the possibility that given certain conditions, dissonance experiences may actually lead to negative resistance--emotions and behaviors which may hinder learning (Walton, 2011). This is suggested by the original premise of

the theory of cognitive dissonance: individuals will seek to regain consonance by engaging in various dissonance reduction efforts, like information seeking behaviors aiming to either confirm, refute, or modify existing cognitions which are in conflict with the newly encountered information (Festinger, 1962). Some of these dissonance-reducing efforts can be negative; for example, discounting the message or the messenger or avoiding relevant contexts. The next task in the study was to explore both positive and negative cognitive, affective, and behavioral responses to dissonance arousing experiences of college students, specifically in learning contexts.

Finally, given the exploratory approach of the study in identifying potential contributions as well as hindrances to cognitive and learning outcomes, an additional goal in the study was to examine whether meaningful relationships between any of these variables provide further evidence for or against the qualitative findings.

Dissonance Arousing Topics for College Students

In the effort to identify topics of personal value and relevance to undergraduate college students, the current study sought to explore the range of themes students described when reporting on their experiences of cognitive dissonance. Results consisted of the following topics (reported in alphabetical order): abortion, alcohol consumption, animal testing, antinatalism, biased instruction, child physical punishment, classroom cyber bullying, democratic participation, family values/dynamics, financial dependence, fraternities, gun regulation, Hurricane Harvey, immigration/minority politics, interpersonal disrespect, intra-personal dissonance, judgmental classroom climate, LGBTQ, love versus anti-war/hatred, mental health, non-dissonance, premarital sex, professional development, racism, religion, sexual assault, slavery in American history,

social justice, substance abuse, team work, theory of evolution, underrating instruction, vaping, and worry for grade. As can be seen from this list, topics were wide-ranging and included both what may be considered timely controversial topics as well as more day-to-day ordinary experiences.

Topics of personal relevance and importance to college students facilitate self-construction of meaning (Poplin, 1988). Identification of these topics provides a convenient student-derived list which college educators can use as a resource when preparing instructional materials amenable to reflection and discussion. The list of topics, being compiled ground-up, provides evidence for their relevance to college students, and hence their potential value in students' meaning construction process, and more broadly, their conceptual development. Making use of topics students can relate to at a deep level in the classroom is a potential way to facilitate learning. However, in order for such deeply relevant topics to actually assist, and not hinder, such conceptual development, certain other factors need to be taken into consideration. The particular types of cognitive dissonance this study focused on were instances where college students had encountered information at odds with their existing views. Zuwerink Jacks and Devine (2000) found, in their study on individuals' responses to counter attitudinal messages, that both cognitive and affective factors play an important role in whether resistance will take place. This study explored cognitive, affective, and behavioral responses to the relevant dissonance experiences. The types of resistance that were of interest in the current study were those that would occur specifically in learning contexts, and those that would potentially hinder learning, as suggested by Walton (2011). The current study found evidence for the occurrence of student behaviors which may be considered resistance to

learning. These findings are discussed under the next section on the affective, cognitive and behavioral responses of college students to dissonance in learning contexts, specifically in the classroom setting,

College Student Responses to Dissonance in the Classroom

Frequency counts of the context and setting of cognitive dissonance experiences showed the classroom environment to be the most frequently reported learning setting where such incidents occurred. Among these experiences, those that involved a sense of suppression of students' expression of thoughts were considered to be most prone to any potential resistance responses that may hinder learning. Face-to-face interviews with undergraduate college students, inquiring into classroom experiences in which they felt they couldn't express their genuine views on a topic, provided a relevant ground for exploring such implications for their learning.

Interview data showed that affective responses to these experiences consisted mostly of negative emotions, such as discomfort, anxiety, anger, sadness, embarrassment and feeling small, unpleasant surprise or shock, frustration, feeling suppressed, feeling annoyed. Students also reported on more ambiguous affective responses such as confusion, hesitation, and lack of courage. While the affective responses alone do not provide any definitive insight into possible consequences for learning, viewed in conjunction with the cognitive and behavioral responses, results do seem to offer evidence for experiences of cognitive dissonance to serve as emotional obstacles as well as enhancements of learning.

The cognitive responses that can be considered conducive to conceptual development prompted students to reflect more on their own views and to explore others'

views. Some of the participants reported on new or increased knowledge, insight, or understanding (P2 & P7); others reported on further thought and reconsideration of their held views (P2 & P8). Several reported behavioral responses provided further evidence for the more adaptive consequences of such instances. Students reported on behaviors such as engaging in awareness raising activities (P2) and information seeking behaviors such as doing research (P2 & P7) and reaching out to others (P7 & P8).

On the other hand, a considerable amount of evidence highlighted the negative consequences of such experiences which clearly pose cognitive hindrances to learning. Cognitive responses such as negative judgment of peer (P1 & P5) and instructor (P1, P3, P4 & P7) behavior and perceived negative judgment of others toward self (P1, P5 & P7); perceived lack of peer support (P1, P4, P5 & P8); self-doubt/dilemma (P2 & P8); self-image concerns (P1, P4, P5, P6 & P7) and avoidance goals (P4, P5, P6, P7 & P8), which include grade worry influencing class engagement (P3, P4 & P5), are all potential sources of cognitive load that create obstacles for learning. The behavioral responses actually reported by students below confirm this possibility and provide evidence that cognitive dissonance experienced in the classroom setting can become hindrances to learning.

Students reported on disengagement behaviors such as avoidance of the physical classroom environment (P1) or the classmates (P1 & P5); disengagement from class material in general (P1 & P7) and more specifically refraining from taking notes and looking up to follow class lecture slides (P1), as well as from contributing to discussions (P1, P5, P6 & P7).

While these constitute clear, visible evidence of hindrances to learning, students also reported on less visible, yet real, obstacles to learning. Students admitted to engaging

with class material only at a superficial level for practical purposes. They reported on responding to essay writing assignments with minimal engagement with the actual substance of the topic, by either concentrating on structure (P3), or by completely eliminating personal thoughts and reiterating contents of the lecture (P4).

Another set of responses that suggested superficial engagement with material was the explicit mention of grade worry driving class engagement such as writing an essay on a topic the participant didn't believe in, only in order to pass class (P3), impress the professor with paper content the participant did not agree with, but knew to align with the professor's views (P4), and participate in discussion only as much as required for the grade (P5). After recognizing the preponderance of negative affective, cognitive, and behavioral consequences of these dissonance experiences in the specific context of the classroom, dissonance experiences of college students in the broader college context are discussed in the next section.

Cognitive Dissonance and Learning in the College Classroom

Having found evidence for both positive and negative learning consequences of cognitive dissonance experiences from the qualitative data, it will be of use to review the extent to which the study's quantitative data corroborates with it, in order to see if any conclusions can be drawn regarding the educational implications of these findings.

First, note that the quantitative result came from the first phase of the study which explored experiences of cognitive dissonance within the overall college context: it was not limited to classroom learning settings. Because of this breadth, an initial look at some of these sets of findings shows some inconsistency. On the one hand, chi square results yielded a relationship between negative affective responses to dissonance

experiences and non-course involvement: the source of dissonance did not come from a course for many of those who reported any negative affect. On the other hand, all of the interview data on classroom experiences, including ones that included reports of positive cognitive and behavioral outcomes, were dominated by reports of negative or ambiguous negative affect.

One explanation of this might have to do with the inevitable difference of generality versus specificity of the contexts of cognitive dissonance due to the two-staged nature of the research. Participants for the two phases of the study were recruited to report on general versus a specific subset of cognitive dissonance experiences. The sample in the second phase of the study may have been self selected by those participants who recognized their experience as cognitive dissonance by virtue of the dominating negative emotion involved in the experience, since they were asked specifically about experiences in the classroom in which they felt like they were not able to express themselves comfortably. Participants in the interviews may thus have been focused on specifically those dissonance experiences more highly associated with negative emotions.

Another explanation might have to do with the magnitude of dissonance. According to cognitive dissonance theory (Festinger, 1962), the magnitude of dissonance is one of the determining factors of how individuals will respond. As such, it may have been that the dissonance experiences that involved the classroom context in the first phase of the study may not have held significant enough meaning to the participants relative to the experiences reported on in the interviews which inquired specifically about classroom experiences. Although the initial open-ended item inquiring about dissonance experiences in the first phase of the study prompted participants to report on incidents

“deeply important” to them, this prompting does not allow for any comparison of magnitude. A rank ordered item capturing magnitude of dissonance may have enabled an observation about the difference of the incidents’ significance to individuals. The lack of an item tapping into magnitude of dissonance may be considered a limitation of the study insofar as corroborating and interpreting findings of the two phases. Further limitations of the study are discussed next.

Study Limitations

In addition to the inherent limitation of any self-report data, the other main limitation of the study relates to sampling. The study employs the convenience sampling method, and as such all limitations associated with non-probability sampling apply to this research as well. The participant pool was limited to students who are enrolled in courses offered only under the College of Liberal Arts and Social Sciences (CLASS). Although students outside of the CLASS who were taking these courses also participated, and thus were represented in the sample, courses offered by other colleges were left out.

Considering the finding that student encounters with cognitive dissonance also involved course content, recruitment of participants only from the courses offered by CLASS poses a limitation, as it limits the participants to those students who are more likely to take classes offered by CLASS. Future research should employ purposive sampling which enables recruitment of students enrolled in classes across all departments of a given university or set of universities.

Moreover, the sample sizes in both phases of the study were considerably small. The first phase of the study sample consisted of 49 students, and the second phase with interviews consisted of only eight students. Due to the presence of qualitative data in both

phases of the study, the number needed to be kept at a manageable size for data analysis. Future research should consider doubling down on the amount of qualitative data. Doing so can allow for capturing of more varied experiences of cognitive dissonance and enable any statistical observations about student demographics which may help inform any needed interventions. Depending on the chosen unit of analysis, this can be done either by increasing the sample size, or by increasing the occasions of participant reports. In the case of interviews, increasing the occasions of participant reports can increase number of units of analysis. Also, conducting multiple interviews with each participant over the academic year may, in addition to increasing the trustworthiness of the results, add depth of perspective, a point further discussed next.

Finally, regarding recruitment, a one-time recruitment was conducted for both phases of the study. This may have posed a limitation especially for the first phase of the study where students were inquired about their dissonance experiences at the wider campus level. Observing that the majority of the non-course involvement experiences consisted of interactions with the non-university affiliated religious group protest, highlights the possibility of a recency effect. The protest may have occurred very close in time to recruitment. Although this phase of the study was online, the study was made available close to the end of the semester. All study participants were recruited within two days. If the protest happened around this time, participants may have been more likely to report on this incident as the most recently available cognitive dissonance experience in their memory. For the interviews as well, the variation in interview length observed in the present study merits attention. Two of the participants were done sharing their experiences in 12 minutes, while three had content spanning the 40 to 45-minute

range, and three in the 20 to 30-minute range. Some students had only one incident to share, while others had multiple; each varying in their observed level of significance to the participant. Multiple interviews with each participant over the academic year, or interviews with different participants distributed throughout the academic year, may have enabled a more accurate view into encounters of genuine significance beyond the most recent encounters that—though they may fit the description of cognitive dissonance--may not quite capture incidents of deep importance across all participants.. As such, future research should employ recruitment at various time points.

Conclusions and Implication for Future Research

Positive affective responses to the dissonance arousing experiences were positively related to any cognitive or behavioral change, as well as positively related to self-developmental references in the follow-up open ended responses describing the affective responses. Self-developmental references were also positively related to any cognitive or behavioral change. This set of results suggests that there is a relationship between cognitive dissonance experiences that involved a positive affect and self-development as well as change at both levels of thought and behavior. This observation supports the notion that positive dissonance experiences in diverse interactional settings may contribute to cognitive growth and behavioral change.

The interview data on the more negative experiences with cognitive dissonance also provide evidence that behavioral change is instigated. However, in the classroom context, this behavioral change took the form of disengagement behavior which can clearly be seen as counterproductive to positive cognitive growth outcomes. The data in this study seems to be consistent with the finding of association between negative

interactions with diverse peers and lower scores on multiple cognitive outcomes in past research (Hurtado, 2005).

Despite evidence of such maladaptive behavioral responses in the data, longer term consequences would require a longitudinal study which incorporates other relevant factors. It is clear that behaviors such as withdrawal from class engagement altogether, or superficial engagement with class material, will lead to negative learning outcomes in the short run. However, a one-time interview is limited in its ability to provide answers to more long-term cognitive growth outcomes of these specific cognitive dissonance instances.

It seems safe to assume that the longer-term cognitive growth outcomes would depend partly on how the incident, including its short-term behavioral consequences, is processed by the individual. As such, a significant implication for learning in these particular study results is the possible role the instructional and curricular context may play in enabling an adaptive processing of these negative experiences. Developing curricular interventions that may contribute to the positive processing of such negative cognitive dissonance experiences can be seen as important to higher education practices, especially in highly diverse campuses.

One study actually incorporated the teaching of cognitive dissonance as a strategy to reduce learner resistance to diversity content (McFalls & Cobb-Roberts, 2001) and found that the course increased awareness of dissonance, creating meta-dissonance and proposed that meta-dissonance may prevent resistance reactions to learning. Gorski (2009) also proposes some instructional material to incorporate cognitive dissonance as a strategy in teaching issues of social justice. Such interventions may be of particular value

for courses which explicitly teach diversity content. However, as the data in the present study demonstrates, cognitive dissonance experiences of college students are not limited to encountering diversity content. Students also reported on cognitive dissonance in response to peer behavior, instructor behavior, and classroom content which do not exclusively have diversity relevance. While potential cognitive dissonance experiences in a course designed especially for teaching diversity content can be foreseen and thus prepared for ahead of time, it is difficult to predict the cognitive dissonance students may experience from a much wider ranging set of classroom contexts. Although the experience of dissonance in and of itself is a part of the learning process and is not necessarily a desirable to prevent, individual experiences of dissonance which have potential to result in disengagement thoughts and behaviors constitute an exclusive type of dissonance experience which is necessary to address. Thus, future studies should look into how unexpected dissonance experiences of this discouraging nature in the classroom context can be identified and addressed.

One step in this line of research should be to explore whether there are any identifiable individual difference characteristics associated with the disengagement thoughts and behaviors experienced by students who reported on their classroom cognitive dissonance experience. One way to achieve this may be by replicating the present study with large sample size and adding measures of individual difference (such as personality traits) in addition to the existing demographic characteristics. If found, the identified individual difference characteristics can be used to help inform any intervention to help direct students to processes their negative dissonance experiences to

channels of cognitive growth, so that disengagement thoughts and behaviors can be discontinued if not prevented altogether.

One suggestion that can be drawn from the data in this study is incorporation of a curricular mechanism which would ensure a debriefing of any given cognitive dissonance experienced by a given student in class. The highly emotional content observed in students' interview responses suggests the value of having the opportunity simply to report on their experiences, allowing for a non-judgmental and safe platform to process the incidents.

One possible way this could be achieved at the curricular level is the offering of extra credit to those students who would like to share their dissonance experiences through either an essay or a face-to-face meeting with either the instructor or a counselor of the student's choice. By inviting and incentivizing such outlets, instructors may motivate students to reflect on their experiences in a space more conducive to a healthier processing of the cognitive dissonance experience. As such, any effects of cognitive dissonance experience that may potentially hinder cognitive growth can be transformed into an opportunity for enhancing cognitive growth.

Future research should look into the relevance, applicability, and feasibility of such psychological debriefing interventions as it relates to cognitive dissonance experiences. Thus, one direction of research could be to explore the relevance and applicability of psychological debriefing. One suggestion toward this would be to replicate the second phase of the present study with an added component of conducting member checks. In these member checks, participants can be asked to provide feedback about their participation in order to explore any evidence, in their reports, in support of

adaptive forms of having processed the negative components of their experiences due to having simply report on them. The addition of conducting member checks is one straightforward way short-term outcomes of psychological debriefing may be explored. Further research can look into other mechanisms that can serve the purpose of assessing the relevance and applicability of psychological debriefing in college student populations.

The next line of research can look into concerns of feasibility, especially as it relates to large size college classrooms. It may be expected that any intervention incorporating extra credit may incentivize participation from students who are not necessarily affected. In order to draw only those students who are affected, the psychological debriefing session--whether it be in person, or through a writing task- can be planned to be carried out and incentivized in stages, incorporating an online prescreening that assesses the presence and magnitude of disengagement behaviors the dissonance experience was associated with. This way, only those experiences which meet certain criteria can eligible for the next stages of the intervention. This is only one intervention suggestion based on insight from my personal experience of carrying out the interviews for the present study. Another relevant line of research would involve developing other such interventions and testing their effectiveness.

Summing up, in accord with its initial objectives, this study was able to obtain qualitative data on cognitive dissonance experiences which can be useful in informing higher educational practices, specifically at classroom instruction level. Past qualitative research on cognitive dissonance experiences of college students were limited to looking at experiences either outside of the college setting (Carpenter & Peña, 2017), or ones that were related exclusively to leadership practices (Collier & Rosch, 2016), or those limited

to higher education diversity contexts such as the teaching of diversity content (McFalls & Cobb-Roberts, 2001), teaching of social justice (Gorski, 2009), or interactions with diverse peers (King, et al., 2011).

The present study offers contribution to qualitative findings on a wider range of types of dissonance experiences not limited to certain practices or diversity contexts. Having included the wider range of on-campus settings, as well as looking deeper into the specific classroom setting, the range of topics mentioned in student reports of their cognitive dissonance experiences in this study brings together a useful list of topics important and relevant to college students which educators can draw from when planning for course content involving reflection and idea exchanges such as classroom discussions and essay writing. Moreover, not being limited to interactions with diverse peers and teaching of exclusively diversity context, this study explored experiences of cognitive dissonance with non-peers, such as course instructor behaviors, as well as experiences with classroom content not confined to the teaching of diversity content.

Another, and possibly a more significant, contribution of this study is a reflection on undergraduate college students' cognitive, affective, and behavioral responses to cognitive dissonance experiences in the classroom setting. Considering the observation that there is a lack of research assessing negative affect in dissonance experiences (C. Harmon-Jones & E. Harmon-Jones, 2018), the findings of this study contribute specifically to literature on exploring the nature of negative affect in dissonance experiences and their relationship to behavioral change, specifically as it relates to consequences for learning.

Taken in combination, prevalence of reports of negative affect, some of which contained intense emotional statements, and reports of a variety of disengagement behaviors which found support in students' reports of cognitive responses, offer difficult-to-overlook implications for practices in college classrooms. Findings of this study provide strong evidence for the need further to explore practices that can avoid such potential experiences with negative short-term learning outcomes and potential long-term cognitive development or mental well-being outcomes. In addition to this preventive implication for practice, exploring educational interventions which facilitate an adaptive processing of such negative cognitive dissonance experiences, when they do occur, may reverse adverse effects and transform the experiences into opportunities for cognitive growth and overall mental well-being.

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Appendix A
Copy of Qualtrics Survey: Cognitive Dissonance in College

Cognitive Dissonance in College

Online Consent Form

Please review the following information about this study. After you have reviewed what this study is about and the procedures, you will be given the option to agree to participate in this on-line study.

Title of research study: Cognitive Dissonance in College Students

Investigator: Ayse Balaman

This project is part of a dissertation being conducted in the Department of Psychological, Health, and Learning Sciences, under the supervision of Dr. Margit Wiesner and Dr. Mimi Lee.

Why am I being invited to take part in a research study?

We invite you to take part in this research study because you are a college undergraduate student over the age of 18, meeting the criteria to be a participant in this topic of research.

What should I know about a research study?

- You will find information about this study in this document.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide, and can ask questions at any time

during your participation by writing to the researcher at
abalaman@uh.edu

(cc: aysebalaman@gmail.com).

Why is this research being done?

The purpose of this research is to explore undergraduate student encounters with values and beliefs at odds with their own values and beliefs. When individuals are exposed to values and beliefs that are in conflict with their existing views, they may experience a psychological state called cognitive dissonance.

College campuses high in racial/ethnic diversity such as UH have significant potential for such encounters. Experiencing this kind of conflict may have consequences for student learning. In order to have a better understanding of such consequences, this study aims to first, find out the dissonance arousing contexts and topics, and further explore students' own responses to these encounters including their thoughts and feelings about them.

How long will the research last?

We expect that you will be in this research study for approximately 20 to 50 minutes depending on your pace of reading and providing a typed response to the survey items.

How many people will be studied?

We expect to enroll about 35 people in this research study.

What happens if I say yes, I want to be in this research?

As a participant, you will be asked to respond to the survey questions on the following pages.

At the end of this consent document, you will be given the choice to either agree to participate or not participate. Once you click "Yes, I would like participate", you will be able to start the survey. First, you will be asked to think about a memorable experience of cognitive dissonance (an experience in which you were faced with information or behavior at odds with the beliefs and values that are deeply important to you) that you have encountered since you started

college. The first open-ended item asks you to write about this experience in as much detail as you can remember in a minimum of about 250 words. In the subsequent items, you will be asked to answer 10 other questions which require short answers to more information about this encounter, your responses to it, and your thoughts and feelings about it. The last 6 items on the survey asks you to fill out few short demographic information.

What happens if I do not want to be in this research?

You can choose not to take part in the research and it will not be held against you. Choosing not to take part will involve no penalty or loss of benefit to which you are otherwise entitled.

As a student, a decision to take part or not, or to withdraw from the research will have no effect on your grades or standing with the University of Houston. The only alternative to participating in this study is non-participation.

What happens if I say yes, but I change my mind later?

You can leave the research at any time and it will not be held against you.

If you stop being in the research, already collected data will be kept in the study record unless you make a request that saying you want the data to be removed from study records. So if you stop being in the research, and you also do not want any of the data you provided to be used in the study, you will need to request this in writing via e-mail to abalaman@uh.edu (cc: aysebalaman@gmail.com).

Is there any way being in this study could be bad for me?

Answering questions on a critical personal encounter relating to values and beliefs deeply important to you may involve some psychological discomfort for the duration of the initial written explanation of the encounter due to personal disclosure. If any, the level of this discomfort would vary from person to person. You may experience higher levels of discomfort if this experience was associated with highly negative emotions. As such, it is recommended that you choose to report on an experience that you are at a level of comfort sharing.

Remember that your participation is confidential and your survey is anonymous, your responses will in no way, be identifiable.

Will I get anything for being in this study?

You will receive 1.5 research credits if you complete this survey. You will receive full credit only if you complete at minimum, the first item, and four out of the remaining items. If you complete only the first item, you will receive 1 research credit. If you do not complete the first item, you will not receive any credit, even if you complete any of the other items.

Will being in this study help me in any way?

We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include an opportunity for you to engage in a reflective writing experience which may help you gain a greater insight into your experience.

Others around you may also benefit if you possibly choose to share your experience of participating in this research and communicating any gains to others, which may trigger these people to think of a similar encounters they themselves may have had, and benefit from the insights it may have to offer in a similar manner.

What happens to the information collected for the research?

Your taking part in this project is confidential. The SONA system will automatically assign a code number to your student identity. Once the credits have been assigned, the code number linked to your student identity will be discarded. Therefore, no identifying information will be stored after SONA credits have been assigned.

Who can I talk to?

If you have questions, concerns, or complaints, or think the research has hurt you, you should talk to the researcher at abalaman@uh.edu (cc: aysebalaman@gmail.com).

This research has been reviewed and approved by the University of Houston Institutional Review Board (IRB). You may also talk to them at (713) 743-9204 or cphs@central.uh.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

Now that you have reviewed this information, please indicate whether you agree participate in this online study by clicking on your choice below.

- I have reviewed the above information about the study, and YES, I would like to participate.
- I have reviewed the above information about the study, and NO, I do not wish to participate.

Please read the following question prompt from beginning to end, before responding.

As a college student, think of a critical instance where you remember coming across any information or behavior at odds with the values or beliefs **deeply important to you**. This can be an encounter with actual people or an encounter with any course material or course assignment or other campus wide project or activity.

Please describe the experience in as best detail as you can; including the context, setting, any people or materials involved, your thoughts and feelings during and after the encounter in a minimum of 250 words.

Overall, how would you describe this experience? Please choose one.

- Overall positive
- Overall negative
- Almost equally positive and negative
- Not really positive or negative

What makes you describe this encounter as such?

Did this encounter prompt you to search for more information regarding this conflict?

This search for information can range from any internet based inquiry such as a Google search, to finding books, articles, or to talking to others, to help you resolve the conflict. If you did anything like this after the encounter, please share.

- Yes;
- N/A (This encounter did not prompt me to search for more information regarding this conflict.)

Do you think that as a result of this encounter; there were any changes in your ideas? If so, please share.

- Yes;
- N/A (I do not think that there were any changes in my ideas as a result of this encounter.)

Do you think that due to this encounter, you made any decisions in your life? If so, please share.

- Yes;
- N/A (I do not think that I made any decisions in my life due to this encounter.)

Do you think that due to this encounter, you chose to do something different in any area of your life (personal life/ family life/ social life/ school life/ work life) that you otherwise would NOT have done? If so, please share.

- Yes;
- N/A (I do not think that I chose to do anything different due to this encounter.)

Do you think that due to this encounter, you chose NOT to do something in any area of your life (personal life/ family life/ social life/ school life/ work life) that you otherwise would have done? If so, please share.

- Yes;

- N/A (I do not think that I chose not to do something I otherwise would have done, due to this encounter.)

Please describe the setting in which this experience took place. You may have already mentioned the setting in your first response. For this question, please provide a little more detail. For example, where did this incident happen, was there any class project involved, or was there any campus organization involved, etc.?

If this was an encounter with course material, assignment or project, for which course was it? (You do not have to provide the complete official name if you do not remember, you can try to describe it).

- Yes, the encounter involved the following course:

- a. N/A (The incident did not involve any course material.)

If this encounter involved any campus organization or activity, please provide its name (If you are not sure of the exact name, please try to describe its overall function).

- Yes, the encounter involved the following organization or activity:

- a. N/A (The incident did not involve any campus organization or activity.)

Please provide the following personal background information.

Your age:

Please provide the following personal background information.

Your gender:

Please provide the following personal background information.

Your major:

Please provide the following personal background information.

Your race:

Please provide the following personal background information.

Your year of study here at UH:

- 1
- 2
- 3
- 4
- 5 or more

Please provide the following personal background information.

Are you the first person in your family to go to college?

Yes

No

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Appendix B
Copy of Interview Protocol: Dissonance in the College Classroom

Dissonance in the College Classroom

Interview Protocol

Hi my name is Ayse Balaman. I am a PhD student here in the College of Education, Department of Psychological, Health, and Learning Sciences. My research is on experiences of cognitive dissonance, or what we could call mental discomfort, in college students. As you may remember from the form you filled out on-line, in my study, I am particularly interested in examining instances where college students, during class, may feel like they are being somewhat cornered into thinking in a certain way or siding with certain ideas they may not necessarily hold. And this includes ideas they may not have even thought about before.

You are here today because you showed interest in sharing similar experiences that could provide further insight into my research topic.

In our conversation today, I will be asking you several questions related to these experiences in your face-to-face classes here at UH. You are welcome to share as much or as little as you would like: you may choose not to answer a given question if you prefer, and conversely, you may also provide more details than I asked if you think it will help me understand your thoughts better.

Okay, can we start?

- 1) Can you think of a time during class, in which you felt like a certain perspective, belief, or thought was being pushed on you?

Potential follow up questions:

- Can you share some details or examples that made you feel like it was being pushed rather than presented?
- Would you think that this was significant to *you* especially?
- What makes you think so?
- Do you think that other students may have felt similar things?
- What makes you think so?

- Would you say that this experience affected the way you interacted with the class material?
 - Would you say that this experience affected the way to interacted with others during class?
 - Would you say that this experience affected you outside of this class in any way? And this could be anything from a change in your ideas, feelings, or anything that you ended up doing due to this encounter. And this could be positive or negative.
 - Do you have anything else to add to what we've discussed so far, that we may not have covered?
- 2) Can you think of a time during class, in which you felt like you were put in a position where you had to express or endorse something that runs against your values, thoughts, or knowledge on the topic?

Potential follow up questions:

- Did you feel that you had no choice but to speak or write in that way?
- Can you share some of the things that made you feel like you had to express yourself in that way?
- Would you think that this was significant to *you* especially?
- What makes you think so?
- Do you think that other students may have felt similar things?
- What makes you think so?
- Would you say that this experience affected the way you interacted with the class material?
- Would you say that this experience affected the way to interacted with others during class?
- Would you say that this experience affected you outside of this class in any way?
- Do you have anything else to add to what we've discussed so far, that we may not have covered?

3) Can you think of a time during class, in which you did not feel comfortable enough to express your own thought or beliefs about a given topic?

Potential follow up questions:

- Do you think that you were given the opportunity, but did not feel comfortable?
- What were some of the things that made you uncomfortable?
- Do you think that you were not even given the opportunity at all?
- Would you say that nobody was given the opportunity or just you and maybe some others?
- Do you think that others may have felt the same way?
- Would you say that this experience affected the way you related to the class in any way?
- Would you say that this experience affected you outside of this class in any way?
- Do you have anything else to add to what we've discussed so far, that we may not have covered?

4) We've covered all the questions I had. Is there anything else that is important to you that you would like to share here?

I want to thank you for your time and participation. I value and appreciate all your input in this study.

Now, I just need you to fill out this brief demographic information sheet, please.

Demographic Information

1) Age:

2) Gender:

3) Major:

4) Race:

5) Year of study here at the University of Houston: Please circle one.

1

2

3

4

5 or more

6) Are you the first person in your family to go to college? Please circle one.

Yes

No