ABSTRACT

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Integrative complexity has been shown to influence information-processing and decision-making in different social situations. The present research assessed the effects of group status and cognitive appraisal prime on complexity in a group decision-making context. Experiment 1 assessed group status effects, and Experiment 2 tested whether priming threat or challenge would moderate those effects. Both experiments found that minority members showed greater complexity than majority members. Experiment 2 found that appraisal prime moderated the relationship between status and complexity. Minority members receiving the threat prime were the most complex, while majority members in the threat and control conditions were the least complex. The mediating roles of cognitive appraisal, anxiety, and coping expectancy were assessed, but none were found to be significant mediators of complexity.

EFFECTS OF GROUP STATUS AND COGNITIVE APPRAISAL PRIME ON
INTEGRATIVE COMPLEXITY IN A DECISION MAKING CONTEXT

By

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Chapter 1: Introduction

Integrative complexity is not a variable that is frequently discussed in social psychology textbooks, but it is an important variable to study. Social psychologists have a long history of studying social influence and decision-making, and integrative complexity is a variable that is quite relevant to the study of how social influences may affect our thoughts and behaviors. Psychologists have studied not only how individuals make decisions in their everyday lives, but have also focused on how those in positions of power (e.g. politicians, military commanders, etc.) reach decisions about important issues (Suedfeld & Granatstein, 1995; Suedfeld, Corteen, & McCormick, 1986; Suedfeld, Wallace, & Thachuk, 1993). Suedfeld and Granatstein (1995) made the following point to highlight the importance of studying decision-making by those in power:

> On the level of history, political science, and sociology, the performance of governmental and other leaders in collecting and evaluating information and selecting solution strategies for important problems has crucial impact on all aspects of the well-being of their society. (p. 509)

One poignant example of how this variable is applicable to the field of social psychology involves the debate that led to the decision of the United States of America to invade Iraq and remove its leader from power. Did those who favored the war--the majority in Congress at the time (as well President G.W. Bush's administration)--present a more or less complex argument for the invasion, and was this intentional or unintentional? And did those that opposed the war--the minority

group--present a more or less complex case for their view, and was this a specific strategy? Has the structure of their arguments changed since the onset of the war, and whose arguments proved to be more effective in persuading constituents to support or oppose the invasion of Iraq? How might the structure and complexity of these arguments (and others) have impacted the most recent presidential elections in the U.S.?

It is important to understand how and why group status affects decision making and policy reasoning, how and why majority and minority groups react differentially to policies that may threaten their values, and how and why these factors affect intergroup relations as well as influence voters and shape their opinions about issues. As scientists gain more insight into how cognitive style is influenced by motivational and situational factors, perhaps we could learn more about developing successful, creative solutions to policy issues that are more effective, as well as less polarizing and divisive.

Overview

Integrative complexity was once viewed solely as a cognitive, individual difference variable, where those low in integrative complexity were described as being reliant on rigid, evaluative rules, and those high in complexity were described as being able and willing to consider evidence from multiple perspectives (Tetlock, Armor, & Peterson, 1994; Gruenfeld, 1995).

More recently, however, researchers have found that situational factors clearly affect integrative complexity (Tetlock et al., 1994; Gruenfeld, 1995; Gruenfeld, Thomas-Hunt, & Kim, 1998; Gruenfeld & Preston, 2000). For example,

Gruenfeld et al. (1998) have found that, within discussion groups, majority members (those who share the majority opinion within a group) show higher levels of complexity after a group discussion, whereas minority members show lower levels.

What is not clear, however, is how people interpret different social situations. For instance, individuals may interpret certain types of situations as threatening (Gruenfeld, 1995; Gruenfeld et al., 1998; Skinner & Brewer, 2002). Gruenfeld and colleagues (Gruenfeld et al., 1998; Gruenfeld, 1995) speculated that perceptions of threat could play a role in the observed group differences in integrative complexity, but they did not examine the potential link between threat and complexity.

One potential variable related to this idea of threat is cognitive appraisal. Cognitive appraisals have traditionally been defined as dispositions or "styles" used to assess ongoing relationships with the environment, but researchers have recently found that appraisals also vary according to different situations (Tomaka, Blascovich, Kelsey, & Leitten, 1993). Lazarus and Folkman (1984) posited that two types of state appraisals--*threat appraisals* and *challenge appraisals*--occur in anticipation of stressful situations. Tomaka et al. (1993) theorized that "threatened" individuals should be more likely to perceive a potential for loss, while "challenged" individuals are more likely to focus on potential gains. Challenged individuals should be energized and eager to perform well, while threatened people should anticipate a loss and exhibit decreased ability or motivation to perform well on a goal-relevant task (Tomaka et al., 1993).

Although psychologists who study cognitive appraisals have suggested that appraisal responses may be linked to group status (Mendes, Blascovich, Lickel, &

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Hunter, 2002; Skinner & Brewer, 2002; Corenblum & Stephan, 2001), prior research did not assess the role of cognitive appraisal as a mediator of the relationship between group status and complexity. These experiments were designed to investigate the potential mediating (as well as moderating) role of cognitive appraisal (see Figures 1 and 2).
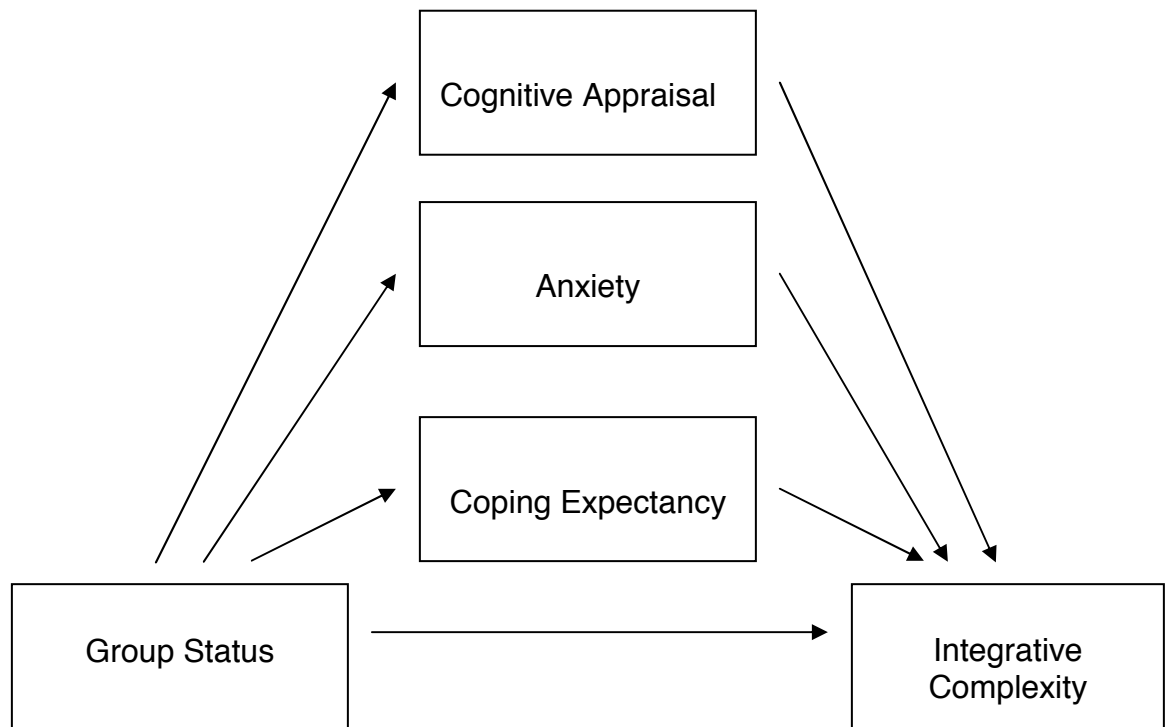
Figure 1. Experiment 1: Path diagram of proposed model.
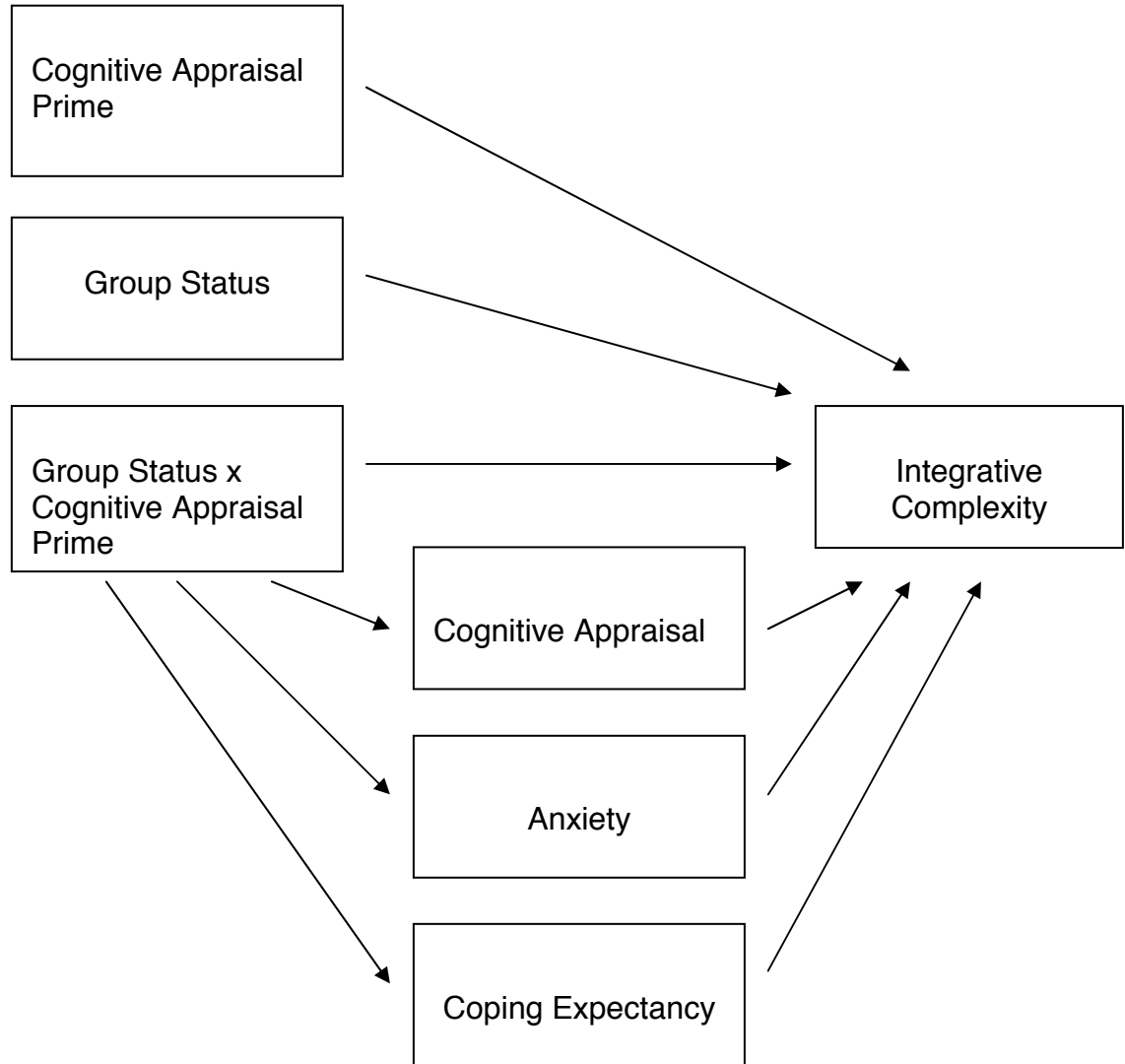
Figure 2. Experiment 2: Path diagram of proposed model.

The present research also examined the role of anxiety as a second potential mediating variable (see Figures 1 and 2). Anxiety has previously been associated with threat appraisals, and perceptions of anxiety have been found to impact performance on a variety of tasks (Alpert & Haber, 1960; Couch, Garber, & Turner, 1983, as cited in Skinner & Brewer, 2002).

Finally, coping expectancy was a third potential mediating variable that was assessed in these experiments (see Figures 1 and 2). Coping expectancy, or

confidence in one's ability to cope with the demands of a stressful situation, has been linked to both cognitive appraisal and anxiety in past research (Lazarus, 1991; Blascovich & Tomaka, 1996; Tomaka et al., 1993; Tomaka, Blascovich, Kibler, & Ernst, 1997; Bandura; 1997, Skinner & Brewer, 1999; Skinner & Brewer, 2002). Challenge appraisals, for example, have been associated with greater levels of coping expectancy, while threat appraisals and higher anxiety levels have both been associated with a decrease in coping expectancy (Skinner & Brewer, 2002; Blascovich & Tomaka, 1996; Tomaka et al., 1993; Tomaka et al., 1997; Bandura, 1997; Morris, Davis, & Hutchings, 1981).

One goal of the first experiment was to test the hypothesis that cognitive appraisal (threat appraisal vs. challenge appraisal) mediates the relationship between group status and integrative complexity. This experiment was designed to investigate whether minority members within a group would perceive a specific situation (such as a group discussion) as more threatening than majority members, and therefore demonstrate lower complexity levels when writing their opinion on a social issue. Majority members, on the other hand, were expected to perceive the same situation as more challenging, and therefore exhibit higher complexity levels.

A second goal of the first experiment was to test whether anxiety mediates the relationship between group status and complexity. It was predicted that majority members would report less anxiety, which would lead them demonstrate greater complexity in their thinking, whereas minority group members would be more anxious, which would lead to less complex thinking.

A third goal of the first experiment was to test whether coping expectancy mediates the relationship between group status and complexity. It was predicted that majority members would perceive a greater ability to cope with the demands of a potentially stressful situation, which would lead to greater complexity of thought; minority group members, on the other hand, were expected to report less confidence in their ability to cope, which was expected to result in less complex thinking.

A primary goal of the second experiment was to test the hypothesis that manipulating participants' interpretations of the situation would lead to corresponding changes in complexity levels, thereby attenuating the expected main effect of group status. This experiment was designed to test the hypothesis that cognitive appraisal (threat/challenge) prime moderates the relationship between group status and integrative complexity (see Figure 2). An interaction between appraisal prime and group status on levels of integrative complexity was predicted. Both status groups (majority and minority) in the challenge prime conditions were expected to show higher complexity, and both groups in the threat prime conditions were expected to show lower complexity. In the control (no prime) conditions, as shown in prior research (see Gruenfeld et al., 1998), majority members were expected to demonstrate higher complexity levels (similar to those in the challenge conditions), while minority members were expected to show lower levels (similar to those in the threat conditions).

This experiment also tested whether cognitive appraisal mediates the interaction between group status and cognitive appraisal (threat/challenge) prime. It was predicted that those in the threat prime conditions would report higher levels of

threat, which would lead to lower levels of complexity. Conversely, those in the challenge prime conditions were expected to report greater levels of challenge, which was expected to lead to greater complexity. In the control conditions, it was anticipated that minority members (like those in the threat conditions) would report higher threat levels, which would lead to less complexity, and majority members (like those in the challenge conditions) would report lower threat levels, which would lead to greater complexity. It also examined whether cognitive appraisal was a mediator of the relationship between threat/challenge prime and integrative complexity, and whether it was a mediator of the relationship between group status and integrative complexity.

The second experiment tested whether anxiety was a mediator of complexity as well. It was predicted that those in the threat prime conditions would show greater anxiety, which would lead to less complexity, and that those in the challenge prime conditions would show less anxiety, leading to greater complexity. In the control conditions, minorities were expected to report higher anxiety (similar to those in the threat conditions), and exhibit lower levels of complexity. Majority members in the control condition (similar to those in the challenge conditions) were expected to report less anxiety, and exhibit higher levels of integrative complexity.

Finally, the second experiment also investigated whether the threat/challenge prime manipulation led to higher or lower levels of coping expectancy, and whether coping expectancy was a mediator of complexity. Individuals in the threat prime conditions were expected to show lower levels of coping expectancy, which should lead to less complexity, and those in the challenge prime conditions were expected to

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show greater levels of coping expectancy, resulting in greater complexity. In the control conditions, minorities were expected to report lower levels of coping expectancy (similar to those in the threat conditions), and demonstrate lower complexity levels. Majority members in the control condition were expected to report higher levels of coping expectancy (similar to those in the challenge conditions), and exhibit higher levels of complexity.

The main purpose of these experiments was to investigate the effects of group status and cognitive appraisal (threat/challenge) prime on complexity, as well as the potential mediating roles of cognitive appraisal, anxiety, and coping expectancy, in order to better understand how people think under potentially stressful conditions. The first experiment was designed to investigate whether group status would influence levels of integrative complexity, and whether the proposed mediators would mediate the relationship between group status and complexity. The second experiment was designed to examine whether a threat/challenge prime would moderate the relationship between group status and complexity. It also examined the possibility that the proposed mediators would mediate the interaction between group status and cognitive appraisal prime on integrative complexity. Additionally, it investigated whether cognitive appraisal mediated the relationship between a threat/challenge prime and integrative complexity, as well as whether it mediated the relationship between group status and complexity. Thus, the second experiment tested whether cognitive appraisal, anxiety, and coping expectancy were mediators of integrative complexity, and whether they mediated the moderation effect for status x threat/challenge prime.

Integrative Complexity

Integrative complexity has most frequently been presented as a positive and desirable personality variable, characterized by a pragmatic and open-minded worldview (see Tetlock, 1984). The concept of integrative complexity originally came about as an attempt to identify "styles of social thinking" that vary among individuals (Tetlock, Peterson, & Berry, 1993), and much of the past research on integrative complexity has focused on complexity as an individual difference variable. Psychologists have posited that individuals who prefer a simpler thinking style should form dichotomous impressions of people and issues (e.g. black vs. white, right vs. wrong). Researchers have also proposed that other individuals, in contrast to those who are more single-minded in their thinking, maintain a more flexible, multidimensional worldview and are aware that life is full of "inconsistencies and contradictions". These more complex thinkers may consider that individuals have different motives and goals that underlie their behavior, and they may weigh conflicting views when making decisions (Tetlock et al., 1993).

The term, "integrative complexity" has long been defined in terms of evaluative differentiation and conceptual integration (Tetlock et al., 1994). Integrative complexity is a cognitive variable that represents two dimensions—evaluative differentiation and conceptual integration (Tetlock et al., 1994). Differentiation requires a demonstration of basic dialectical reasoning, and conceptual integration requires a display of reasoning built upon differentiations. Conceptual integration, therefore, cannot occur without differentiation, but differentiation can occur without integration (Tetlock et al., 1994).

According to Lee and Peterson (1997), integrative complexity is described such that low levels are associated with a simplistic view of events, where one view is seen as correct, and all other views are considered "illegitimate, flawed, or ridiculous" (p. 963). High levels, in contrast, are linked to an acknowledgement of many perspectives, and an ability to connect divergent views. Suedfeld and Granatstein (1995) further described integrative complexity as referring to, "the extent to which decision-makers search for and monitor information, try to predict outcomes and reactions, flexibly weigh their own and other parties' options, and consider potential strategies (p. 510).

An example of a low-complexity opinion statement (one that demonstrates low differentiation and lacks integration) is:

> Abortion is a basic right that should be available to all women. To limit a woman's access to an abortion is an intolerable infringement on her civil liberties. To do so would be to threaten the separation of church and state so fundamental to the American way of life. (p. 965, Lee & Peterson, 1997, as adapted from Tetlock, 1983)

An example of a medium complexity statement, which shows high differentiation but low integration, is: "Many see abortion as a basic civil liberty that should be available to any women who chooses to exercise this right. Others, however, see abortion as infanticide." (p. 965, Lee & Peterson, 1997, as adapted from Tetlock, 1983)

Finally, an example of a statement that illustrates high integrative complexity (that is, high differentiation and high integration) is:

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Some view abortion as a civil liberties issue; others see abortion as

tantamount to murder. One's view of abortion depends on a

complicated mixture of legal, moral, philosophical, and perhaps

scientific judgments. Is there a constitutional right to abortion? What

criteria should be used to determine when human life begins? Who

possesses the authority to resolve these issues? (p. 965, Lee &

Peterson, asadapted from Tetlock, 1983)

Associations between integrative complexity and behavioral variables were

the focus of psychologists' early research on complexity (Tetlock et al., 1993). For

example, with regard to decision making and quality of decisions, researchers found

that integratively complex thinkers were better able to make agreements that benefit

both sides in mixed-motive games, and were also viewed as sensitive to the concerns

of the other side (Pruitt & Lewis, 1975, as cited in Tetlock et al., 1993; see also

Tetlock et al., 1993). Correlations between integrative complexity and personality

variables have also been investigated. For instance, differences in individuals'

integrative complexity levels have been attributed to ideological orientation and

related personality variables such as authoritarianism (Adorno, Frenkel-Brunswick,

Levinson, and Sanford, 1950; Tetlock, 1983; Tetlock, Bernzweig, & Gallant, 1985;

Tetlock, Hannum, & Micheletti, 1984). Researchers have also found that individuals

with Type A personalities are less integratively complex thinkers than those with

Type B personalities (Bruch, McCann, & Harvey, 1991, as cited in Feist, 1994).

Many researchers (e.g. McAdams, 1990, as cited in Tetlock et al., 1993) have

claimed that complexity is superior to simplicity, and that highly complex thinkers

see the world in more sophisticated terms. Tetlock et al. (1993) summarized this point, stating, "the most widely held view of integrative complexity appears to be the more, the better" (p. 501).

In fact, integrative complexity has often been associated with better performance in many domains. For example, integrative complexity has been positively associated with "more effective information search, greater creativity, better team performance, and less susceptibility to prejudice "(p. 106, Tadmor, Tetlock, & Peng, 2009; see also Streufert & Nogami, 1989). Those who are more complex have also been identified as better able to predict others' behavior, and may be more prepared to accommodate stress (Suedfeld & Piedrahita, 1984, as cited in Lee & Peterson, 1997). This is possibly because those who think more complexly attend to more information (including divergent or contrasting viewpoints).

Furthermore, complex thinkers may be more resistant to suggestion and manipulation, as they are less influenced by any particular, single event (Lee & Peterson, 1997). Researchers (e.g. de Vries & Walker, 1986; Sullivan, McCullough, & Stager, 1970, as cited in Tetlock et al., 1993) have additionally found some evidence that complexity levels are positively but moderately intercorrelated with ego development and Kohlberg's model of moral development. All of these findings suggest that integrative complexity should be a highly desirable thinking style.

However, Tetlock and colleagues (1993) felt it was important to investigate and identify both positive and negative characteristics of complex and simple thinking styles. Tetlock et al. (1993) conducted an assessment study that involved faculty, trained personality staff observers, and graduate students in an MBA

program. Based on their findings, which involved self-ratings, observations by trained personality-staff members, and content analysis of writing samples, the researchers developed a profile of complex thinkers as independent, creative, open to new experiences, and able to bring "disparate ideas" together. On the downside, those who were high in complexity were also seen as more narcissistic, hostile, exploitative of others' weaknesses, and power-hungry. Complex thinkers also rated themselves as low on measures of compliance, responsibility and orderliness.

Tetlock et al. (1993) also concluded that complex thinkers are less predictable and less stable in behavior, and may be more self-directed and independent in making judgments when faced with conformity pressures. However, they may also be seen as excessively intellectual, impractical and indecisive (Tetlock et al., 1993).

Observers rated simple thinkers as being warm, giving, orderly, self-controlled, deliberate, and socially compliant; from a more negative standpoint, simple thinkers were seen as acquiescent, suggestible, and unimaginative (Tetlock et al., 1993). Simple thinkers may also be more decisive and quicker to recognize they have reached "the point of diminishing returns" for further thought about an issue, and they are seen as good team players. Alternatively, they may be more willing to jump to conclusions and to change their minds--demonstrating cognitive impulsivity and rigidity--and may be more susceptible to extreme in-group loyalty and authoritarianism (Tetlock et al., 1993). These findings also suggests that simple thinkers may have a higher need for closure (see Kosic, Kruglanski, Pierro, & Mannetti, 2004; Webster & Kruglanski, 1994; Kruglanski, 1989; See also Tetlock et al, 1993).

Other researchers have also identified negative associations with both high and low complexity of thought (Cassel, Cross, Ivanova, Jhangiani, Legkaia, & Suedfeld, 2008). According to Cassel et al.'s (2008) findings, complex thinkers are more likely to be perceived as "arrogant, egotistical, indecisive, vacillating, and uncommitted" (p. 2). Less complex thinkers are more likely to be viewed as "simplistic, closed-minded, stubborn, and unwilling to devote enough time, thought, and information search before making a decision" (p.2, Cassel et al., 2008).

Integrative complexity has additionally been studied from a cross-cultural psychological perspective (Tadmor et al., 2009). According to this perspective, integrative complexity reflects

> the degree to which people accept the reasonableness of clashing cultural perspectives on how to live and, consequently, the degree to which they are motivated to develop cognitive schemas that integrate these competing worldviews by explaining how different people can come to such divergent conclusions or by specifying ways of blending potentially discordant norms and values. (p. 106, Tadmor et al., 2009)

In a series of studies, Tadmor et al. (2009) investigated the relationship between integrative complexity and acculturation strategies (related to potentially assuming a new cultural identity). They compared complexity levels of individuals who were classified as *bicultural* (those who simultaneously maintain their cultural heritage and adopt a new cultural identity), *assimilated* (those who have relinquished their cultural heritage and adopted a new culture, or *separated* (those who have maintained only their cultural heritage). Tadmor et al. (2009) found that the

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biculturals were more integratively complex than the assimilated and separated

individuals in domains related to culture (as well as in certain other domains). Based

on their findings, they posited that bicultural individuals' greater levels of complexity

in the cultural domain were, "not merely because of their greater ability to

differentiate between competing cultural perspectives but were also because of their

greater ability to integrate them relative to assimilated or separated individuals" (p.

130, Tadmor et al., 2009).

More recent evidence (e.g. Gruenfeld & Preston, 2000; Gruenfeld, 1995;

Gruenfeld et al., 1998; Suedfeld & Granatstein, 1995) suggests that situational factors

may be at least as important as, and perhaps even more influential than personality

variables in determining levels of integrative complexity at any given time. Suedfeld

(1988), posited that "good decision makers are those who have intuitive

understanding of the level of complexity appropriate to the occasion" (p. 385-386,

Suedfeld (1988), as cited in Myyry, 2002). Researchers have found that integrative

complexity may be influenced by situational and environmental factors, including

group status, stress, conflicting values, and pressures related to accountability

(Tetlock, Peterson, & Lerner, 1996; see Lee & Peterson, 1997; Tetlock et al., 1984;

Gruenfeld, 1995; Gruenfeld et al., 1998).

Tetlock et al. (1984) were among the first researchers to suggest that group

status may influence levels of integrative complexity. They analyzed complexity of

liberal, moderate, and conservative senators in five U.S. Congresses--three of which

were dominated by liberals and moderates--and two of which were dominated by

conservatives. They found that liberals and moderates were more integratively

complex than conservatives in the Democrat-controlled Congresses, but when conservatives were in power, there were no differences in integrative complexity between groups. These findings provided early evidence that group status does, indeed, influence integrative complexity. Tetlock et al. (1985) found more evidence for a group status effect when analyzing Supreme Court opinions. Their results showed that written opinions of justices who had ruled with the majority showed greater integrative complexity than those who had ruled with the minority.

More recently, Gruenfeld (1995) examined the influence of group status (majority vs. minority) as well as political ideology and unanimity of opinion within groups on levels of integrative complexity. She conducted an archival analysis of Supreme Court opinions, looking at integrative complexity of minority and majority opinions that were written in cases of nonunanimous decisions, as well as majority opinions written on behalf of unanimous vs. nonunanimous decisions, during eras where the court was liberally-dominated or conservatively-dominated. She found that for nonunanimous decisions, integrative complexity was lower for opinions authored by justices in the minority as opposed to those written by majority members, but contrary to Tetlock et al. (1984), she found that liberal and conservative justices did not differ in overall integrative complexity. She also found that unanimous opinions were less complex than nonunanimous opinions written by the majority.

Gruenfeld concluded that group status is an important situational factor that influences levels of integrative complexity on policy reasoning, and that in contrast to past research, there are instances in which ideology is not a significant predictor of

complexity. She posited that this finding might be attributed to differences in impression management strategies based on group status (in nonunanimous groups), because those in the majority are accountable to audiences for their decisions, and they might choose to present an opinion in a more complex way in order to portray a particular impression as to why they made a given decision when faced with two or more perspectives. However, she also suggested her findings could be attributed to changes in cognitive flexibility.

According to Gruenfeld and colleagues' (1998) cognitive flexibility hypothesis, individuals in the minority group may become more rigid and less flexible in their thinking as a result of being in the minority (possibly due to perceptions of the situation as threatening). Being in the minority inhibits one's ability to consider alternative viewpoints, and should lead to convergent, black-and-white thinking, as the minority is focused on their own view, and on defending it against the majority view. Majority members, on the other hand, are not constrained by this narrow, right-and-wrong thinking, and in fact, are open to considering and incorporating alternative viewpoints and displaying divergent thinking, which leads to greater creativity and flexibility in opinions and decisions. Their hypothesis posits that exposure to minorities' arguments may produce open-mindedness amongst majority members, who are eager to make accurate decisions, but also reject minorities' opinions (Gruenfeld et al., 1998).

The cognitive flexibility hypothesis, which was based on Nemeth's (1986) research on divergent thinking, suggests that majority members, attempting to understand why minorities might hold a different view, are more likely to engage in

effortful information processing (see Gruenfeld et al., 1998). As such, those in the majority, when exposed to a minority influence or viewpoint, may initially reject that viewpoint and begin searching for new alternative perspectives, strategies, and creative solutions to counter the minority viewpoint. This, in turn, may increase awareness of multiple perspectives, and thus, may lead to an increase in integrative complexity. Those in the minority, on the other hand, may show more convergent thinking, only focusing in on their position against the majority's position, and as a result, they may display lower levels of integrative complexity, as they are not generating new perspectives or creative solutions in response to majority influence (Gruenfeld et al., 1998). Minorities' "convergent" focus on their position versus the majority position "precludes consideration of any alternatives, as well as continued exploration of the issue" (p. 206), and as a result, they are less likely to differentiate as well as integrate different perspectives (Gruenfeld et al., 1998).

This theory was also developed, in part, on Moscovici's (1980) conversion theory, which proposes that majority members experience a particular tension between themselves and minority members who dissent, and they resolve the conflict by trying to consider and validate the minority position, but then also consider innovative or creative ways to counter that position, which leads to original thinking and a better understanding of new dimensions of the issue. One consequence for majority members, however, is that it leaves them more susceptible to the minority position than they previously were, which could lead them to privately embrace the minority's position (see Gruenfeld et al., 1998).

Gruenfeld et al. (1998) further investigated the influence of group status as well as the additional situational variables of social context (private vs. public opinion) and unanimity of group (unanimous vs. nonunanimous) on integrative complexity. They found more direct evidence that majority and minority group members show differences in complexity levels as a function of group status. In their experiment, participants read about a Supreme Court decision on a social policy and then were asked to write about whether they agreed or disagreed and to explain their rationale and feelings about the decision in a private statement. Afterward, they were placed in discussion groups where they were either in the majority or minority (or unanimous groups), and were informed that the majority position would be the final decision of the group. After the group decision, participants were asked to either write an opinion that expressed their private thoughts and feelings about the decision, or to imagine that their opinion would be a matter of public record. They found that after the group discussion, those in the majority showed an increase in complexity while those in the minority (and those in unanimous groups) showed a decrease, regardless of the social context in which the opinions were written.

Gruenfeld et al. (1998) concluded that their findings supported their cognitive flexibility hypothesis, which posits that group conflict stimulates majority members' divergent thinking processes. According to their hypothesis, majority members should be motivated to consider alternative viewpoints and then refute them, and in the process, develop creative solutions to problems (Gruenfeld et al., 1998), Minority members, on the other hand, should demonstrate more convergent and narrow thinking, possibly because they perceive the situation as threatening, and focus only

on their main position versus the majority position. This model suggests that minorities are either not motivated to consider other viewpoints or new ideas, or are less able to think creatively and present innovative solutions.

In early research, integrative complexity was assessed by administering a Paragraph Completion Test (PCT), whereby participants completed sentence stems, such as "When I am confused…" (Lee & Peterson, 1997; Schroder, Driver, & Streufert, 1967; see also Suedfeld, 1992). Responses were then coded on the 7-point complexity scale (as utilized in the content analysis measure), assessing the two structural dimensions of differentiation and integration. This test was problematic in that it could not assess situational changes in integrative complexity, and it lacked external validity (Koo, Han, & Kim, 2002; Tetlock et al., 1994; see also Lee & Peterson, 1997). Methodological changes were later made to the PCT coding procedures that allowed complexity to be assessed using archival documents as well as other written and verbal statements (Koo, Han, & Kim, 2002).

Suedfeld and Rank (1976) began to assess complexity in written and verbal statements, and were able to attain high levels of test-retest reliability and inter-rater reliability. This new, flexible approach to measuring complexity allowed for increased external validity (as "real world" written statements and speeches could be analyzed), and it also allowed researchers to investigate situational variables that may impact complexity (Koo et al., 2002). The updated content analysis approach has been used in both lab and archival research studies to assess individual difference correlates as well as situational factors that impact levels of integrative complexity. The 7-point coding measure has been found to be highly reliable and to have

"reasonable construct validity" (e.g. Baker-Brown, Ballard, Bluck, de Vries, Suedfeld, & Tetlock 1992, as cited in Tadmor et al., 2009; Tetlock et al.,1996, as cited in Tadmor et al., 2009).

Tetlock et al. (1993) also assessed complexity using Picture Story Exercises, whereby participants were presented with ambiguous pictures and asked to write descriptions about them. The written statements were then coded for integrative complexity. However, the content analysis approach appears to be the most popular method of assessing integrative complexity, and the majority of research related to integrative complexity has utilized this approach to analyze archival data (Lee & Peterson, 1997).

Considering complexity from a broader viewpoint, Van Hiel and Mervielde (2003) investigated the associations between several different measures of "cognitive complexity" in a series of studies designed to assess the relationship between complexity and political extremism. In their first (2003) study, they used two measures of complexity—a political prediction measure (Sidanius, 1988), as well as the content analysis measure of integrative complexity (taken from Schroder et al., 1967; see Tetlock, 1984). They found that the content analysis measure showed a positive relationship between extremism and level of complexity; however, the political prediction test revealed a negative relationship; furthermore, the two complexity scales showed virtually no correlation, suggesting a lack of construct validity.

Based on the lack of association found between the two measures, Van Hiel and Mervielde (2003) added additional measures of cognitive complexity in a second

study. This study utilized the two measures of complexity from their first study, as well as the Einstellung problems developed by Luchins (1942), and Bieri's (1955, 1966) and Scott's (1962) cognitive complexity tests (see Van Hiel & Mervielde, 2003). The authors noted that the combination of these measures represented five decades of complexity theory in psychology.

The Einstellung problems are a set of mathematical problems that can be solved with the use of a long solution, which utilizes a fixed series of steps that supposedly lead to automatic processing and application of the long solution (see Van Hiel & Mervielde, 2003). After the solution has become automatic, an extinction problem is given which cannot be solved with the long method, but rather, must be solved with a short and direct solution. Those individuals who are high in rigidity and low in cognitive complexity should be more persistent in trying to apply the long method, while those low in rigidity or high in cognitive complexity should apply the short method in less time (see Van Hiel & Mervielde, 2003).

Bieri's test (1955, 1966) was created from a person perception perspective and was used frequently in the 1960's (see Van Hiel & Mervielde, 2003). In this test, participants assign a number from –2 to 2 on various constructs of a variety of objects (which include people). Those high in complexity are expected to show more diversification in scoring along the different dimensions (see Van Hiel & Mervielde, 2003).

Scott's (1962) measure involves an object-sorting task whereby participants must place 28 countries into meaningful categories that have political relevance (see Van Hiel & Mervielde, 2003). Countries may belong to more than one group, and

complexity is determined by the "dispersion of these countries over the set of distinctions yielded by the category system" (p. 790, Van Hiel & Mervielde, 2003).

Results of this study revealed only weak correlations among scores on the different measures. An important conclusion they were able to draw was that the various complexity measures did not appear to be related to one another. Van Hiel and Mervielde (2003) found no support that any of the complexity tests were measuring the same construct. In fact, low correlations among cognitive complexity tests have been repeatedly found (Fransella & Bannister, 1977; see Van Hiel & Mervielde, 2003).

Van Hiel and Mervielde (2003) did highlight some potential problems with regard to the of the measures that were used. They noted, for example, that Fransella and Bannister (1997) critiqued Bieri's test as a differentiation measure, but not an integration measure. One explanation they consider is that Bieri's test, which grew out of person perception research, may focus more on differentiating people along personality dimensions. Van Hiel and Mervielde have also posited that the differentiation of more categories on Scott's test leads to greater complexity scores (see Van Hiel & Mervielde, 2003). They suggested, as well, that the content analysis measure of integrative complexity might be "primarily understood in terms of differentiation" (p. 798), because Tetlock's content analysis measure frequently results in lower scores (scores of 3 or less). As such, integration is not often assessed.

Van Hiel and Mervielde (2003) sought to determine whether different measurements of complexity were measuring the same dimension, and they found that more than one dimension was implied, but they also noted that minimal effort has

been put forth by researchers to establish "stable, replicable cognitive style dimensions" (p. 797). They further noted that because most studies use a single measure, there has not been much integration of findings in the voluminous body of cognitive complexity research.

The content analysis measure of integratively complexity was chosen for these experiments. As highlighted by Antonio & Hakuta (2003), a strong advantage of using this measure is that it is:

> an established social science measurement tool and has been used in a wide body of literature as an outcome and it has a substantial body of supporting empirical research, published in some of the best peer-reviewed journals in the field of social and personality psychology. (p. 1)

Furthermore, as Suedfeld and Granatstein (1995) pointed out, with regard to the content analysis measure, "schemata imposed upon the source material by these methods are relatively standardized in application, resistant to artifacts such as experimenter bias, and rigorous in interpretation" (p. 510). The content analysis measure of integrative complexity covers both dimensions of differentiation and integration (as opposed to only one or the other), and it has been shown to be reliable, and to have construct validity as well as external validity. As a result, it was selected as the measure of complexity for the present set of experiments.

Cognitive Appraisal

Gruenfeld and colleagues (Gruenfeld et al., 1998; Gruenfeld, 1995) have speculated that threat may play a role in causing these observed group status

differences in complexity. It is also possible that cognitive appraisals (such as threat and challenge appraisals), as a function of a group status, may influence ability to think complexly about social issues. Cognitive appraisal has not previously been suggested as a potential mediator or moderator to explain group status differences in levels of complexity, and has not specifically been linked to integrative complexity research.

The general concept of threat has been studied extensively in a variety of domains in psychological research. Threat has been linked to a wide array of negative variables as well as negative outcomes. Threat, in the psychology literature, has traditionally been defined as a perception of "potential harm or loss" (Lazarus and Folkman, 1984), and Janis (1982) similarly described threat as a fear of failure or defeat, which may also lower self-esteem. Threat perceptions have additionally been identified as sources of stress (Suedfeld, de Vries, Bluck, Wallbaum, & Schmidt, 1996; Suedfeld & Granatstein, 1995). Furthermore, Denson, Spanovic, and Miller (2009) described psychological stressors as "threats to psychological well-being" (p. 824). (See also Kemeny, 2003; Lazarus & Folkman, 1984).

Threat has been studied extensively as a type of cognitive appraisal as well (as opposed to a challenge appraisal), which is also associated with negative outcomes (Tomaka et al., 1993; Tomaka et al., 1997; Skinner & Brewer, 2002). In the literature on antecedents of emotion, appraisal styles have been described as "dispositions to appraise ongoing relationships with the environment consistently in one way or another" (Lazarus, 1991, p. 138). Lazarus and Folkman (1984) identified three specific types of stress-related appraisals — harm/loss, threat, and challenge

appraisals. They posited that while harm/loss appraisals occur after stressful

situations are over, threat and challenge appraisals occur before stressful situations

(in anticipation of them). Threatened people, then, should perceive a potential for

loss, with nothing or little to gain, while challenged people, should perceive the

possibility of gain (Tomaka et al., 1993).   Skinner and Brewer (2002) further

posited that specific events could be appraised in terms of threats or challenges to

one's values, well-being, and commitments. They identified threat appraisals as

being harmful, potentially dangerous, and interfering with concentration, while

claiming that challenge appraisals are beneficial and encourage effort and

motivation. Skinner and Brewer (2002) also linked threat to the anticipation of

failure or negative evaluations, and challenge to positive variables including a focus

on opportunities for success, social rewards, learning, and personal growth.

According to Skinner and Brewer (2002), when interpreting an event as a

challenge, individuals are more likely to believe that stressful situations or problems

can be overcome. Challenge appraisals, therefore, are also related to an increased

interest in the situation or event and a perceived need for greater effort to be put

forth, and are positively associated with attributions of self-responsibility or personal

control (Skinner & Brewer, 2002).

Blascovich and Mendes (2000) and Blascovich and Tomaka (1996) have

presented a biopsychosocial model that predicts cognitive responses based upon

challenge versus threat appraisals. According to this model, individuals must

evaluate, both consciously and unconsciously, available resources and demands on

those resources. Tomaka et al. (1997) describe a threat appraisal as being

characterized by negative affect and an "inadequate or disorganized mobilization of physiological resources" (p. 63), and suggest a threat appraisal occurs in a goal-relevant situation, when situational demands exceed resources and coping abilities. They also linked threat responses with strong negative affect. Furthermore, Tomaka et al. (1993) stated that "threatened" individuals should be more likely to perceive a potential for loss, while "challenged" individuals are more likely to focus on potential gains.

According to Tomaka and colleagues (1997), a challenge response is associated with positive affect and a greater ability to organize and utilize physiological resources. Challenged individuals should, therefore, be more energized and eager to perform well, while threatened people should exhibit decreased ability to perform well on a goal-relevant task. Vick, Seery, Blascovich, and Weisbuch (2008) further posited that within the biopsychosocial model, challenge and threat represent, "anchors of a unidimensional bipolar motivational state" (p. 625), whereby "challenge/threat results from relative evaluations of situational demands and personal resources, influenced by both cognitive and affective processes, in motivated performance situations" (p. 625).

In their research, Tomaka and colleagues (Tomaka & Blascovich, 1994; Tomaka et al., 1993) have explored both antecedents and consequences of threat versus challenge states during "motivated performance situations," which include situations that require cognitive responses and instrumental problem solving (Tomaka et al., 1997). Examples of motivated performance situations include speech-making, test-taking, interpersonal negotiations, and cooperative and

competitive task performance (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001).

In earlier studies (e.g. Tomaka et al., 1993), threat and challenge states were determined post hoc, based on participants' appraisals of demands and ability to cope on an anticipated performance task. However, Tomaka et al. (1997) were also able to induce threat and challenge appraisals in later studies; they successfully elicited threat and challenge appraisals in an experimental setting. Tomaka et al. (1997) had participants read one of two sets of instructions before performing a mental arithmetic task. One set emphasized accuracy and speed of performance and potential evaluation, while the other set emphasized putting forth effort, thinking of the task as a challenge, and doing one's best to meet the challenge. The first set of instructions was designed to produce a threat appraisal, while the second set was designed to produce a challenge appraisal. They assessed cognitive appraisal by measuring primary and secondary appraisal perceptions.

The primary appraisal involved asking participants how threatening they expected the task to be, while the secondary appraisal involved asking how well participants were able to cope with the task. The ratio of primary to secondary appraisal was meant to reflect the extent to which demands exceeded ability or resources to cope. Physiological responses (e.g. heart rate, cardiac activity, vascular resistance) were also assessed, and were consistent with threat and challenge appraisal scores. Hence, their findings were the first to support the proposition that cognitive appraisals and associated responses can be manipulated, or induced, by experimenters.

In further support of this idea, Weisbuch-Remington, Mendes, Seery, and Blascovich (2005) found that cognitive appraisals could be primed by subliminally presenting threatening pictures of religious symbols to Christian participants (vs. non-Christian participants), but the effect was only found for Christian participants, and only when they were performing a task related to existential issues.

As discussed, the influence of threat and challenge appraisals on performance, as they relate to group and intergroup interactions, has been examined in a limited context, but there is still much that remains unknown about the relationship between group status and cognitive appraisals, and how different appraisals may impact levels of integrative complexity. The proposed experiments predict that cognitive appraisal (whether one perceives a situation in terms of a threat versus a challenge) will mediate the previously found group status effect (Gruenfeld et al., 1998), and that threat appraisals will be linked to lower levels of complexity, as compared to challenge appraisals. Experiment 2 also predicts that a cognitive appraisal prime will moderate the effect of group status on integrative complexity.

Anxiety and Coping Expectancy

In addition to predicting that intergroup interactions may result in an increase in perceived demands (related to danger, uncertainty, or required effort), cognitive appraisal researchers have also suggested that intergroup interactions may result in increased anxiety, which may independently or jointly (with cognitive appraisal) influence performance (Blascovich, Mendes, Hunter, & Lickel, 2000; Stephan & Stephan, 1985).

Previous research has, indeed, shown that anxiety and threat are often positively linked (Lazarus & Folkman, 1984; Lazarus, 1991). Skinner and Brewer (2002) examined the role of cognitive appraisal (both trait and state appraisals), emotion (including anxiety as a negative emotion), and coping expectancy prior to completing achievement and performance tasks in stressful situations. Their assessment of negative emotion focused on anxiety as the "prototypical negative achievement-related emotion" and their assessment of positive emotion emphasized eagerness and excitement in anticipation of a reward or benefit (Skinner & Brewer, 2002, p. 678).

Skinner and Brewer (2002) found that state threat appraisals were positively associated with increased negative emotion (i.e. anxiety) and trait threat appraisals, and negatively associated with coping expectancy. State threat appraisals were also associated with harmful perceptions regarding state appraisals and emotion. Skinner and Brewer (2002) also found that state challenge appraisals were associated with increased levels of coping expectancy and positive emotion (i.e. excitement), as well as with trait challenge appraisals.

Recent research, however, has also shown that increased anxiety is not always associated with perceptions of potential harm or threat (Skinner and Brewer, 2002; Carver, 1996; Carver & Scheier, 1988). Researchers have found that when individuals perceive that they will be able to cope with demands in stressful situations, they may perceive increased anxiety as beneficial, and it may even improve performance on various tasks (Jones & Hanton, 1996; Swain & Jones, 1996). Carver and Scheier, for example, in their work on self-control theory (1988;

1989), found that when coping expectancies were adequate, mild levels of anxiety could actually motivate individuals to prepare and perform better on a test, whereas those who did not have adequate coping expectancies were negatively impacted by anxiety.

Coping expectancy, or the perceived ability to cope with a situation, has also been proposed as a mediating variable that may impact integrative complexity. Folkman and colleagues proposed a theory of stress and coping that identified cognitive appraisal and coping as two processes that mediated "stressful person-environment relations" and their outcomes (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Lazarus and Folkman (1984) defined coping as an individual's "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the person's resources" (p. 993, as cited in Folkman et al., 1986).

Suedfeld (1992) also proposed a model related to stress and coping, which predicted a nonlinear relationship between environmental stressors and information processing, particularly focusing on how decision-makers address problems they are facing. This *cognitive manager* model suggested that decision-makers (e.g. leader of a country) would "allocate cognitive resources in accordance with cost-benefit considerations" (p. 511, Suedfeld & Granatstein, 1995). This model further suggested that decision-makers, consciously or nonconsciously, would:

> devote time, energy, care, information-gathering resources, decision
> aids, and so on, to the extent that a problem seems worth such an
> investment and to the extent that the investment is perceived as likely

to produce an optimal solution (p. 511, Suedfeld & Granatstein, 1995).

Because complex information-processing is more effortful and costly, this model predicts that heuristic processing will be used when a cost-benefit analysis concludes that resources would be better used in another situation or to solve a different, concurrent, problem (Suedfeld, 1992; See Suedfeld & Granatstein, 1995).

Additional research by Suedfeld and others has also shown that stress and coping abilities may specifically influence levels of integrative complexity (Suedfeld & Granatstein, 1995; Suedfeld et al., 1986; Suedfeld et al., 1993; Schroder et al., 1967). Schroder and colleagues (1967), for example, found that environmental stressors led to lower levels of integrative complexity. They concluded that stressors can serve as a form of cognitive load inhibiting one's ability to think complexly. However, they also found evidence that varying levels of stress can impact complexity in different ways. Based on these findings, Suedfeld & Granatstein (1995) posited that stress and integrative complexity have a curvilinear relationship, such that very high and very low levels of stress are associated with low complexity. They proposed the *disruptive stress* hypothesis, whereby complexity levels would increase with stress levels up to an "optimum level of arousal." Beyond that level, however, increased stress levels would lead to decreased complexity. Thus, "if the challenge is too severe, too persistent, occurs simultaneously with too many other demands, or if cognitive resources are depleted through fatigue, illness, fear, or other adversities, complexity decreases" (Suedfeld & Tetlock, 2001,   p. 294).

They further proposed that when situational demands overwhelm one's ability to cope or when individuals perceive a potential loss of control over an

outcome, they become less complex in their thinking. Guttieri, Wallace, & Suedfeld (1995) found support for this idea when they looked at the speeches and writing of leaders in the U.S. during the Cuban missile crisis, and observed a decrease in complexity as the situation progressed. They posited that the stress of trying to reach a solution under time pressure may have led to decreased levels of complexity.

Suedfeld at al. (1993) also found that during the first Persian Gulf war (1990-1991), pro-Iraq leaders showed significant declines in complexity as the UN deadline for withdrawal from Kuwait approached, and also as the war began. Alternatively, leaders who supported the invasion of Iraq demonstrated increased complexity at this time.

Suedfeld et al. (1986) found additional evidence to support the disruptive stress effect in a content analysis study of Robert E. Lee's writings (including letters, dispatches, and orders) and the writings of opposing generals during six major battles of the Civil War. Lee showed significantly greater integrative complexity than opposing generals during battles that he eventually won, and lower or more comparable levels of complexity during battles that he went on to lose. Furthermore, Lee showed a cumulative decrease in complexity in 1863-1864 as resources began to dwindle and the likelihood of defeat became more certain (Suedfeld et al., 1986).

Also, according to the disruptive stress hypothesis, high levels of stress or elevated stress levels over a prolonged period of time may lead to decreases in complexity regardless of resource allocation analyses. Suedfeld & Granatstein (1995) also looked at letters and correspondence written by a Canadian military

officer during World War II, and found that he showed lower levels of complexity during the war, but that complexity increased when wartime stress was eliminated.

Furthermore, they found a slight increase in his complexity after a personal indiscretion was brought to light and as he was promoted in terms of rank. He also showed a decrease in complexity when he was in a Corps command position that he did not like, and showed the lowest level of complexity when he received strong criticism and a negative evaluation from superiors. This was a stressful time for the commander as his unit had experienced confusion and suffered heavy casualties in a recent battle under his command. When his unit had a successful attack, he showed an increase again.

Lastly, when he was removed from his command position and moved to an administrative position, he showed an increase in complexity. This is likely because he was relieved to be removed from a stressful position, and was moved to a position that was a better fit for his personality (Suedfeld & Granatstein, 1995). This study provided additional evidence that complexity can increase in times of mild stress, when coping expectancies are higher, but decrease when stress becomes more intense and ability to cope is reduced. Furthermore, when stressors are removed, complexity may increase again.

Coping expectancy has also been closely linked to state and trait cognitive appraisals as well as anxiety in past research. For example, Blascovich and colleagues found that challenge appraisals were associated with higher coping expectancies, as well as with decreased levels of stress and greater perceptions of performance on a task, as compared to threat appraisals (Blascovich & Tomaka,

1996; Tomaka et al., 1993; Tomaka et al., 1997). Furthermore, doubts concerning "one's ability to cope with demands of stressful situations" have also been linked to threat appraisals (p. 679, Skinner & Brewer, 2002; Bandura, 1997; Beck, Emery, & Greenberg, 1985), and "poor coping expectancies relative to managing situational demands" have been linked to greater levels of anxiety (p. 679, Skinner & Brewer, 2002; Bandura, 1997; Morris et al., 1981). Skinner and Brewer (2002) also found that higher and lower coping expectancies were associated with increased excitement and increased anxiety, respectively (Skinner & Brewer, 2002).

The role of coping expectancy as a mediator of the relationship between group status and complexity was assessed in the present experiments. It was hypothesized that minorities, in anticipation of a group discussion on a controversial social issue, would exhibit reduced coping expectancy and increased anxiety (which has been found to decrease ability to process information). Reduced coping expectancy and higher anxiety levels, in turn, were expected to inhibit minorities' ability to think complexly and consider the issue at hand more thoroughly. As a result, minority members were expected to demonstrate lower levels of complexity when writing their opinion statements even before a group discussion took place. Majorities, on the other hand, in anticipation of a group decision being made, were expected to exhibit greater coping expectancy and less anxiety than minorities, and as a result, would be more able to focus on different aspects of the issue. Consequently, majority members were expected to develop more complex opinions about the issue than minority members.

It was also predicted that anxiety would be positively associated with a threat appraisal response and negatively associated with a challenge appraisal response, as Skinner and Brewer (2002) found. Additionally, it was predicted that high coping expectancy would be associated with challenge appraisals, while low coping expectancy would be positively linked to threat appraisals, which would also support Skinner and Brewer's (2002) past findings.

It was possible that cognitive appraisal, in conjunction with, or rather than anxiety or coping expectancy, would be a mediator of integrative complexity. It was also possible that coping expectancy would be a mediator of complexity, in conjunction with, or rather than cognitive appraisal or anxiety. It was additionally plausible that anxiety, in conjunction with, or rather than cognitive appraisal or coping expectancy, would be a mediator of complexity.

It was certainly plausible that minorities, because they have less power in a group and little or no control over outcomes, might perceive group conflicts as more threatening, and make threat appraisals rather than challenge appraisals. A threat appraisal may negatively impact one's ability to think complexly about an issue. Because a threat appraisal is associated with a focus on potential losses rather than gains, it may, alternatively, decrease motivation to consider different viewpoints or aspects of an issue. Furthermore, because threat has been linked to increased anxiety and identified as a stressor (Skinner & Brewer, 2002; Suedfeld et al., 1996), threat appraisals and/or high anxiety levels may tax cognitive resources and reduce coping expectancies, inhibiting an individual's ability to think complexly about an issue. The proposed experiments hypothesized that threat appraisals, high anxiety levels,

and low coping expectancies would lead to decreased ability (and motivation) to think complexly about a challenging social issue.

Predictions

Experiment 1

Experiment 1 was designed to test the hypothesis that in a group discussion setting, majority (versus minority) members would exhibit lower levels of anxiety and higher levels of coping expectancy in anticipation of a group discussion on a social issue, as they perceive the issue and discussion in terms of a challenge, which should lead them to be eager and able to think more broadly about alternative perspectives when considering the issue. Majority group members were expected, therefore, to exhibit greater complexity in their written opinion statements. Minority members, on the other hand, were expected to show higher anxiety levels and lower levels of coping expectancy in anticipation of a group discussion, as they perceived the issue and discussion as a threat (as opposed to a challenge), which would decrease the ability and motivation to process arguments and think complexly about the issue. They were expected, therefore, to exhibit less complexity.

For majority members, the situational demands were not expected to outweigh personal, psychological resources; for minority members, situational demands, including increased anxiety, were expected to exceed mental resources, thereby limiting ability to think complexly about the issue. In this design, participants in all conditions were motivated to perceive the social issue and discussion as serious and important, in order to strengthen appraisals of threat and challenge and to generate responses that reflected actual levels of complexity.

Experiment 2

Based on the evidence regarding the impact of cognitive appraisals, as well as the influence of anxiety and coping expectancy on task performance, it seemed possible that under some circumstances, both majority and minority members would perceive demands as exceeding resources, while in other situations, they might perceive the opposite (thus, exhibiting a threat response in some instances and a challenge response in others).

Experiment 2 was designed to demonstrate that when threat (versus challenge) perceptions were primed, participants would adopt an appraisal consistent with the prime, regardless of their group status. When challenge was primed, individuals were expected to make a challenge appraisal, whereas when threat was primed, participants were expected to make a threat appraisal. Because type of appraisal was already being induced, it was predicted that individuals of both majority and minority groups would not perceive a need to look to other information to try and identify the situation as threatening or challenging. In other words, they were expected to recognize the prime of threat or challenge and respond accordingly, rather than evaluating the overall situation and making a threat or challenge appraisal on their own.

Those in the threat prime conditions were expected to show lower levels of complexity in their written opinion statements, while those in the challenge prime conditions were expected to show greater levels of complexity. Those in the control conditions were expected to show complexity levels consistent with Experiment 1; in the absence of the threat/challenge prime, those in the minority were expected to

show less complexity than those in the majority. Minority members in the control condition were expected to show complexity levels consistent with those in the two threat prime conditions, while majority members in the control condition were expected to show complexity levels consistent with those in the two challenge prime conditions.

Anxiety levels were expected to be higher in the threat prime conditions, and lower in the challenge prime conditions. Additionally, coping expectancies were expected to be lower in the threat prime conditions, and higher in the challenge prime conditions. Minorities in the control condition (similar to those in the two threat prime conditions) were also expected to report higher anxiety and threat appraisal levels, and lower coping expectancy and challenge appraisal levels. Majority members in the control condition (similar to those in the two challenge prime conditions) were expected to report lower anxiety and threat appraisal levels, and higher coping expectancy and challenge appraisal levels, which would, in turn, lead to higher complexity levels.

Chapter 2: Experiment 1

The main goal of the first experiment was to test the hypothesis that group status impacts levels of integrative complexity in anticipation of a group discussion. The second goal was to test whether cognitive appraisal (whether the arguments are perceived in terms of a challenge vs. a threat), anxiety, and coping expectancy mediated the relationship between group status and integrative complexity. In this experiment, I manipulated group status (majority vs. minority), and assessed cognitive appraisal, anxiety, and coping expectancy as mediating variables on levels of integrative complexity.

The experimental design used for both Experiments 1 and 2 was based on Gruenfeld et al.' (1998) studies, and similar procedures were followed; however, one major change was that integrative complexity was assessed for opinions written just prior to a group discussion, as opposed to afterward (see Gruenfeld et al., 1998). This was done because complexity scores were expected to be immediately impacted by the proposed mediating variables (as opposed to being changed in response to an actual interaction with a minority influence), and this removed the possibility that minority influence as a result of group interaction would also differentially impact complexity.

Cognitive appraisal was assessed after participants read an article about a controversial social issue and had been informed of their group status (whether they were in the majority or minority based on their opinion of the issue). Anxiety and coping expectancy levels were also assessed at that time.

Participants were then asked to complete an opinion assessment immediately before they were to ostensibly participate in a group discussion. Statements were later coded for integrative complexity. Two coders independently coded each written statement, and inter-rater reliability was assessed. In order to qualify, coders trained for several weeks using the detailed manual by Baker-Brown and colleagues (Baker-Brown et al., 1992). Five samples of fifteen to twenty sample statements were given to coders, and they had to achieve an acceptable level of inter-rater reliability ($r=.80$) in order to continue. Individuals' complexity scores represented the dependent measure. Mediation analyses were also conducted to assess whether cognitive appraisal, anxiety, and coping expectancy mediated the relationship between group status and complexity.

Method

Participants

76 participants completed the experiment. Participants were recruited via email and through a web-based, voluntary registration system. Participants received extra credit in their psychology courses in exchange for participation. Four participants were dropped from the analyses (two participants could not recall their group status, one participant's written statement was unscorable, and another participant reported during the suspicion check that he/she did not believe there would be a group discussion and believed that the group status assignment was made up in order to assess reactions to it.

Measures

Integrative Complexity.   Integrative complexity was assessed using a content

analysis approach that has been used in several archival studies to study complexity

of speeches (Tetlock, 1983), interview transcripts (Tetlock, 1984), personal letters

(Suedfeld & Bluck, 1993), written opinion statements (Gruenfeld et al., 1998), and

transcripts of verbal, face-to-face, political negotiations (Liht, Suedfeld, & Krawczyk,

2005). This content analysis measure of integrative complexity has been shown to be

a reliable measure of cognitive style, and has been used successfully to measure

situational changes in complexity levels (Tetlock, 1983, 1986; Gruenfeld, 1995;

Gruenfeld et al., 1998).

In this experiment, participants' written opinion statements were coded for

integrative complexity (see Appendices A and B). Scorers followed coding procedures

developed by Schroder et al., (1967) and expanded by Tetlock (1983; 1986), as

described in the manual by Baker-Brown et al. (1992). This measure assesses two

cognitive style variables: evaluative differentiation and conceptual integration.

Differentiation refers to ability and willingness to tolerate conflicting interpretations,

while integration refers to development of connections among differentiated

cognitions. Assessment is on a seven-point scale where a score of 1 signifies low

levels of both differentiation and conceptual integration, a score of 3 signifies

moderate or possibly high differentiation but absence of integration, a score of 5

indicates moderate or high differentiation and moderate integration, and a score of 7

indicates high differentiation as well as high integration. Scores of two, four, and six

are transitional levels in the scales of the two structures (see Appendix B for general explanations of scores and sample statements).

Cognitive Appraisal.   Skinner and Brewer's state cognitive appraisal scale was used to assess threat and challenge appraisals (see Appendix C). The scale consisted of 4 threat-related items and 4 challenge-related items. Participants were asked to indicate on a scale of 1-6 the extent to which they agreed or disagreed with each of the 8 statements. They were also asked to rate the frequency of their thoughts about each statement on a scale of 1-6 (from hardly ever occurring to occurring almost constantly). These two scales were highly correlated, and the final measure was an additive combination of these two scales (see Skinner & Brewer, 2002).

Anxiety.   Anxiety was assessed using Corenblum and Stephan's (2001) 12-item intergroup anxiety measure (see Appendix D). Participants were asked to indicate on a 7-point Likert scale the extent to which they were experiencing various anxiety-related feelings.

Coping Expectancy.   Coping expectancy was assessed using a three-item self-report   measure, based on Skinner and Brewer's (2002) measure (see Appendix C). All items were assessed on a 6-point scale. The first two items were identical to those used by Skinner and Brewer, and assessed individuals' confidence with regard to their ability to cope with the demands of the situation (1=very confident can cope effectively, 6=very concerned whether can cope effectively), and to avoid failure (1=little confidence in ability to avoid failure, 6=strong confidence in ability to avoid failure). The third item was altered slightly to fit the current design, such that participants were asked about achieving a goal, as opposed to a grade (which Skinner

and Brewer's scale assessed). The third item specifically assessed participants'

confidence in their ability to achieve a desired goal (1=little confidence in ability to

achieve desired goal, 6=strong confidence in ability to achieve desired goal).

Procedure

Participants were told that the experimenters were working with the school

newspaper to research students' opinions on social issues (see Appendix E for

script). They were told that they would be working in small groups to discuss a

social issue, and that the group would be asked to write an opinion at the end of the

discussion. They were led to believe that the group opinions, as well as individual

opinions, might be published in the school newspaper as part of a joint project with

the journalism department, and might influence other students (although no names or

personal information would be released). This deception was used to increase the

likelihood that the participants would take the task seriously.

Participants arrived at the lab one or two at a time, where two confederates

were waiting and posing as participants. Therefore, each participant perceived that

there were at least two additional participants present. The participants were led to

lab rooms where they were asked to read and sign an informed consent form, and

complete a one-item *social issues questionnaire* (to indicate whether they were more

in favor or against same-sex marriage).

Next, participants were asked to read an article about the selected issue (see

Appendix F). Participants read an article about a fictitious court case that the New

York Supreme Court had ostensibly recently ruled on, which would set a precedent

for a similar case that would soon be debated in Maryland, as well as potentially

debated by the U.S. Supreme Court. Participants were asked to indicate whether they agreed or disagreed with the court decision. The court's opinion was varied such that half of participants read about a decision that favored legalizing same-sex marriage, whereas the other half read about a decision that opposed legalizing same-sex marriage. This was done to assess the possibility that participants' opinions on the issue may have been confounded with the opinion expressed in the article. An effort was made to counterbalance the number of groups where the majority was for or against the court decision.

After reading the assigned article, participants were told they would soon be placed into small groups to discuss and form a group opinion on the issue. They were then asked to complete four questionnaires. These were the cognitive appraisal, anxiety, and coping expectancy measures, as well as a more detailed opinion assessment, which would be used to assess integrative complexity. The participants were also informed of whether their opinion, at that time, was the majority or minority view within the group to which they were assigned. This was done by telling those in the minority, "it looks like nobody in the group agrees with you; you are the only one who took this position" and telling those in the majority, "it looks like everyone in the group agrees with you except for one person; everyone else shares your opinion." Participants were also reminded that their statements could be published in the school newspaper.

A manipulation check was then administered. Participants were asked to indicate what they were told about the status of their position in the group discussion. Their choices were "you are in the majority/everyone in the group agrees with you"

(the majority condition), "you are in the minority/no one in the group agrees with you" (the minority condition), or "was told nothing/do not recall". Participants also completed a suspicion check that assessed whether they were suspicious about the purpose of the experiment, and if so, to indicate what they believed it was really about. Finally, they were debriefed, thanked, and dismissed.

Two trained coders then independently rated each of the opinions written by participants. Coders were unaware of the experimental conditions under which opinions were written. To qualify, they trained for several weeks using the detailed manual by Baker-Brown et al. (1992), and completed all practice materials and tests found on an online complexity workshop (see Electronic complexity downloads page, 2005). Coders were required to continue training until they reached an acceptable level of inter-rater reliability on practice sets of coded statements ($r=.80$).

Results

Reliability analyses were conducted for the cognitive appraisal scale (for both threat and challenge appraisals) and for anxiety and coping expectancy scales. One item was dropped from the coping expectancy scale; all scales were found to be reliable (see Table 1).

Table 1

Experiment 1: Reliability Analyses

Scale	Initial alpha	Item(s) dropped	Final alpha
Anxiety	.91	0	.91
Threat appraisal	.85	0	.85
Challenge appraisal	.84	0	.84
Coping expectancy	.81	1 (#9)	.87

Inter-rater reliability was also assessed on the content analysis measure of complexity. Reliability between the two coders ' scores was $r=.85, p<.01$.

A 2 (group status: minority vs. majority) x 2 (social issue; for same-sex marriage vs. against same-sex marriage) x 2 (article type: supports "traditional" marriage vs. supports same-sex marriage) ANOVA was conducted to assess the effect of group status on integrative complexity as well as the effects of the potential confounding variables on complexity. A main effect of status was found, $F(1, 64)=9.04, p<.01$. Those in the minority expressed more complex opinions than those in the majority ($M=2.04, SD=1.32$ vs. $M=1.32, SD=.74$). An unexpected main effect for article type was also observed, $F(1,64)=5.85, p=.02$. Participants who read an article that supported 'traditional" marriage showed more complexity than those who read an article that supported same-sex marriage ($M=1.83, SD=1.29$ vs. $M=1.43, SD=.83$). However, no main effect for social issue was observed, $F(1,64)=.71, p>.05$. As expected, those in favor of same-sex marriage showed no differences in

complexity from those who were opposed (M =1.61, SD=1.01 vs. M =1.53,

SD=1.25).

An interaction between status and article type was also observed, $F(1,$

64)=6.29, p=.02. When participants in the minority read an article that supported

upholding the "traditional" definition of marriage, they showed more complexity than

those in the other conditions (see Table 2).

Table 2

Experiment 1: Means and Standard Deviations for Group Status x Article Type on
Integrative Complexity

| | Article type | | | |
| | Supports "traditional" marriage | | Supports same-sex marriage | |
Group status	M	SD	M	SD
Majority	1.28	.75	1.35	.75
Minority	2.67	1.50	1.56	.96

Mediational tests were conducted to examine whether cognitive appraisal,

anxiety, and coping expectancy mediated the relationship between status and

complexity. Using Baron and Kenny's (1986) test, status, complexity, and each of the

potential mediating variables were entered into regression analyses to test for

mediation. Each proposed mediator was tested individually. According to this model,

the status manipulation should significantly predict the dependent measure of

cognitive complexity, and status should also predict each of the proposed mediators.

Each mediator should also significantly predict complexity, while controlling for

status, in order to find at least partial mediation. Status was found to be a significant

predictor of complexity (see Figures 3-6).

$b=.10, p>.05$ ⟶ Threat Appraisal ⟶ $b=-.01, p>.05$

Group Status ⟶ Integrative Complexity

$r=.33, p<.01$

Figure 3. Experiment 1: Path diagram for threat appraisal as mediator of group status on complexity.

$b=.06, p>.05$ ⟶ Challenge Appraisal ⟶ $b=.07, p>.05$

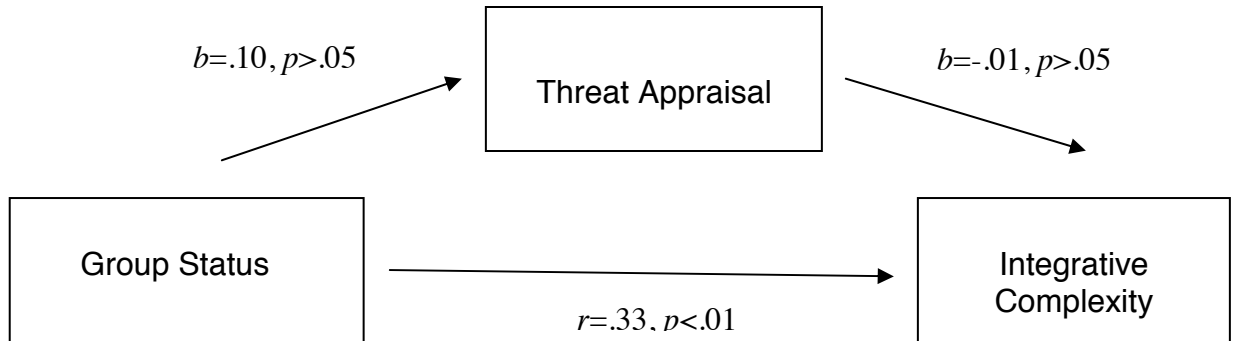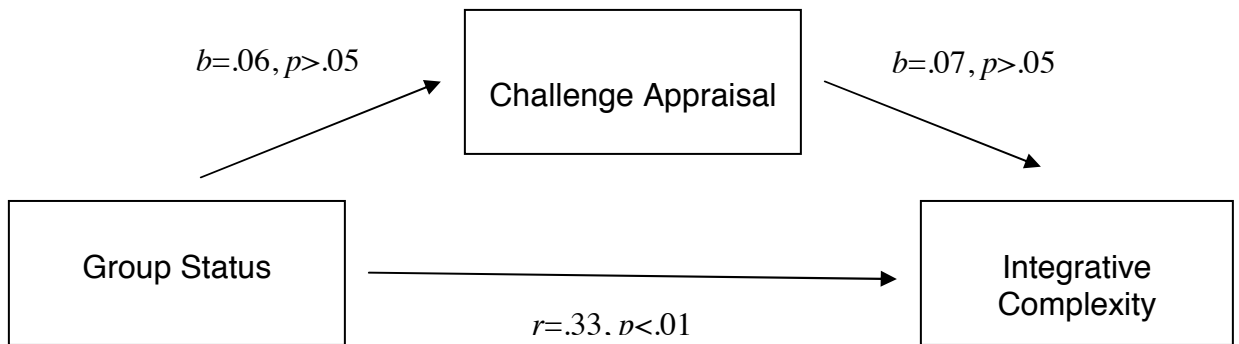Group Status ⟶ Integrative Complexity

$r=.33, p<.01$

Figure 4. Experiment 1: Path diagram for challenge appraisal as mediator of group status on complexity.
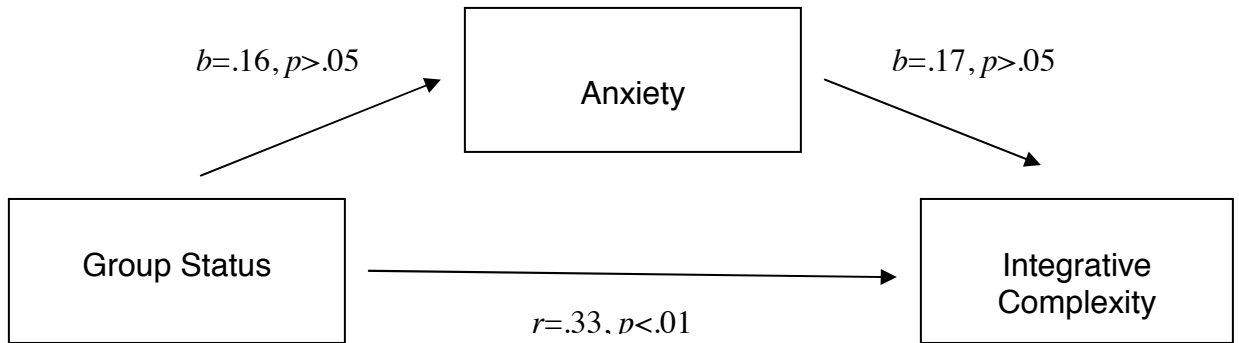
Figure 5. Experiment 1: Path diagram for anxiety as mediator of group status on complexity.
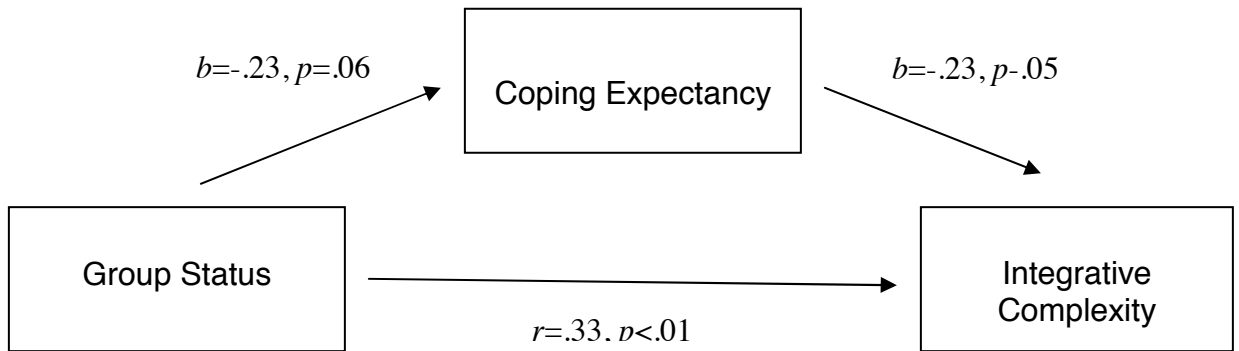
Figure 6. Experiment 1: Path diagram for coping expectancy as mediator of group status on complexity.

However, status did not predict threat appraisal (see Figure 3); minority members did not report higher scores on the threat appraisal measure than majority members (M=2.78, SD=1.02 vs. M=2.56, SD=1.15), $F(1, 69)$ =.67, p>.05. Status also did not predict challenge appraisal (see Figure 4); minority members did not report significantly lower scores than majority members on the challenge appraisal measure (M=3.27, SD=1.03 vs. M=3.15, SD=1.10), $F(1, 69)$ =.22, p>.05. Additionally, status was not a predictor of anxiety (see Figure 5), $F(1, 69)$ =1.72, p>.05; Minority members did not report higher anxiety levels than majority members (M=2.91, SD=1.21 vs. M=2.59, SD=.91). Group status was found to be a marginally significant

predictor of the final proposed mediator, coping expectancy (see Figure 6), $F(1, 69)$

$=3.67, p=.06$; Minority members ($M=4.37, SD=1.22$) reported marginally lower levels

of coping expectancy than majority members ($M=4.86, SD=.94$). Coping expectancy,

while controlling for status, however, did not predict complexity (see Figure 6).

As a set, threat appraisal, challenge appraisal, anxiety, and coping expectancy

significantly predicted integrative complexity, $R=.41, p=.01$. Controlling for the other

proposed mediators, threat appraisal, challenge appraisal, and anxiety each

significantly predicted complexity (b's=-.46, .28, .41, $p<.05$). Controlling for threat

appraisal, challenge appraisal, and anxiety, coping expectancy did not predict

complexity ($b=-.25, p>.05$).

These analyses demonstrated that cognitive appraisal, anxiety, and coping

expectancy did not mediate the relationship between status and complexity. Status

did, however, marginally predict coping expectancy, and coping expectancy predicted

complexity.

Using the Sobel test for mediation, none of the proposed mediators (threat,

challenge, anxiety, and coping expectancy) significantly mediated the relationship

between status and complexity (z's=02, .11, .81, and 1.11, $p>.05$, respectively).

Correlational analyses were also conducted to assess the relationships among

the predicted mediating variables. As anticipated, coping expectancy was negatively

related to threat and anxiety, and threat and anxiety were positively correlated (see

Table 3). However, threat and challenge were also positively correlated, which was

unexpected. All correlations among mediators are shown in Table 3.

Table 3

Experiment 1: Correlation Matrix for Proposed Mediators and Independent Variable

Mediators	Anxiety	Threat appraisal	Challenge appraisal	Coping expectancy	Group status
Anxiety	--	.66**	-.09	-.69**	.16
Threat appraisal		--	.29*	-.57**	.10
Challenge appraisal			--	.11	.03
Coping expectancy				--	-.23
Group status					--

*p < .05, **p<.01

A main effect for group status was found, revealing that minority members expressed more complex opinions than majority members. This finding was contrary to the hypothesis that majority members would show greater complexity than minority members. Also, an unexpected main effect for article type was observed, whereby those who read an article supporting "traditional" marriage showed greater complexity than those who read an article that supported changing the "traditional" definition of marriage to allow for same-sex marriages. The observed interaction between group status and article type was also not expected, but it revealed that those in the minority who read an article favoring "traditional" marriage showed greater complexity than those in all of the other conditions. With regard to mediational analyses, none of the proposed mediators (cognitive appraisal, anxiety, and coping

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expectancy) were found to be significant mediators of the relationship between group status and integrative complexity.

Discussion

The observed main effect of status in Experiment 1 revealed that individuals in the minority expressed greater levels of complexity than those in the majority, which was contrary to predictions. Some past research, though, has shown that moderate amounts of stress or anxiety may increase complexity (Suedfeld & Granatstein, 1995; Suedfeld et al., 1986; Suedfeld et al., 1993). In this experiment, anxiety and threat were strongly correlated ($r = .66$), and it is possible that, although they were not found to be significant mediators of group status and complexity, perceptions of threat and higher anxiety levels contributed to increases in complexity of thinking in some (perhaps less direct) way. Controlling for the other proposed mediators, anxiety and challenge appraisal positively predicted complexity, which does suggest that some anxiety may be associated with more complex thinking. Also, threat appraisal, controlling for the other variables, negatively predicted complexity, which also suggests that cognitive appraisal may be associated with changes in complexity, at least in some situations.

Furthermore, as Skinner and Brewer (2002) discussed, it may be possible to perceive a situation as both challenging and threatening at the same time, thereby eliciting a threat appraisal as well as a challenge appraisal. In the second experiment, threat and challenge appraisal variables were combined to form a dual-appraisal variable (threat appraisal x challenge appraisal), and this dual-appraisal variable was investigated as a possible mediator.

Additionally, an unexpected interaction was observed, such that those in the minority who read an article favoring "traditional" marriage showed greater complexity than all of the other conditions. One possibility, with regard to this finding, was that most of the sample was in favor of same-sex marriage, and thus, likely opposed the article favoring "traditional" marriage. Reading an article about a court case where the majority of judges supported traditional marriage may have made participants feel as though they were in the minority, which could have served as a moderate stressor, possibly motivating them to think more complexly. Those in the minority group status condition, then, might have perceived the situation as even more stressful (but not exceeding the threshold at which stress negatively impacts complexity), which may have motivated them to think even more complexly than those in the other conditions. In order to control for this possibility, all participants in Experiment 2 read an article that was in opposition to their personal view. For example, participants who indicated they opposed same-sex marriage were always given the article about a court case that ruled in favor of same-sex marriage. As a result, the potential for article type to be a confounding variable was reduced.

In Experiment 2, cognitive appraisal (threat/challenge) was primed, in order to assess whether it moderated the relationship between group status and complexity. It was expected that priming threat/challenge would lead to changes in complexity of thought. Experiment 2 also examined whether cognitive appraisal, anxiety, and coping expectancy mediated the interaction between group status and appraisal (threat/challenge) prime on complexity. It also assessed whether the proposed mediators mediated the relationship between cognitive appraisal prime and

complexity, as well as group status and complexity. One possibility was that minorities and majority members in the threat prime condition would show greater levels of anxiety and threat appraisal, and reduced levels of coping expectancy and challenge appraisal, while those in the challenge prime conditions would show decreased anxiety and threat appraisal levels, and greater levels of coping expectancy and challenge appraisal.

Alternative Hypotheses

The predictions made for the present set of experiments support past findings with regard to group status effects on complexity (Gruenfeld et al., 1998). However, based on the results of Experiment 1, an alternative set of predictions could also be made for Experiment 2. According to the *disruptive stress hypothesis*, if minority members, overall, experienced mild increases in anxiety, they could show more complexity than majority members. Furthermore, if minority members perceived increased threat levels, this could also lead to increased complexity, particularly if they were confident in their ability to cope with demands of the situation. In fact, the threat prime could serve to strengthen perceptions of threat and increase anxiety further, which could lead to an even greater increase in complexity as opposed to those in the other conditions, as long as the stress "threshold" was not surpassed. On the other hand, minorities in the threat condition could experience levels of threat and anxiety that might go beyond the moderate increases that have been associated with increased complexity, thus leading to decreased complexity when compared to those minorities in the challenge and control conditions.

Additionally, based on the *disruptive stress hypothesis,* it was possible that a main effect for the threat/challenge prime could be observed, such that the threat prime could lead to moderately increased perceptions of threat and anxiety levels, and as a result, those in the threat conditions could demonstrate *more* complex thinking than those in the challenge conditions.

Furthermore, it was possible that minorities might perceive the situation as more threatening, but due to the moderate increases in stress, they might also feel more motivated and challenged to try and influence or persuade majority members to change their opinions, particularly in the challenge condition. Therefore, it was possible that minorities in the challenge prime condition could report higher levels of threat and challenge appraisal simultaneously, which could lead to even greater motivation to think complexly. In fact, there is some prior evidence that both threat and challenge appraisal styles can be present at the same time (See Skinner & Brewer, 2002). As Skinner and Brewer (2002) suggested, it may be possible to perceive a situation as both challenging and threatening, thereby eliciting both a threat and challenge appraisal. As a result, minorities in the challenge prime condition could demonstrate greater complexity than majority members in the challenge prime condition. Majority members in the challenge prime condition, on the other hand, could perceive the situation a stressful, and therefore would not be motivated to think complexly about the issue. In Experiment 2, the threat appraisal and challenge appraisal variables were combined (see Skinner & Brewer, 2002) to form a dual-appraisal variable (threat appraisal x challenge appraisal), and this new

variable was also examined as a possible mediator of complexity (in addition to the individual threat and challenge appraisal variables).

Another possibility, based on the results of Experiment 1, was that minority members in the threat prime condition might report even greater levels of threat and anxiety (and lower levels of coping expectancy and challenge) than majority members in the threat prime condition. In Experiment 1, majority members did report higher levels of coping expectancy than minority members (4.86 vs. 4.29), and coping has been previously associated with challenge appraisals, and negatively associated with threat appraisals and anxiety. These findings were in line with the *disruptive stress* hypothesis discussed earlier in this paper. In Experiment 1, coping expectancy negatively predicted complexity, and this effect could again be observed in Experiment 2. In fact, minorities who were primed with threat could show the lowest levels of coping expectancy, and the greatest levels of anxiety and threat, which may lead to the most complex thinking (assuming the "stress threshold" is not surpassed).

An additional possible outcome was that minorities who were primed with challenge could show greater levels of challenge and threat appraisals, thereby making a dual appraisal based on the situation. The perceived stress of being in the minority, in conjunction with the challenge appraisal, could serve to motivate the minorities to think more complexly than majority members in the challenge condition. Majority members in the challenge prime condition may perceive little situational stress, and especially since they are already in the majority opinion, may

feel very able to cope with the situation and lack motivation to think more complexly.

A final possibility that was considered was that minority members in the threat prime condition could show lower levels of complexity than majority members in the threat condition. Again, based on the *disruptive stress* hypothesis, it was possible that minorities who were primed with threat would report greater levels of anxiety and threat appraisal (and lower levels of coping expectancy and challenge) than those in the majority who were primed threat. Minorities primed with threat could potentially experience increased anxiety and threat to the point that it exceeds that optimal threshold and decreases complexity rather than increasing it. Similarly, they could report lower levels of coping expectancy, such that reduced coping expectancy hinders motivation or ability to think complexly about the issue. For the same reasons, minority members in the threat prime condition could show lower levels of complexity than minorities in the control and challenge prime conditions. Also, based on the disruptive stress hypothesis, majority members in the threat prime condition could show greater complexity than those in the challenge prime and control conditions. The threat prime could moderately increase perceptions of threat and anxiety levels, and decrease coping ability to a point where it would increase motivation to think more complexly. This would be consistent with the finding in Experiment 1 that coping expectancy negatively predicts integrative complexity.

The results of Experiment 1 may also be interpreted in relation to the body of research on power (e.g. Keltner, Gruenfeld, & Anderson, 2003; Galinksy, Magee, Gruenfeld, Whitson, and Liljenquist, 2008). Keltner et al. (2003) defined power as

"an individual's relative capacity to modify others' states by providing or withholding

resources or administering punishments (p. 265). Galinsky et al. (2008) further

defined power as "asymmetric control over valuable resources and outcomes within a

specific situation and set of social relations" (p. 1451), whereby those with power

may have control over others as well as independence from others in obtaining certain

outcomes (Galinsky et al. 2008; ; see also Fiske, 1993; Fiske & Berdahl, 2007;

Keltner et al., 2003). Furthermore, Galinsky et al. (2008) surmised that, by this

definition, power, could also be described as "the capacity to be *uninfluenced* by

others" (p. 1451).

Keltner et al. (2003) did distinguish power from related constructs such as

status, which they defined as the "outcome of an evaluation of attributes that produces

differences in respect and prominence" (p. 266), and they noted that it is possible to

have power without status (and vice versa). However, they also pointed out that

status, at least in part, determines how resources are distributed within groups, and as

such, it can be a determinant of individuals' power (Keltner et al., 2003).

Based on a broad range of past research findings, Keltner et al. (2003) proposed

a model of power that focused on approach and inhibition related tendencies in

relation to social context. Their model posited that increased power involves,

"reward-rich environments and freedom and, as a consequence, triggers approach-

related positive affect, attention to rewards, automatic cognition, and disinhibited

behavior" (p. 265). They proposed that reduced power, on the other hand, is

associated with "increased threat, punishment, and social constraint and thereby

activates inhibition-related negative affect, vigilant, systematic cognition, and

situationally constrained behavior" (p. 265). Their model was partially based on research regarding behavioral approach and inhibition, and was influenced by Higgins's (1997, 1999) theory of self-regulatory focus.

Higgins' theory focused on the social processes by which people may obtain rewards and avoid threats (i.e. whether they focus on promotion versus prevention). Higgins and colleagues (e.g. Higgins, Shah, & Friedman, 1997; Shah & Higgins, 2001) have proposed that:

> a promotion focus, triggered by nurturance needs, associations regarding the ideal self, and potential gains, activates cheerful (or dejected) affect (Higgins, Shah, & Friedman, 1997; Shah & Higgins, 2001), approach-related behavior, and the heightened sensitivity to positive outcomes (Brendl, Higgins, & Lemm, 1995). (p. 268) A prevention focus, triggered by security needs, associations regarding the ought self, and potential punishment, activates agitated affect, avoidant behavior, and the sensitivity to negative outcomes (p. 268).

As Keltner et al. (2003) discussed, previous research has demonstrated that rewards and opportunities can trigger approach-related processes that help individuals pursue and obtain related goals, while inhibition-related processes are activated by punishment, threat, and uncertainty. Keltner et al.'s (2003) model specifically predicted that high power is associated with positive affect, attention to rewards, automatic information processing, and disinhibited behavior. Low power, according to their model, is associated with negative affect, attention to threat and punishment, and attention to others' interests and features of the self that are relevant to others'

goals. Low power should also be associated with controlled information processing and inhibited social behavior.

Research conducted by Fiske (1993) and Neuberg and Fiske (1987) provided early evidence that high-power individuals are more likely to use automatic processing to interpret social events, possibly because they are less motivated to attend to the consequences of their actions, also because individuals in more powerful positions tend to have more cognitive demands placed on them (see Keltner et al., 1998; Fiske, 1993; Neuberg & Fiske, 1987). Additionally, power has been linked to positive affect, and positive affect is associated with more automatic information processing (Bodenhausen, Sheppard, & Kramer, 1994, cited in Keltner et al., 2003); Lerner & Keltner, 2000, as cited in Keltner et al., 2003). Lower power, conversely, has been associated with depressed mood and anxiety, which can lead to more controlled, effortful information processing (see Bodenhausen et al., 1994; Lerner & Keltner, 2001; see Keltner et al., 2003). Furthermore, past research has shown that minority groups who are stereotypically associated with reduced power (e.g. Asians and African Americans) have reported increased anxiety relative to European Americans (e.g., Sasao, Toshiaki, Duval, & Sadamura, 1986, as cited in Keltner et al., 2003; Warren, 1997, as cited in Keltner et al., 2003).

Based on their proposed model, Keltner et al. (2003) hypothesized that individuals who are low in power should show greater levels of integrative complexity in comparison those who are high in power. This could possibly occur because those low in power may experience increased concern about the consequences of their actions, and this variable has been previously associated with

high levels of complexity (Lerner & Tetlock, 1999, as cited in Keltner et al., 2003); see also Tetlock, 1992). The results of Experiment 1 may be interpreted from a similar perspective. It could be that minority status, similar to low power (as status is related to power). leads greater complexity of thought. Additionally, minority members, like those low in power, may perceive increased perceptions of threat and anxiety (as well as coping expectancy), and these variables may mediate the relationship between status and complexity. Predictions based on this model may be similar to those suggested by the *disruptive stress* hypothesis, although it does not necessarily predict the curvilinear relationship (whereby increased stress, beyond a certain threshold, leads to a reduction in complexity) that the *disruptive stress* hypothesis allows for.

Chapter 3: Experiment 2

A primary goal of Experiment 2 was to manipulate cognitive (threat/challenge) appraisal through a priming procedure, to determine the impact of a perceived threat versus a perceived challenge on levels of complexity. It was posited that majority members may be more likely to perceive a conflict in terms of a challenge appraisal, but minority members may be more likely to perceive a conflict in terms of a threat appraisal. Although status did not predict cognitive appraisal in Experiment 1, it did predict coping expectancy, and coping expectancy has been linked to cognitive appraisal in a wide range of studies (Skinner & Brewer, 2002; Tomaka et al., 1997). Coping expectancy was also correlated with threat appraisal in Experiment 1.

Priming threat or challenge could change the interpretation of the situation, and the group status differences observed in Experiment 1 could be enhanced or reduced, accordingly. Threat/challenge prime was manipulated by having participants read a set of instructions before reading an article about a court decision on an important social issue.

Similar to Tomaka et al.'s (1997) manipulation of appraisal, participants read one of two sets of instructions. One set emphasized accuracy, performance and potential evaluation, and mentioned that some students had previously found the group discussion task to be threatening and intimidating, while the other set emphasized putting forth effort, thinking of the group discussion task as a challenge, and doing one's best to meet the challenge. These latter instructions also mentioned that some students had found the group discussion task to be challenging and

inspirational. The first set of instructions was designed to produce a threat appraisal and response, while the second set was expected to produce a challenge appraisal and response.

In the threat prime condition, participants were told:

> We want you to be aware that some students have found the group discussion task to be threatening. It's also been described as intimidating. Many seem to worry about the fact that their performance within the group will be evaluated, and that the quality of their arguments will be assessed. Keeping this in mind, we ask that you express your opinion on the issue, and be sure that any facts you state are accurate.

In the challenge prime condition, participants were told:

> We want you to be aware that some students have found the group discussion task to be challenging. It's also been described as inspirational. We'd like you to think of this task as a challenge, and to think of yourself as someone who is capable of meeting that challenge. Keeping this in mind, we ask that you express your opinion on the issue, and put forth your best effort.

A control condition was also included, which was expected to replicate Gruenfeld et al.'s (1998) findings that majority members showed greater levels of complexity than minorities. Alternatively, it could replicate the results of Experiment 1, finding that minority members showed more complexity than majority members.

This experiment was a 2 (group status: majority vs. minority) x 3 (appraisal prime: threat prime vs. challenge prime vs. no prime) design with integrative complexity as the dependent measure. Opinion statements were independently coded by two individuals to determine levels of complexity. Coding procedures were followed exactly as described in Experiment 1.

Method

Participants

93 undergraduate psychology students from the University of Maryland participated in this experiment. They were recruited via email and through a web-based, voluntary registration system. Participants received extra credit in their psychology courses in exchange for participation. Four participants were dropped from the analyses because they did not recall their group status (majority vs. minority) during the manipulation check. Two more participants were dropped for not recalling which set of instructions they were given (i.e. the "challenge prime" instructions vs. the "threat prime" instructions) during the manipulation check. Five additional participants were then dropped from the analyses for indicating, during the suspicion check, that they did not believe their group status position was real, and/or they did not believe a group discussion was really going to take place. All five also correctly identified a significant portion of the hypotheses, and therefore were excluded from further analyses.

Measures

The opinion assessment that was used in Experiment 1 to assess integrative complexity was used in this experiment as well. Opinion assessments were coded for integrative complexity using content analysis coding procedures (See Baker-Brown et al., 1992; Schroder et al., 1967; Tetlock, 1983; 1986). An original, multiple-choice survey measure of integrative complexity (Appendix F) was also used in the experiment, but was dropped from the final analyses due to a lack of construct validity between the two measures. The cognitive appraisal, anxiety, and coping expectancy measures that were used in the first experiment were also administered in this experiment.

Procedure

The procedure for Experiment 2 closely followed the procedure for Experiment 1. One significant change was that some participants were given instructions that were designed to prime threat, some were given instructions to prime challenge, and some were given no accompanying instructions. This third condition served as the control condition. A second change in Experiment 2 was that participants were always given an article that disagreed with their position on the social issue, whereas in the previous experiment, this type of article had been varied. This change was made to eliminate type of article as a potentially confounding variable. A third change was that participants were asked to complete an additional, multiple-choice measure of integrative complexity after completing their opinion assessments.

Manipulation checks were administered at the end of the experiment. Participants were asked to indicate whether they were informed, prior to the group

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discussion, that their opinion was in the majority/minority. Participants also indicated whether they were told "everyone in the group agrees with you" (the majority condition) or "no one in the group agrees with you" (the minority condition). Additionally, as a manipulation check for the appraisal prime variable, participants were asked to indicate whether the instructions they had been given emphasized accuracy and performance, and mentioned threat, or whether they emphasized putting forth effort and doing their best, and mentioned challenge.

Results

Reliability analyses were conducted on the scales for the proposed mediating variables to assess internal consistency. The anxiety scale and the threat and challenge appraisal scales were found to be reliable (see Table 4).

Table 4

Experiment 2: Reliability Analyses

Scale	Initial alpha	Item(s) dropped	Final alpha
Anxiety	.83	0	.83
Threat appraisal	.88	0	.88
Challenge appraisal	.86	0	.86
Coping expectancy	.77	1 (#9)	.82

The coping scale was also shown to be reliable, although the first item was dropped in order to increase reliability (see Table 4).

Inter-rater reliability between the two coders on the content analysis measure of integrative complexity was also significant, $r=.88, p<.01$.

An additional multiple-choice measure of complexity (Appendix D) was originally included in this experiment. In order to assess construct validity, a correlational analysis was conducted to determine whether the content analysis measure of integrative complexity was associated with the new, multiple-choice measure. The new measure was a survey of seven statements, which varied in complexity according to the seven-point scale used in the content analysis measure. The statements were adapted from sample statements found in the complexity coding manual (see Appendix D). Participants were asked to check the statement that was most similar to their opinion.

Using the first coder's data, the two integrative complexity measures were not significantly related, $r=.10, p>.05$. Looking at the second coder's data, there was a small but significant correlation between the two measures, $r=.30, p<.01$. The content analysis measure of integrative complexity has been established as a valid measure, and has been shown to be reliable over time. Therefore, due to the lack of construct validity between the two measures, the survey measure was dropped, and the content analysis scores were used for subsequent analyses.

A 2 (status: majority vs. minority) x 3 (prime: threat vs. challenge vs. control) x 2 (social issue: for vs. against same-sex marriage) ANOVA was conducted to determine whether social issue was a potential confounding variable. There was no main effect for social issue ($F(1, 63)=.11, p>.05$), and social issue did not interact with status ($F(1,63)=.22, p>.05$) or prime ($F(2,63)=.04, p>.05$). Therefore, social

issue was eliminated as a potential confound, and the proposed 2 (status: majority vs. minority) x 3 (cognitive appraisal prime: threat vs. challenge vs. control) ANOVA was conducted, using the content analysis measure of integrative complexity as the main dependent variable.

The 2 (status: majority v. minority) x 3 (prime: threat v. challenge v. control) ANOVA produced a main effect for status, $F(1, 68)=22.02, p<.001$. Consistent with the results of Experiment 1, minority members showed greater complexity than majority members ($M=2.19, SD=1.23$ vs. $M=1.33, SD=.72$). A marginally significant main effect was also found for prime, $F(2, 68)=2.59, p=.08$. Participants in the threat condition expressed higher levels of complexity than those in the challenge and control conditions ($M= 1.88, SD=1.20$ vs. M's$=1.61, SD=1.04$ and $1.68, SD=1.02$, respectively).

A significant interaction between status and appraisal prime was also found, $F(2, 68)=4.24, p=.02$. Minority members who received the threat prime showed the most complexity, whereas majority members in the threat and control conditions were the least complex (see Table 5). Across the majority conditions, there were no differences between the challenge, threat and control groups. Looking at the minority conditions, significant differences were found across type of prime, $F (2, 68) =5.07$, $p<.01$. For minorities, those in the threat group showed more complexity than those in the challenge and control groups (see Table 5).

Table 5

Experiment 2: Means and Standard Deviations for Prime Type x Group Status on
Integrative Complexity

| | Group Status | | | |
| | Majority | | Minority | |
Prime Type	*M*	*SD*	*M*	*SD*
Threat Prime	1.18	.40	3.40	.89
Challenge Prime	1.25	.46	1.90	1.29
Control	1.44	.90	2.00	1.11

Across the threat conditions, a significant difference was observed between majority
and minority members, $F=(1, 68)=19.53, p<.001$. Minority members showed more
complexity than majority members within the threat conditions (see Table 5). In the
control conditions, there was a marginally significant difference between majority
and minority groups, $F(1, 68) =3.61, p=.06$, and majority members showed less
complexity than minority members (see Table 5). No significant differences were
found among the three challenge conditions, however.

Analyses were also conducted to determine whether the proposed mediating
variables mediated the interaction between group status and cognitive appraisal
prime on complexity. Using Baron and Kenny's (1986) test, the interaction term
(group status x cognitive appraisal prime) was not significant, $F(2, 69)=2.30, p>.05$,
and did not predict complexity, $b=-.16, p>.05$. Therefore, further mediational
analyses were not run to assess mediated moderation.

Appraisal prime did not predict complexity (r=-.05, p>.05) either, so no further mediational analyses were conducted. Further analyses were carried out to assess whether or not cognitive appraisal, anxiety, or coping expectancy mediated the relationship between status and integrative complexity. Using Baron and Kenny's test for mediation, group status was found to predict integrative complexity, r=.42, p<.01. Status also positively predicted anxiety and threat, and negatively predicted coping expectancy, but did not significantly predict challenge (see Table 6; see Figures 7-10).

Table 6

Experiment 2: Correlation Matrix for Proposed Mediators and Independent Variables

Variable	Anxiety	Threat appraisal	Challenge appraisal	Coping expectancy	Threat-challenge appraisal	Group status	Prime type
Anxiety	--	.67**	.13	-.55**	.54**	.27*	-.11
Threat appraisal		--	.35**	-.50**	.89**	.35**	-.09
Challenge appraisal			--	.04	.69**	.09	-.03
Coping expectancy				--	-.33**	-.40**	.13
Threat-challenge appraisal					--	.33**	-.04
Group status						--	N/A
Prime type							--

*p<.05,**p<.01

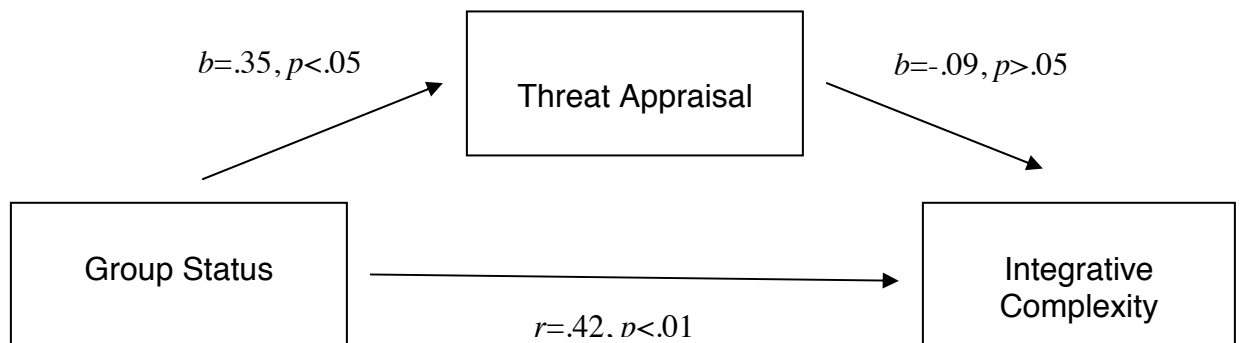*Figure 7*. Experiment 2: Path diagram for threat appraisal as mediator of group status on complexity.
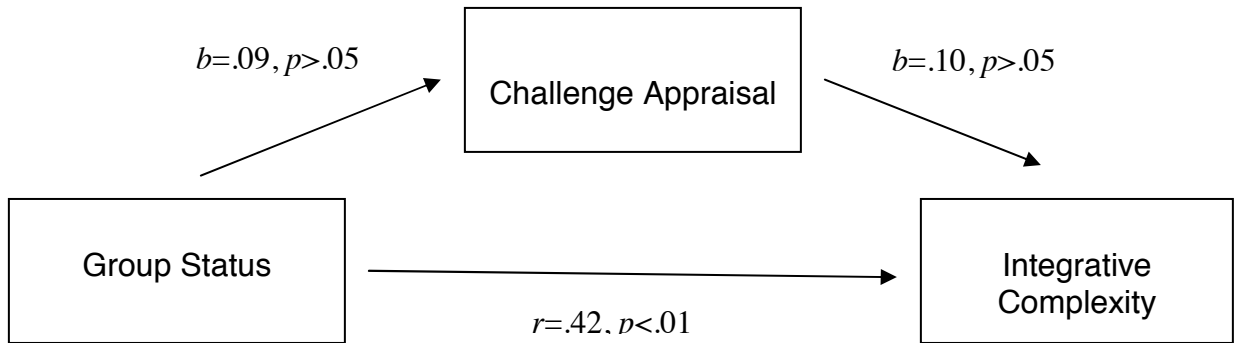
Figure 8. Experiment 2: Path diagram for challenge appraisal as mediator of group status on complexity.
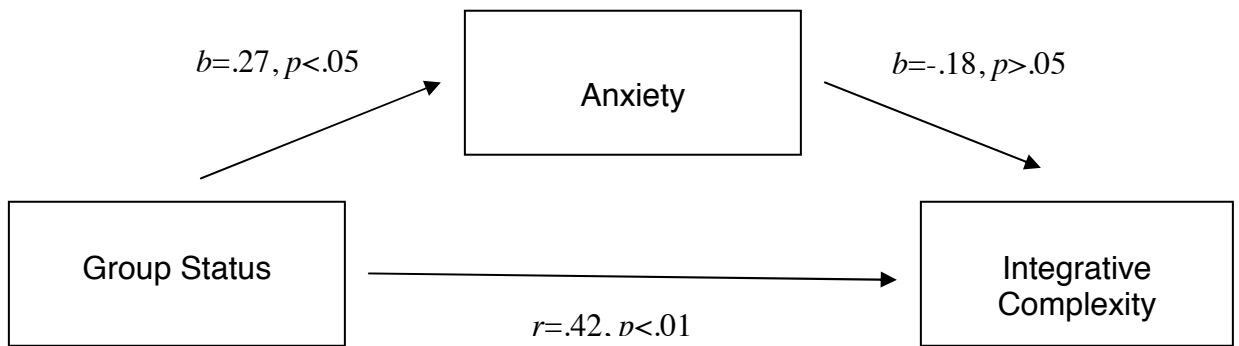

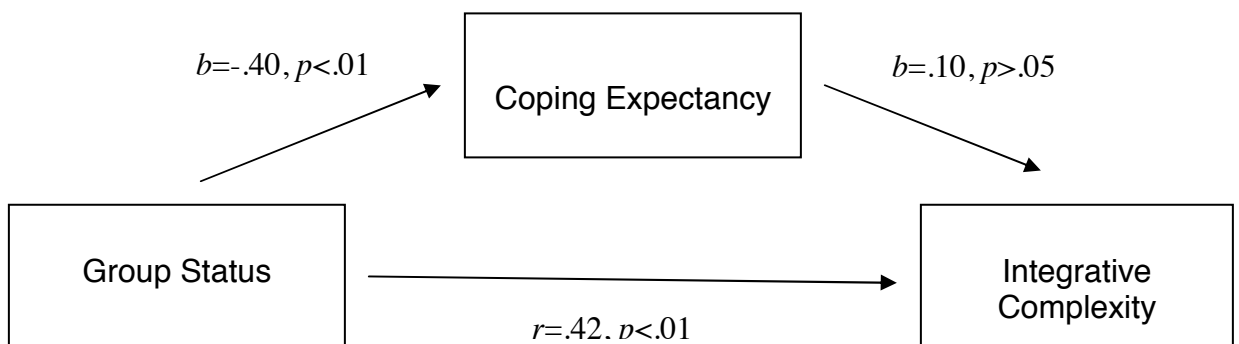*Figure 9.* Experiment 2: Path diagram for anxiety as mediator of group status on complexity.

Figure 10. Experiment 2: Path diagram for coping expectancy as mediator of group status on complexity.

Additionally, status predicted a threat-challenge dual appraisal (see Table 6; Figure 11).
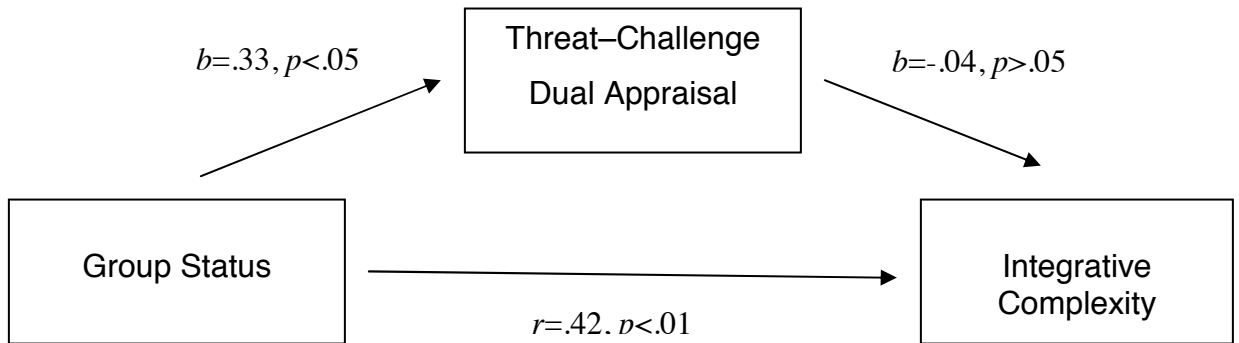
Figure 11. Experiment 2: Path diagram for threat-challenge dual appraisal as mediator of group status on complexity.

Looking at the proposed mediators (anxiety, threat, challenge, coping expectancy, and threat-challenge), none of them predicted complexity while controlling for status (see Figures 7-11).

Group status predicted threat appraisal, $F(1, 81) = 11.11, p<.001$; minority members ($M=2.75, SD=1.09$) reported higher levels of threat appraisals than majority members ($M=2.03, SD=.86$). Status did not predict challenge appraisal, however, $F(1, 81) =.72, p>.05$. Majority members did not report higher levels of challenge appraisal ($M=3.13, SD=1.09$ vs. $M=3.34, SD=1.09$). Status was a predictor of anxiety, $F(1, 81) =6.67, p=.01$; minority members reported higher levels of anxiety than majority members ($M=2.87, SD=.85$ vs. $M=2.42, SD=.74$). Status was also a predictor of coping expectancy, $F(1, 81) =15.60, p<.001$; Majority members reported higher levels of coping expectancy than minority members ($M=5.01, SD=.88$ vs. $M=4.20, SD=.98$). Finally, status did predict the dual threat-challenge appraisal, $F(1, 81)$

=9.68, $p<.001$. Minority members reported higher levels of dual threat-challenge appraisal (M=9.78, SD=6.01 vs. 6.49, SD=3.65).

The appraisal prime was not a predictor of threat appraisal, $F(1, 78)$ =.32, $p>.05$. No differences were observed between the threat prime, challenge prime, and control conditions (M=2.49, SD=.94; M=2.23, SD=1.13; M=2.39, SD=1.03). The prime also did not predict challenge appraisal, $F(1, 78)$ =.17, $p>.05$. Threat prime (M=3.40, SD=.94), challenge prime (M=3.30, SD=1.18), and control (M=3.22, SD=1.11) conditions did not differ in terms of levels of threat appraisal. Appraisal prime did not predict anxiety either, $F(1, 78)$ =.74, $p>.05$. No differences were observed between the threat prime, challenge prime, and control conditions (M=2.67, SD=.83; M=2.42, SD=.76; M=2.68, SD=.89). Appraisal prime did not predict coping expectancy, $F(1, 78)$ =.77, $p>.05$. No differences were observed between the threat prime, challenge prime, and control conditions (M=4.44, SD=.97; M=4.83, SD=1.00; M=4.54, SD=1.13). Finally, appraisal prime did predict the dual threat-challenge appraisal, $F(1, 78)$ =.19, $p>.05$. Threat prime, challenge prime, and control conditions did not differ on the dual appraisal variable (M=8.77, SD=4.55; M=8.09, SD=6.04; M=7.89, SD= 4.74).

As a set, the proposed mediators did not predict complexity, R=.18, $p>.05$, and none of the proposed mediators (threat appraisal, challenge appraisal, anxiety, coping expectancy, and dual threat-challenge appraisal) controlling for the others, predicted complexity (b's=.15, .13, -.12, -.21, and -.09, $p>.05$, respectively).

While status was a predictor of anxiety, threat appraisal, coping expectancy, and threat-challenge dual appraisal, none of the proposed mediators mediated the

relationship between status and complexity. Path analyses for anxiety, threat appraisal, challenge appraisal, coping expectancy, and threat-challenge dual appraisal are shown in Figures 7-11, respectively.

Using the Sobel test for mediation, none of the proposed mediators (anxiety, threat, challenge, coping expectancy, or dual threat-challenge appraisal) mediated the relationship between status and complexity (z's=.-1.23, -.78, .51, -.84, and -.47, p>.05, respectively).

Additional correlational analyses were run to assess the relationships between the predicted mediating variables. As predicted, coping expectancy was negatively related to threat and anxiety, but was not associated with challenge (see Table 6). Coping expectancy was also negatively correlated with the threat-challenge dual appraisal. Also, anxiety and threat were positively correlated, as well as anxiety and threat-challenge dual appraisal, but anxiety was not related to challenge appraisal alone (see Table 6). Threat and challenge were also found to be positively correlated, as they were in Experiment 1. All correlations are shown in Table 6.

A status x prime interaction was expected, such that those in the challenge conditions, regardless of group status, would be more complex than those in the threat conditions, while in the control conditions, those in the majority (similar to those in the challenge conditions) would be more complex than those in the minority (who's scores would be similar to those in the threat conditions). An interaction was found, but these predictions were not supported. In fact, minorities in the threat condition were more complex than majority members. Also, minority members in the control condition were expected to show less complexity than majority members,

but a marginally significant effect illustrated that minority members in the control group showed greater complexity than majority members, which was consistent with the findings of Study 1.

Furthermore, those in the challenge conditions were expected to show greater complexity than those in the threat conditions, but, in fact, for minorities, the opposite was observed. They were more complex in the threat condition than in the challenge condition. These findings are consistent with the alternative predictions that were previously discussed. Results of the mediational analyses revealed that neither cognitive appraisal (threat, challenge, as well as the dual threat-challenge), nor anxiety, nor coping expectancy significantly mediated the relationships between appraisal (threat/challenge) prime and integrative complexity group status and integrative complexity or group status and complexity.

Discussion

In Study 2, a significant interaction between group status and cognitive prime was observed, such that cognitive appraisal prime did moderate the relationship between group status and integrative complexity. This interaction did not support the original predictions, but it did support the alterative hypotheses that were also discussed earlier. Findings were in line with both the *disruptive stress* hypothesis, and Keltner et al.'s (2003) model of power and its relationship to approach and inhibition tendencies.

Chapter 4: General Discussion

In Experiment 2, a significant interaction between group status and cognitive prime was observed, such that cognitive appraisal prime did moderate the relationship between group status and integrative complexity. This interaction did not support the original predictions, but it did support the alterative hypotheses that were also discussed. Threatened minorities showed greater complexity than those in the challenge prime and control conditions. This was the opposite of what was predicted. Furthermore, across control conditions, minorities showed more complexity than majority members. This, again, was the opposite of what was expected, but this finding was in line with the results of Experiment 1. When cognitive appraisal was not primed, minorities in both experiments demonstrated greater levels of complexity than majority members.

Across majority conditions, no differences were observed between the threat, challenge, and control conditions. This finding was also not in line with original predictions, which posited that majority members in the threat condition would show less complexity than majority members in the other two conditions. It had been proposed that the threat prime would lead to reduced ability or motivation to think complexly, regardless of group status. This was expected based on the rationale that if appraisal is primed, then individuals might not perceive a need to make a particular, situational appraisal based on other factors, such as group status. However, this was not the case. Majority members were not affected by the appraisal prime. It could be that majority members, because they were not anxious and

believed they would be able to cope with the demands of the situation, were not motivated to think complexly about the issue.

While these findings did not support the original hypotheses, they did provide some evidence of support for alternative hypotheses. According to the *disruptive stress* hypothesis (Suedfeld & Granatstein, 1995), moderate increases in stress may lead to increases in complexity of thought. This model proposed that moderate amounts of stress lead to more, complex thinking, as long as the stress does not become too great or exceed a certain threshold (see also Suedfeld & Tetlock, 2001; Guttieri et al., 1995; Suedfeld et al., 1993; Suedfeld et al., 1986). It is possible that minorities, based on group status, were more motivated to think complexly about an issue. Furthermore, minorities in the threat condition may have perceived even more stress, which might, again, have strengthened motivation to think complexly.

Keltner et al.'s (2003) model, related to power, could also help explain the findings of these two experiments. Based on their model, they posited that individuals who are low in power may demonstrate greater levels of integrative complexity than those who are high in power. This effect may possibly due to increased concern (on the part of low-power individuals) about consequences of their actions, which has been linked to greater levels of complexity (see Keltner et al., 2003). Similar to their predictions regarding those low in power, these experiments found that those with minority status (who may have been perceived as having low-power) showed greater complexity than those in the majority (who may have been perceived as having high power). Majority members could have been perceived by themselves, as well as by the minority, as having higher power because they were

told that the majority opinion was going to be the group's final decision in the group discussion. Minorities, on the other hand, may have perceived themselves, or been perceived by the majority, as low in power, because their opinions were not likely to be incorporated into the group's final decision. Further research is needed to assess which model provides a better explanation of these findings, and to assess, more in-depthly, the specific impact that status has on integrative complexity.

Mediational analyses were also conducted in both experiments, examining the potential mediating role of cognitive appraisal, anxiety, and coping expectancy on integrative complexity. None of the predicted mediators in Experiment 1 and Experiment 2 mediated the relationship between status and complexity, nor did they mediate the relationship between appraisal prime and complexity in Experiment 2. They did not mediate the moderated interaction of group status and appraisal prime in Experiment 2 either. One possibility is that there are other mediating variables that were not identified and measured that do mediate the observed effects. Additionally, the proposed mediators could be indirectly influencing other mediating variables that, in turn, affect complexity. For example, status could predict coping expectancy, which could impact perceptions of control, which could increase or decrease complexity of thought. It is also possible that a different measure of situational appraisal (see Tomaka et al., 1997) could be adapted to this design that might be a better fit based on the dependent measure. Many situational appraisal measures are based on and applicable to performance tasks, such a math test. It could be that they are not valid in the context of these experiments.

Additionally, group status only predicted coping expectancy in the first experiment, but predicted threat appraisal, anxiety, coping expectancy, and threat-challenge appraisal in the second experiment. It is not clear why status was a stronger predictor of these variables in Experiment 2. One possibility could be that the experimenters and confederates were more familiar and comfortable with the script, and perhaps were more believable when discussing the cover story with participants. It is also possible that students in the second experiment took the experiment more seriously. Experiment 2 was conducted during a spring semester, and perhaps participants were older and more mature. Future studies could make improvements to the cover story used in these experiments in order to strengthen responses on the mediating measures, as well as to identify and assess other potential mediating variables.

There were some methodological issues with regard to these experiments that may have impacted results. In the second experiment, the appraisal prime, which was adapted from Tomaka et al.'s (1997) study, did not predict threat or challenge appraisal (or threat-challenge appraisal). Therefore, it may be that the prime, in this instance, was not strong enough to have an impact on cognitive appraisal, or that this adaptation of the instructional sets was not seen as relevant to this particular task. Tomaka and colleagues (1997) had used varying sets of instructions to prime appraisal in order to assess performance on a task. In the present experiments, the task may have been perceived as more of a social influence task, and the instructions may not have sufficiently created or strengthened perceptions of threat versus challenge. Considering this finding as an independent variable check, the appraisal

prime did not effectively prime situational cognitive appraisals as it was expected to do. In future studies, a subliminal prime could prove to be more effective, or perhaps instructional sets that are geared more toward social influence or persuasion and less on task performance could replace the current sets of instructions.

Also in the second experiment, a second measure of integrative complexity was proposed. The second measure was a survey measure consisting of statements of varying complexity. Participants were asked to select the statement that most closely resembled their personal opinion. Due to weak correlation between the two measures, this new measure was not used in the analyses. The content measure has been shown to be valid and reliable, and it assesses individuals' personal statements and opinions. The survey measure, on the other hand, called for individuals to assess statements that somebody else had written, rather than formulate their own opinions. It could be that people may recognize or appreciate more or less complex statements when exposed to them, but may not be able or motivated to develop similar arguments on their own.

Additionally, Suedfeld et al. (1996) found that self-ratings of complexity were not as accurate as ratings of others' complexity. Suedfeld et al. (1996) provided participants with information about coding for integrative complexity, and asked them to make assessments about their own complexity scores on a paragraph completion test, as well as make assessments of others' complexity levels on the same task. Trained, expert coders also coded the statements, and their scores were compared to participants' self-ratings and ratings of others. Suedfeld et al. (1996) found that while participants were fairly good at rating others' complexity (in fact,

many participants approached the level of a trained coder, and few even reached it), ratings of their own complexity did not correlate with trained coders' scores.

Suedfeld et al. (1996) speculated that these observed differences in accuracy could be analogous to the fundamental attribution error (see Suedfeld et al., 1996), whereby differences in complexity between self-ratings and others-ratings may be attributed a greater availability of information about one's own experiences. As such, information may be available to an individual, while thinking about a response, that may or may not be mentioned in their final opinion, and this could affect perceptions about one's own complexity (Suedfeld et al., 1996). Consequently, the content analysis measure for assessing integrative complexity is likely the best and most appropriate measure to use when studying integrative complexity.

Another concern with regard to the procedure used in both of these experiments was that participants were sometimes run with another participant in the room, and sometimes run with a confederate in the room. As a result, it was difficult to counterbalance the conditions in terms of group status, and the cell sizes were uneven. This could be corrected in future studies by pairing the participants with a confederate every time, or running every participant in a room alone.

There were also methodological and design differences between these experiments versus Gruenfeld's (1998) studies that may help account for the observed effects. Gruenfeld and colleagues found that in a similar group decision-making context, majority members showed greater levels of complexity than minorities. In both of the present experiments, however, the opposite was observed. Minority group members showed greater complexity than majority members. One

methodological concern was that these experiments did not have a baseline measure of complexity like Gruenfeld et al.'s (1998) did. A baseline measure was planned, and an opinion assessment was placed in the psychology department's mass screening packets (to be coded and provide a baseline measure), but not enough of them were completed to analyze changes in complexity.

In future research, it would be beneficial to obtain a baseline measure of complexity as well assess complexity levels after the experimental treatment. In fact, in Gruenfeld et al.'s (1998) studies, which found that majority members were more complex than minorities, integrative complexity was always assessed after a group discussion, in addition to being assessed prior to the discussion (and prior to experimental treatments), in order to establish a baseline.

There are several proposed explanations for Gruenfeld et al.'s (1998) findings. One possibility was that majority members were influenced by the minority to think more complexly, and a second potential explanation was that majority members were using a presentation strategy rather than expressing a true opinion; Gruenfeld et al.'s (1998) findings supported the first explanation regarding cognitive flexibility. In contrast to Gruenfeld et al.'s studies, the present experiments examined opinion statements written just before a group discussion took place, rather that after the discussion. This was done in order to assess whether cognitive appraisal, anxiety, and/or coping expectancy might mediate the effects of group status (and cognitive appraisal prime) on integrative complexity in anticipation of a group discussion.

Consequently, the findings of those experiments versus these experiments are not necessarily in conflict. It could be that minority members show less complexity

than majority members after a discussion, but exhibit more complex thinking than majority members before a discussion. Consistent with the *disruptive stress* hypothesis, it could be that minorities experience an increase in stress before a group discussion, which motivates them, at that time, to think more complexity in an attempt to persuade or influence others. Following the group discussion, minority members may perceive a loss of control over the outcome, and consequently, may show less complex thinking, which would also be consistent with the *disruptive stress* hypothesis. A loss of control over perceived outcomes has been linked with reduced complexity (see Suedfeld & Granatstein, 1995; Suedfeld et al., 1993; Suedfeld & Tetlock, 2001).

More research needs to be done to further investigate the impact of status on complexity before and after stressful situations. For example, future studies could assess complexity immediately before and after a group discussion to test whether changes in complexity levels occurred. Furthermore, a different type of appraisal (e.g. harm/loss, or a secondary appraisal) could impact complexity levels, as opposed to the state threat and challenge appraisals considered in these experiments. Other types of appraisals could be studied in future research.

Another difference between the current designs and those used by Gruenfeld et al. (1998) was that these may have been perceived as more realistic. In the current experiments, the social issue that was used was current and contentious. The school newspaper cover story was included in these designs to make the issue and outcome seem more relevant and important. Gruenfeld's issue (school busing policy) was older, and perhaps not so controversial anymore, and therefore not perceived to be

quite as relevant to current issues. As Tetlock (1991, p. 453) wrote, "subjects in laboratory studies… rarely feel accountable to others for the positions they take. They function in a social vacuum." These experiments were designed to increase perceptions of accountability to outsiders, and feel more "real world" in that sense.

Overall, these experiments demonstrated that, consistent with Gruenfeld et al.'s (1998) research, group status does impact integrative complexity. However, unlike Gruenfeld and colleagues, these experiments demonstrated that, at least in some instances, minority members appear to be more motivated (or able) to think complexly about controversial social issues. This contrasting finding suggests that further investigation is needed to determine under what circumstances minorities show increased versus decreased levels of integrative complexity. It is also important to further investigate the relationships between status, anxiety, cognitive appraisal, and coping, to more clearly identify the paths or conditions that may lead to greater or reduced complexity.

Furthermore, it would be beneficial to this area of research to identify and test other potential mediators that might mediate the relationship between status and complexity. Integrative complexity is a powerful variable that reflects how individuals think and structure their arguments. It may be used to influence and persuade others, as well as predict behavior. It is even possible that complexity exhibited by leaders or politicians could predict future conflicts (and perhaps even help to prevent them). Although social scientists have been studying this variable for over 40 years, there is much that is still not known about this variable. It does,

however, appear to have great potential as an important and useful predictor of

behavior, and this potential should continue to be explored.

Appendices

Appendix A

Opinion Assessment

We are investigating the psychological underpinnings of policy reasoning and decision-making, and we are interested in your thoughts and feelings on a social policy issue. Please answer the questions and write your opinion below.

Please be honest and candid.

Please rate how much you are for or against same-sex marriage on a scale of 1-7 (Circle one):

      Very much for 1   2   3   4   5   6   7 Very much against

Please rate how strongly you hold your opinion on same-sex marriage (Circle one):

      Not at all strongly 1   2   3   4   5   6   7 Very strongly

Please rate how important this issue is to you (Circle one):

      Not at all important 1   2   3   4   5   6   7 Very important

Please write, in the space provided, 2 paragraphs (or less) that express your opinion about the same-sex marriage and explain why you are for or against it. You may write on the back if necessary. Please be candid and honest. Your opinion will remain confidential.

_____
_____
_____
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Appendix B

General Explanations for Coding Scores and Four Examples of Coded Statements

General Explanation for 1:

There is no sign of either conceptual differentiation or integration at this scoring level. The author relies, without qualification, on a simple, one-dimensional rule for interpreting events or making choices (p. 13, Baker-Brown et al., 1992).

General Explanation for 2:

In a statement assigned a score of 1, the author ignores or rejects alternative perspectives on an issue. In a statement assigned a score of 2, the author recognizes the potential for looking at the same issue in different ways or along different dimensions. Differentiations are, however, emergent rather than fully developed. The author may, for example, qualify a normative rule or causal generalization, or display an awareness of alternative futures. The author may also discuss past events in a way that suggests, but does not develop, new interpretations. On the whole, this scale value represents a transition level between the categorical structure of the score of 1 and the differentiated structure of the score of 3 (p. 20, Baker-Brown et al., 1992).

General Explanation for 3

> The crucial aspect of a score of 3 is the clear specification of at least two distinct ways of dealing with the same information or stimulus. The author recognizes that these different perspectives or dimensions can be held in mind simultaneously. The author may also specify conditions under which these perspectives or dimensions are applicable. However, there is no evidence of conceptual integration. Differentiation is the key element of a score of 3 (p. 23, Baker-Brown et al., 1992).

General Explanation for 4

> At the earlier levels, the major element determining a specific score was the presence or absence of differentiation. In the score of 4, we seek signs of the emergence of the second major scoring element, integration. That is, we begin to find indications of the ability to integrate different and sometimes conflicting alternatives. Conceptual integration is not clearly apparent at this level, however. Instead, the integration of alternatives is implicit. A score of 4 must show two features. First, there must be a clear representation of alternatives. Second, there must be an implicit recognition of a dynamic relationship between or among them. The recognition of this relationship signifies the emergence of integration, although at this level it is expressed in a tentative and often uncertain manner. The

clear description of the relationship is often withheld until

further information is received. In summary, there is only a suggestion

that interaction exists between the alternatives; there is no overt

statement specifying the nature of this interaction (p. 28, Baker-Brown

et al., 1992).

General Explanation for 5

A score of 5 indicates the explicit expression of integration. The score

of 4 was the transition point between an expression solely defined by

differentiation and one where evidence of integration appears.

Whereas 4 signifies the emergence of integration expressed in a

tentative or uncertain manner, a score of 5 indicates that integration is

clearly evident. Types of integration that emerge include mutual

influence, negotiation, causal attributions, and synthesis (p. 31, Baker-

Brown et al., 1992).

General Explanation for 6

In general, the score of 6 involves a high-level interaction indicating

that the author is working with multiple levels of schemata. The

alternatives at this level are dynamic: they are expressed as plans,

processes, or courses of action made up of several moving parts, and

as such we may often refer to them as systems or networks. One of the

indicators of a score of 6 is the specific explanation of both the

"moving parts" within a system and also how those parts affect each other or the system. At this level alternatives are readily accepted, compared or contrasted, and integrated so as to present at least one outcome. Global overviews or organizational principles (temporal, causal, ideological) are often presented. The emergence of this type of principle is the second main indicator of the score of 6 (p. 35, Baker-Brown et al., 1992).

General Explanation for 7

The unique characteristic of a score of 7 is the presence of an overarching principle or perspective pertaining to the nature (not merely the existence) of the relationship or connectedness between alternatives. In a score of 7, these alternatives are clearly delineated and are described in reasonable detail. How each alternative may be seen to be part of some overarching view, or how some overarching view encompasses these alternatives, is made evident (p. 39, Baker-Brown et al., 1992).

General Explanation for unscorable

The main characteristic of an unscorable paragraph is that the author's rule structure for drawing inferences or making decisions is not evident (p. 10, Baker-Brown et al., 1992).

Examples of Scores 1, 3, 5, and 7

Score of 1 indicates no evidence of differentiation or integration:
I am for gay marriage because we are all born equal. Gay people are just as human as any straight person and deserve the same rights.

Score of 3 indicates moderate or high differentiation, but no integration:
I believe there should be a legal way for gay couples to get married. They deserve the same recognition as heterosexual marriages. But I can also see why the legalization of gay couples may be seen as a bad thing. To some people legal gay marriage is seen as publicly embracing sinful behavior.

Score of 5 indicates moderate or high differentiation and moderate integration:
In my opinion the issue of gay marriage has developed from a variety of issues involving religion, civil rights, evolution, and philosophy of love. Some see gay marriage as a sin, others see it as a civil right. What needs to be discussed first is whether the concept of marriage should be based on religious ideology or solely on the concept of what a relationship is.

Score of 7 indicates high differentiation and integration:
My opinion on gay marriage is that you might be in favor of it or opposed to it, based on whether you view it as a civil or religious issue. Those who view it as a civil issue tend to be for it because they feel it is a right to marry who you want. Those with a religious viewpoint tend to be against it because they believe homosexuality is a sin. There will continue to be a sharp division between these opposing forces until they both sit down and talk. Only when they discuss their differences and reach a compromise will the issue of gay marriage be put to rest.

Appendix C

Cognitive Appraisal and Coping Expectancy Measures

PART I (Cognitive Appraisal):

1.   **I'm concerned that others will be disappointed with how I express my opinion.**

Strongly Disagree   1   2   3   4   5   6   Strongly Agree

This thought hardly   1   2   3   4   5   6   This thought occurred
    ever occurred   almost constantly

2.   **I am looking forward to testing my knowledge, skills, and ability in the discussion group.**

Strongly Disagree   1   2   3   4   5   6   Strongly Agree

This thought hardly   1   2   3   4   5   6   This thought occurred
    ever occurred   almost constantly

3.   **I worry that I may not be able to achieve the goal I am aiming for.**

Strongly Disagree   1   2   3   4   5   6   Strongly Agree

This thought hardly   1   2   3   4   5   6   This thought occurred
    ever occurred   almost constantly

4.   **I am looking forward to the rewards of successfully debating this issue.**

Strongly Disagree   1   2   3   4   5   6   Strongly Agree

This thought hardly   1   2   3   4   5   6   This thought occurred
    ever occurred   almost constantly

5.   **I'm concerned about my ability to debate others under pressure to form a group opinion.**

Strongly Disagree   1   2   3   4   5   6   Strongly Agree

This thought hardly   1   2   3   4   5   6   This thought occurred
    ever occurred   almost constantly

6.   **I am focused on the positive benefits I will obtain from this situation.**

　　Strongly Disagree   1   2   3   4   5   6   Strongly Agree

　　This thought hardly   1   2   3   4   5   6   This thought occurred
　　　ever occurred   almost constantly

7.   **I am thinking about the consequences of performing poorly.**

　　Strongly Disagree   1   2   3   4   5   6   Strongly Agree

　　This thought hardly   1   2   3   4   5   6   This thought occurred
　　　ever occurred   almost constantly

8.   **I am thinking about the consequences of doing well.**

　　Strongly Disagree   1   2   3   4   5   6   Strongly Agree

　　This thought hardly   1   2   3   4   5   6   This thought occurred
　　　ever occurred   almost constantly

PART II (Coping Expectancy):

How do you think you will cope with the demands of this situation (circle a number from 1-6)?

Very confident can   1   2   3   4   5   6   Very concerned
 cope effectively   whether can cope

Little confidence in   1   2   3   4   5   6   Strong confidence in ability
ability to avoid failure   to avoid failure

Little confidence in   1   2   3   4   5   6   Strong confidence in ability to
ability to achieve   achieve desired goal
desired goal

Appendix D

Anxiety Measure

For each item, please circle a number from 1-7 that best represents how you feel:

1.   **Worried**
Not at all   1   2   3   4   5   6   7   Extremely

2.   **Apprehensive**
Not at all   1   2   3   4   5   6   7   Extremely

3.   **Anxious**
Not at all   1   2   3   4   5   6   7   Extremely

4.   **Uncertain**
Not at all   1   2   3   4   5   6   7   Extremely

5.   **Friendly**
Not at all   1   2   3   4   5   6   7   Extremely

6.   **Trusting**
Not at all   1   2   3   4   5   6   7   Extremely

7.   **Comfortable**
Not at all   1   2   3   4   5   6   7   Extremely

8.   **Threatened**
Not at all   1   2   3   4   5   6   7   Extremely

9.   **Confident**
Not at all   1   2   3   4   5   6   7   Extremely

10.   **Awkward**
Not at all   1   2   3   4   5   6   7   Extremely

11.   **Safe**
Not at all   1   2   3   4   5   6   7   Extremely

12.   **At Ease**
Not at all   1   2   3   4   5   6   7   Extremely

Appendix E

Experimenter Script for Experiment 1

If possible, try to look up participants' opinions in mass testing file before they arrive, and decide what the make-up of discussion group (majority opinion vs. minority opinion) will be. Also decide which article (for or against gay marriage) will be used. If they are not in the data file, or if you don't have time, you can get their opinion at the beginning when they complete the social issue questionnaire. Remember to try to counterbalance all of the different conditions (i.e. which article they get (court upholds "traditional marriage" definition vs. court overturns "traditional marriage definition") and group status (majority vs. minority status)). We want to try to get equal numbers in each condition.

When participants arrive, greet them and check their names off on the printed sign up sheet. Tell 1 or both (if they are both there): "We are still waiting for two more subject(s) to show up. While we're waiting, I'm going to go ahead and get you started on the first part of the experiment. If you could just come with me into this room and have a seat. (NOTE: If one or both arrive late, tell them that you have already got the others started in another room.)

Place the participant (or participants) in separate lab rooms.

Go to first lab room. Tell them:

"My name is _____ . Thanks for coming today.

"As you know, you will be participating in our psychology experiment about group decision making. This study is designed to simulate the process that a group, for example, a jury, might go through when trying to reach a consensus on an important issue."

"Please be aware that this is a joint project between the psych department and the journalism department. We are working with their researchers and the school newspaper on this project. They are currently interested in studying students' opinions on various social issues. In the psych department, we are specifically interested in studying the process that people might go through when trying to reach a group decision on an important social issue."

"You will first be asked to read a news article about a recent court decision on a current social issue, and indicate whether you agree or disagree with the Court's decision. You will also be asked to fill out a few surveys for us. Then, you will discuss the article with a group of three other people."

"As a group, you will be asked to discuss the issue, and then form a group opinion on whether the group is for or against the issue. You will have to take a vote as to the group's final position. The majority's position at the end of the discussion will be the group's final opinion. We encourage you to strive for a consensus. Once the group's opinion has been decided, you will work together to write a group opinion on the issue. You will also be asked to write a statement of your individual opinion as well."

"We want you to be aware that all of the written opinions will be shared with the journalism dept., but your personal information and identity will not be shared. Excerpts from these statements may be published in the school newspaper and may influence other students. Again, your name and any other personal information will be kept private and will not be given to the newspaper. "

"If you have any questions now or at any time during the experiment, please feel free to ask them."

"OK, let's get started. Please go ahead and read and sign this consent form. It tells you what you'll be doing, that you can withdraw with no penalty, and who you can contact if you have any questions or concerns."

Hand them the **consent form** to sign. Take it from them after they sign it, and hand them the social issue survey. Tell them:

"I have to go get the article for you to read. Please complete this brief social issue survey while I am gone. Also, please do not talk or discuss the issue with each other while I'm gone. You will be able to discuss the issue when we get to the group discussion. I'll be right back.

Go get the article and return to the lab room. Make sure to get the social issue survey from them at this time. Then hand them the article and say:

"Here is a recent news article we'd like you to read. Please check at the bottom whether you agree or disagree with the opinion. If you are undecided or not sure of your opinion, please check the answer that is closest to your opinion. Remember, you guys will be asked to debate the issue and form a group opinion, just like a jury would have to do, so please read the article carefully and seriously think about your opinion on this issue. The majority opinion will be the group's final decision. Do you have any questions?"

"Go ahead and begin, and I'll be back in a few minutes. I'm going make sure the other participants are here and get them started. If you finish before then, just wait for me to return." (If they showed up late, tell them you are going to check on the other participants who are working in the other room).

Return to room a few minutes later. Collect court case articles. Bring the group interaction surveys and the opinion assessment with you for each participant. Remind them:

"In just a few minutes, we're going to have you to participate in the group discussion and talk about this court case. Remember, as a group, you'll be asked to decide whether or not you agree with the judges' ruling, and the majority opinion will be the final decision. I also want to remind all of you to be respectful towards each other, even if you disagree on the issue."

TO MINORITY: "I wanted to bring that up because it looks like, based on your response to the survey question, that nobody else in the group agrees with you; you are the only one who took this position."

TO MAJORITY: "I wanted to bring that up because it looks like, based on your response to the survey question, that everyone in the group agrees with you except for one person; everyone else shares your opinion."

"While you are waiting, I'd also like you to fill out a few group interaction surveys for us, as well as a more detailed opinion assessment, expressing how you personally feel about this issue. Remember, all written opinions may be submitted anonymously to the school newspaper and published, either in part or in their entirety. I will be back in a few minutes. Please wait here if you finish before I return. I also ask, again, that you do not discuss this issue with each other at this time. Once everyone has finished with these surveys, I'll come back and get you, and move you to another room. Then we'll begin the group discussion."

I have one more thing I'd like you to do. I'm going to put you in back separate rooms to do this part." Put them in their rooms and tell them:

Return to the lab room and collect the forms. Say, "Before we have the discussion, I have one more question for you. If you could just answer this for me... Hand them suspicion/manipulation check form. Then say:

"At this point, we've actually come to the end of the experiment. We're not actually going to have a discussion at all (although we did that in the past, we have eliminated it this semester). There was more to this experiment than you were led to believe. I'd like to tell you what this was really about."

"Please read this debriefing sheet." Give them 30 seconds or so, and then debrief them and explain what the experiment was about. Thank them for coming, and ask them if they have any final questions. **Assure them that we are not interested in how much they are for or against the issue, and we are not trying to change their opinions. We are just interested in how people react when they perceive they are in the majority or minority, and how that affects the structure of their written arguments. We think people in the minority might make a less complex**

argument after perceiving they are in the minority, because they might feel a little threatened in anticipation of a group discussion. Tell them we were not working with the journalism department, or the school paper; that it was all part of a cover story to make them take the experiment seriously. Their opinions won't be shared with anyone.

Ask them not to discuss the experiment with anyone, so that they don't give away our hypothesis.

"We'll give you credit on the web site, but here is a credit slip for your records." Be sure to give them credit on the website, and enter their data into the data file.

Appendix F

Sample Court Decision Article #1 (Upholds Traditional Marriage)

October 21, 2007

Lawsuit Fails to Overturn State Marriage Law

CLEVELAND– The Ohio Supreme Court voted 4 to 3 to uphold the state's current law, which limits marriage to a union between a man and a woman. They ruled that same-sex couples may not defy state law and seek license for same-sex unions. The three justices who were in the minority opinion suggested that the issue will be an ongoing civil rights struggle. However, the four-justice majority stated in their opinion that the court does not have the right to invalidate a state law, based on constitutional grounds, that prohibits these types of unions.

"This is just the beginning of our fight against those seeking to change the traditional definition of marriage," said Michael Roberts, President of the Vote to Save Marriage Coalition. "We expect to see an increase in litigation across the country regarding same-sex marriage and states' rights."

This case has been called a "critically important" suit by those in powerful legal circles, and lawyers have already filed an appeal to a federal court. One anonymous government official believes this is the case that will eventually be heard by the U.S. Supreme Court on this issue. Many same-sex marriage activists believe this is a strong case for them, and that the highest court will likely choose to hear it on appeal. Not only is it likely to be tried before the highest court in the land, but it will also set a strong legal precedent for states like Pennsylvania and Maryland, who are also considering this issue.

Although nobody can predict whether the Supreme Court will indeed hear the case, or what their verdict will be, it is certain that debate over this hotly contested issue is not going to go away anytime soon. This is a defining values issue that the country must decide upon, and it is not likely to slip from the public's eye for some time.

http://www.newyork.com/news/specials/gay_marriage/articles/2004/09/21.newyork_court_voids_gay_marriages?mode=pf

Sample Court Decision Article #2 (Overturns Traditional Marriage)

October 21, 2007

Lawsuit Successfully Overturns State Marriage Law

CLEVELAND– The Ohio Supreme Court voted 4 to 3 yesterday to overturn the state's current law which limits marriage to a union between a man and a woman. They ruled that same-sex couples are legally entitled to seek licenses for same-sex marriages, based on the equal protection clause of the U.S. Constitution. The three justices who were in the minority opinion suggested that the issue will be an ongoing civil rights struggle. However, the four-justice majority stated in their opinion that the court does the right to invalidate a state law, based on constitutional grounds, that prohibits these types of unions.

"This is just the beginning of our fight against those seeking to change the traditional definition of marriage," said Michael Roberts, President of the Right to Marriage Coalition. "We expect to see an increase in litigation across the country regarding same-sex marriage and states' rights."

This case has been called a "critically important" suit by those in powerful legal circles, and lawyers have already filed an appeal to a federal court. One anonymous government official believes this is the case that will eventually be heard by the U.S. Supreme Court on this issue. Many activists who oppose same-sex marriage believe this is a strong case for them, and that the highest court will likely choose to hear it on appeal. Not only is it likely to be tried before the highest court in the land, but it will also set a strong legal precedent for states like Pennsylvania and Maryland, who are also considering this issue.

Although nobody can predict whether the Supreme Court will indeed hear the case, or what their verdict will be, it is certain that debate over this hotly contested issue is not going to go away anytime soon. This is a defining values issue that the country must decide upon, and it is not likely to slip from the public's eye for some time.

http://www.newyork.com/news/specials/gay_marriage/articles/2004/09/21.newyork_court_voids_gay_marriages?mode=pf

Do you agree with the Court's decision?

YES _____   NO _____

Appendix G

Multiple–Choice Measures of Integrative Complexity

Version A: (For those who support same-sex marriage)

Please read all of the statements below, and select ONE statement that most closely represents your opinion on same-sex marriage. Please put an "X" next to the statement you selected. Please select one statement only.

___ I am for gay marriage because we are all born equal. Gay people are just as human as any straight person and deserve the same rights.

___I can see how each opinion on gay marriage has developed over time and why it is so hard to come to a consensus. From the evolutionary perspective gay marriage is a maladaptive behavior as no offspring will become of such a relationship and the goal of passing on one's genes will be unfulfilled. From a religious perspective, many perceive that it is morally wrong. On the other hand, true love, whether it is gay or heterosexual, is the essence of what being in a relationship is all about. These conflicting viewpoints have existed throughout our history and will not be resolved until the basis them is understood by both sides. Once a mutual understanding is achieved the question of whether to allow gay marriage will be achieved.

___ I believe there should be a legal way for gay couples to get married. They deserve the same recognition as heterosexual marriages. But I can also see why the legalization of gay couples may be seen as a bad thing. To some people legal gay marriage is seen as publicly embracing sinful behavior.

___In my opinion the issue of gay marriage has developed from a variety of issues involving religion, civil rights, evolution, and philosophy of love. Some see gay marriage as a sin, others see it as a civil right. What needs to be discussed first is whether the concept of marriage should be based on religious ideology or solely on the concept of what a relationship is.

___ My opinion on gay marriage is that you might be in favor of it or opposed to it, based on whether you view it as a civil or religious issue. Those who view it as a civil issue tend to be for it because they feel it is a right to marry who you want. Those with a religious viewpoint tend to be against it because they believe homosexuality is a sin. There will continue to be a sharp division between these opposing forces until they both sit down and talk. Only when they discuss their differences and reach a compromise will the issue of gay marriage be put to rest.

___ Gay couples should have the right to marry. I think if two people are in love they deserve to be together, however, there may be problems with religions accepting gay marriage.

___ I can see why gay marriage should be legalized because of the issue of denying couples their civil rights. I can also understand why some oppose gay marriage as it is against their religion. There should be a discussion between both sides to try and get a better understanding of the issue.

Version B: (For those who oppose same-sex marriage)

Please read all of the statements below, and select ONE statement that most closely represents your opinion on same-sex marriage. Please put an "X" next to the statement you selected. Please select one statement only.

___ I don't think gay marriage should be allowed, but I can also see why some think it should be. I think both sides should try to work something out.

___There should be a law against gay marriage, because marriage is a union between a man and a woman. On the other hand, there should be something in place that recognizes the commitment of two loving individuals even if they are of the same sex.

___ I just think gay marriage is wrong. Marriage between two men or two women isn't natural.

___My opinion on gay marriage is that you might be in favor of it or opposed to it, based on whether you view it as a civil or religious issue. Those who view it as a civil issue tend to be for it because they feel it is a right to marry who you want. Those with a religious viewpoint tend to be against it because they believe homosexuality is a sin. There will continue to be a sharp division between these opposing forces until they both sit down and talk. Only when they formally discuss their differences and reach a compromise will the issue of gay marriage be put to rest.

___I am strongly against gay marriage, but there may be a problem using religious or moral reasons to make a law against it.

___In my opinion the issue of gay marriage has developed from a variety of issues involving religion, civil rights, evolution, and philosophy of love. Some see gay marriage as a sin, others see it as a civil right. What needs to be discussed first is whether the concept of marriage should be based on religious ideology or solely on the concept of what a relationship is.

___I can see how each opinion on gay marriage has developed over time and why it is so hard to come to a consensus. From the evolutionary perspective gay marriage is a maladaptive behavior as no offspring will become of such a relationship and the goal of passing on one's genes will be unfulfilled. From a religious perspective, many perceive that it is morally wrong. On the other hand, true love, whether it is gay or heterosexual, is the essence of what being in a relationship is all about. These conflicting viewpoints have existed throughout our history and will not be resolved

until the basis them is understood by both sides. Once a mutual understanding is achieved the question of whether to allow gay marriage will be achieved.

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