

AFFECTIVE AND COGNITIVE RESPONSES TO
THREATENING PEOPLE AND PLACES

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ABSTRACT

Humans have developed adaptive behaviors to cope with threats to personal and collective safety. One such behavior is increased vigilance in situations that may connote danger. Individual differences, such as chronic dangerous world beliefs, moderate personal responses to threatening situations. The present research examines the affective and cognitive responses to two potential threats: immigrant outgroup members, and ambient darkness. Neither darkness nor immigrant outgroup threat alone affected integrative complexity (IC). The immigrant outgroup condition resulted in more negative affect, especially in combination with ambient darkness. Belief in a Dangerous World and Personal Need for Structure are shown to be moderators in IC changes when participants are under threat.

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Affective and Cognitive Responses to

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The folks that are coming into this country are not just looking for a job cutting your lawn or replacing your roof. Some of them, many of them, are coming to replace you, your very existence. -- US Congressman Tom Tancredo (United States. Congress. House of Representatives., 2003)

Immigration levels in various countries around the world have waxed and waned, usually (at least in democratic countries) as the result of public policy set by policy-makers influenced by the country's populace. Some theorists attribute these policy changes to macroeconomic influences such as conflicting capital and labor interests, and the policies of other potential immigrant-accepting countries (for a review see Timmer & Williamson, 1998).

In addition to macroeconomic forces, there are also interpersonal factors at play in people's thoughts and feelings about immigrants which affect their calls for policy reform. In the Netherlands, once considered among the most immigrant-tolerant countries, people's fears of the degradation of their own culture are driving immigration policy to become less accepting. A Dutch citizen puts these fears succinctly: "Now there is anxiety and strange feelings about foreigners coming here who do not want to live in a Western way," and a 27 year old Moroccan immigrant explains: "When I was a kid, the old Dutch ladies used to muss up my hair ... now when they see me, they wrap their handbag twice around their arm" (Fleishman, 2004).

Threatening Effects of Immigrant Outgroups

Clearly, the perception that immigrants pose a threat to the cultural or personal safety of the host country's citizens is an important factor in prejudice toward immigrant outgroups. In a German study specifically assessing perceived threat from Turkish immigrants, perception of intergroup threat was positively correlated with desire for segregation, to expel the immigrant

group, and favoring cultural assimilation, and negatively correlated with acceptance of immigrant cultural maintenance (Florack, Piontkowski, Bohman, Balzer, & Perzig, 2003).

Perceptions of immigrants as threatening are pervasive, but by no means universal. A survey of Danish attitudes toward immigration, for example, found only 25-30% of respondents indicated some degree of prejudice, and this group bases its prejudicial beliefs on how immigrants look and act differently from the dominant culture, their "social visibility" (Enoch, 1994). Such visible differences include the immigrants' bright clothing, dark skin, large family size, unusually pungent food (at least to Danes), and lack of good Danish language skills. Prejudice is low against Jewish immigrants to Denmark, but their social visibility is low compared to other ethnic immigrant groups that maintain the cultural and religious values from their home societies.

The use of social visibility as a cue for immigrant threat may not be completely irrational. One study on the link between immigration and crime in cities in the United States showed that while there is no correlation between increasing rates of immigration and increased crime, there is a positive correlation between the proportion of immigrants in a city and the city's crime rate (Butcher & Piehl, 1998). Other research has shown that immigrants in general are less likely to be involved in crime than nonimmigrants, with the exception of younger, less-educated males, and that the immigrating group's cultural practices may legitimize behavior that is illegal in the host culture (Mears, 2001). In addition, immigrants who feel marginalized and reject the host culture's norms and values may be more likely to adopt criminal behavior (Junger-Tas, 2001). The perception of these socially visible immigrants as threatening to one's safety may then be seen as a reasonable inference intended to protect oneself from being a victim of crime.

The perception of threat extends beyond appearance, and economic threats are a strong influence in anti-immigrant sentiment. In the United States and Canada, perceived threat posed

by immigrants to the wages of domestic unskilled workers has affected immigration policy. As income for low wage employees drops, creating disparity between high- and low-wage residents, policy becomes more restrictive against immigrants (Timmer & Williamson, 1998).

If perception of immigrants as a threat is not universal, what might account for individual differences in immigrant outgroup threat perception? Researchers have considered a number of individual difference factors to help account for variability in outgroup threat perception. Among them are dissociation, social dominance orientation, right-wing authoritarianism, religious fundamentalism, and just-world beliefs (Fiske, 1998, 2000). Pettigrew and Meertens (1995) posit a form of prejudice, "subtle prejudice," which encompasses defense of traditional values, exaggeration of cultural differences. Subtle prejudice also implies a denial of positive attributions toward the outgroup, so that they are not perceived more negatively than the ingroup, but rather the ingroup is perceived more positively. In addition, researchers have evaluated regulatory focus (Shah, Brazy, & Higgins, 2004), trait anxiety (Ohman, Flykt, & Lundqvist, 2000), and chronic beliefs in a dangerous world (Schaller, Park, & Mueller, 2003).

Belief in a Dangerous World

Chronic dangerous world beliefs were one process studied by Altemeyer (1988) in his exploration of the personality correlates of right-wing authoritarian attitudes (RWA). Characteristics of persons high in RWA include adherence to conventional norms, submissiveness to authority figures, and aggression toward people whom they perceive as a threat to social order. The Belief in a Dangerous World scale (BDW) measured the extent to which people believed that dangerous people and situations were prevalent in the world. Dangerous world belief was found, along with self-righteousness, to be a factor in the hostile attitudes and aggressive behaviors of right-wing authoritarians. People high in BDW would be especially vigilant to physical, cultural, and economic survival threats posed by immigrants.

High BDW individuals might be predisposed to respond to unconventional immigrant cultural practices and perceived immigrant outgroup threats with prejudice and hostility.

Threatening persons are strong indicators of danger, and we likely have evolved behaviors to avoid or confront the dangers posed by threatening outgroups. Physiological indicators provide evidence of autonomic affective and cognitive responses that may have evolved to cope with such threats. When viewing facial expressions and asked to consider how the person seems to be feeling, participants viewing "fear" or "angry" faces used longer saccadic eye movements and increased foveal attention to the eyes, nose, and mouth (feature areas) than did participants viewing neutral, happy, or sad faces (Green, Williams, & Davidson, 2003). The authors concluded that people use distinct visual scanning processes for threat-related stimuli, and that the saccadic scanning might indicate increased autonomic responses, while the increased attention to feature areas might indicate more active cognitive appraisal.

Individual differences in trait anxiety, conceptually related to dangerous world belief, have also been shown to moderate people's responses to threat -- specifically, threatening faces. Low-anxious individuals have an attentional bias toward nonthreatening stimuli, while high-anxious individuals have a selective bias toward processing threat-relevant stimuli (Calvo, 2000; Eysenck, 1991), such as a threatening face in a crowd of happy faces (Byrne & Eysenck, 1995). Using this "flexible adaptive system" (Calvo, p. 764), high-anxious individuals cognitively elaborate and explore the meaning of the threat, in order to find ways to overcome the threat.

Personal Need For Structure

Another personality variable related to trait anxiety is Personal Need for Structure (PNS), which is the tendency for an individual to prefer more simple, rule-based, tightly organized ways of interacting with the social environment (Neuberg & Newsom, 1993). The PNS scale was shown by Neuberg & Newsom to be moderately correlated with trait anxiety, especially social

anxiety ($r_s = .15$ to $.31$). One study of the moderating effect of PNS on erroneous stereotype formation found that high-PNS individuals made more erroneous group stereotype attributions, except when told they would need to publicly justify their impressions. If higher-PNS individuals also have higher levels of trait anxiety, they may be more sensitive to the pressure of publicly justifying their group attributions.

PNS has also been shown to affect the likelihood of engaging in stereotyping behaviors. Neuberg & Newsom (1993) found that high PNS levels increased the likelihood that individuals would engage in gender stereotyping. It has been proposed that high-PNS persons will endeavor to reduce the complexity of the information in the environment by using simplified categorical reasoning (Neuberg & Newsom, 1993; Schaller, Boyd, Yohannes, & O'Brien, 1995). As high-PNS individuals, who also may be more likely to have higher trait anxiety, experience the anxiety of intergroup threat, they may be especially motivated to simplify the complex array of situational information, and more likely to engage in more simple, categorical processing of intergroup information.

Ambient Darkness

Like threatening outgroups, ambient darkness also acts as a strong cue of danger in the environment, and occasions autonomic behaviors to help us cope with the dangers. In a cataloging of fears among children and adolescents conducted a century ago by G. Stanley Hall, "strange persons" and darkness tied for third place among prevalent fears, after thunderstorms and reptiles. About darkness and the unknown terrors in the darkness, he wrote: "The old night of ignorance, mother of all fears, still rules our nerves and pulses in the dark despite our better knowledge" (1897, p. 189). Both biopsychological and sociological research has indicated that there are fundamental changes in people's responses to stimuli when exposed to darkness. The acoustic startle reflex was shown to be more pronounced for participants in a dark room

condition than a lighted room (Grillon, Pellowski, Merikangas, & Davis, 1997). In another study, participants reading vignettes of situations involving being in dark public places reported more fear of victimization than those reading vignettes of being in lighted public places (Warr, 1990).

The powerful effects of the situation on people's response to darkness are unmistakable. However, there are also strong intrapersonal influences in responses to threatening situations and people. In their research on startle reflexes in the dark, Grillon, et al. (1997) found that only participants who reported being afraid of the dark as children exhibited a negative affective response to darkness. Another study (Schaller et al., 2003) had Caucasian and Asian participants watch a slide show of black men's faces either in total darkness or with some ambient light, and measured danger-relevant stereotyping behavior. Darkness alone was not a strong predictor of whether subjects would use danger-relevant stereotyping, but rather darkness in combination with higher levels of chronic beliefs the world is a dangerous place. Darkness, especially for those with more dispositional belief in a dangerous world, promotes thoughts of "evil, death, and danger" (Schaller et al., p. 647), which may also activate emotional responses congruent with such thoughts.

Cognitive Complexity

One mental construct studied by researchers to understand cognitive responses toward threat is cognitive complexity. Although little research exists specifically addressing cognitive complexity and intergroup threat, some cognitive complexity research has evaluated the complexity of people's perceptions of threatening and nonthreatening others. Three such studies (Baldwin, 1972; Hogan, 1977; Kuna, 1976) found that participants used more complexity when evaluating others whom they disliked, others who exhibited more negative behaviors, or threatening others who elicited negative affect. The researchers concluded that increased complexity resulted from the need to understand and predict the behavior of threatening others.

Another study used expected or unexpected shock stimuli to evoke threat, and found that low-complexity participants were more vigilant to threat, were more anxious in the face of an unpredictable threat, and desired a more structured situation (Harris, 1981).

Cognitive complexity is clearly a potent factor in interpersonal and situational threat. Most research on complexity focuses on integrative complexity (IC), which is the ability to differentiate multiple facets of a situation, and to conceptualize the fluid interrelationships between those dimensions. Integrative complexity is a process that is influenced by contextual factors, particularly situational or interpersonal stressors. Research in both laboratory settings and real-world contexts has found a curvilinear relationship between stress and complexity, whereby very low and very high stress levels are associated with lower complexity, but moderate stress levels are required for high complexity (e.g. Porter & Suedfeld, 1981; Schroder, Driver, & Streufert, 1967; Suedfeld & Granatstein, 1995; Suedfeld & Tetlock, 2001). Integrative complexity affects decision making processes, and it also has interpersonal and intergroup consequences in communication and negotiation (e.g. Sillars & Parry, 1982; Streufert & Nogami, 1989; Suedfeld, Leighton, & Conway, in press).

As the foregoing explication has illustrated, stereotyping and prejudice toward immigrants is a complex mixture of powerful situational, intergroup, interpersonal, and intrapersonal factors. On the one hand, economic impacts, and perceived or real threat from those with visibly different cultural differences, affect people's acceptance of immigrants, while on the other, the magnitude of response likely depends on intrapersonal factors in the perception of threats posed by immigrant outgroups. Similarly, people differ in their responses to ambient darkness as a threatening environmental stimulus. BDW may serve as a moderator for either affective or cognitive responses to threat.

The present research aims to study how BDW and PNS both moderate affective, cognitive, and behavioral consequences of two potentially threatening situations: exposure to darkness, and immigrant outgroup information. Exposure to the doubly-threatening situation of immigrant information in the dark should result in more negative affect and also reduced integrative complexity, especially for higher BDW individuals as their ability to cope with dangerous world threats is challenged. Higher PNS persons should similarly respond to immigrant outgroup threat by using more simplistic cognition, resulting in lower integrative complexity. Higher BDW persons should also have more negative affect and reduced complexity in the face of threats from darkness or immigrant outgroups. I would also expect higher BDW individuals to be more likely to endorse anti-immigrant political positions, especially in the darkness and immigrant outgroup threat conditions.

Methods

Participants and Design

The participants were 125 undergraduate students at a large Western Canadian university. They participated in an experiment titled "Thinking About People," for approximately 50 minutes, in partial fulfillment of a psychology department subject pool requirement.

There were 102 women and 23 men in the sample. When self-identifying ethnicity, 51 indicated Chinese, 35 as Canadian, Caucasian, or European, 31 as other Asian, and 8 did not specify ethnicity, or indicated multiple ethnicities. There were 70 1st-generation immigrants who had lived in Canada from 3 months to virtually their entire lives ($M = .5$ lifetime, $SD = .26$). The remaining 55 were Canadian-born participants, of whom 21 were second-generation immigrants.

The participants were tested in group settings with from 2 to 9 people per group. Each group was randomly assigned to one cell in the 2 (immigration vs. budget slide show) \times 2 (ambient dark vs. light illumination level) between-subjects design.

Materials and Procedure

The experimenter welcomed the participants and showed them into a room with four tables, each having two or three chairs facing a projection screen. The participants in the ambient dark condition entered the room with the fluorescent lights turned on to half brightness, while the ambient light condition participants had full lighting. After being seated, the participants were informed that the study would involve filling out several questionnaires and watching a brief slide show. Participants then gave informed consent information and the study began.

Individual Difference Measures.

Each participant completed a questionnaire packet containing a demographic questionnaire and several scales. The first section of the packet contained individual difference measures. The Belief in a Dangerous World (BDW) scale (Altemeyer, 1988), assesses the extent to which individuals perceive the world around them as being chronically dangerous. It contains 12 items such as "Any day now, chaos and anarchy could erupt around us. All the signs are pointing to it," and "Despite what one hears about 'crime in the street,' there probably isn't any more now than there has ever been." The participant rates agreement with the items along a scale from 1 to 7. A composite "BDW index" score was obtained by reverse-scoring several items, and computing the mean of all items.

The Personal Need for Structure (PNS) scale (Neuberg & Newsom, 1993) was used to measure people's tendency to prefer structured, rule-based situations. The scale has 12 items, rated on agreement from 1 to 7, worded such as "I enjoy having a clear and structured mode of life," and "I enjoy being spontaneous." A composite "PNS index" was computed by reverse

scoring several items, and calculating the mean of the item ratings. Following the individual difference measures was a page instructing the participants to stop and wait for instructions from the experimenter.

Illumination manipulation.

When all the participants had finished the first section of their questionnaire packets, they were told that there would now be a brief slide show, and that in order to let their eyes adjust to the darkness, the lights would be turned off for 30 seconds prior to the slides. In the ambient light condition, a door to an adjacent brightly lit experiment room was left open three inches, allowing a soft ambient light to filter in. In the ambient dark condition, the door was closed, resulting in total darkness.

After the lights were turned off for 30 seconds, the slide show began. Each slide was projected onto the screen for a period of 10 seconds, followed by 6 seconds of black screen. The final slide was followed by 30 seconds of black screen.

Slide show manipulation.

The slide show manipulation consisted of two conditions: "budget" and "immigration." In the immigration condition, participants watched a set of 6 slides, each containing a statement either in favor of, or against, immigration. The statements were taken from various pro- and anti-immigration web sites, and also transcripts from U.S. congressional speeches. Only the statement itself, not the source of the statement, was given on the slide. Three slides were in favor of immigration, and contained photos of relatively friendly looking persons, who appeared clean and professional. Two of these slides had photos of men, one apparently East Asian and one South Asian. One slide had a photo of an apparently East Asian woman. The pro-immigration slides featured text such as "Immigrants are essential to the fostering of cosmopolitanism and

productive diversity, and ultimately to the economic prosperity of the nation in the twenty-first century.”

The three other slides were opposed to immigration, and featured photos of relatively unfriendly, unkempt looking persons. Two of these slides featured photos of women, one apparently African and one apparently Latin American. One slide contained a photo of a man, apparently African. The anti-immigration slides had quotes such as “Immigrants are coming to replace you, your very existence. They are coming across porous borders, and the only way that it can ever be dealt with is, I reiterate, to provide a major military or law enforcement presence on that border.”

This research was interested in how individual differences might sensitize high BDW participants to immigrant threat, so that both pro-immigration and anti-immigration slides were used to avoid unintentionally inducing negative affect and anti-immigration sentiment among all the participants in the immigration condition by having only negative immigration information presented. Groups of subjects in the “immigration” condition were randomly assigned to one of two counterbalancing conditions, where the slide show either began with a pro-immigration slide and ended with an anti-immigration slide, or vice-versa. There was no effect of counterbalancing on the dependent variables.

In the “budget” condition, the participants watched a slide show consisting of six slides, each of which contained a position statement from a fictitious politician, on the ways in which a budget surplus should be spent. Statements contained text such as “We should be targeting surplus funds to social needs such as education, health-insurance coverage, child care and job training.” Each slide contained a photo relevant to the position (e.g., a school, a jet fighter, a luxury yacht).

Following the slide show the lights were turned back on, to the levels used prior to the slide show (half brightness for dark -- full brightness for light). The participants then completed the second part of the questionnaire packet.

Dependent variable measures.

The second part of the packet contained measures to assess the dependent variables in the study: affect, voting choice, and integrative complexity. The following three scales were presented in the order listed.

The Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988) was used to assess general mood. This questionnaire contains 10 positively valenced affective adjectives (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, active) and 10 negatively valenced adjectives (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, afraid). The participant rates each adjective from 1 to 5 for the extent to which he or she feels that way. The PANAS instrument is divided into positive affect (PA) and negative affect (NA) factors. The scale was scored by computing the mean of responses for each of the two factors to derive a PA and a NA index. Internal reliability for each of the factors was high (Cronbach's $\alpha > .92$), consistent with previous reliability studies (Watson et al.). The PA and NA factors were moderately correlated (Spearman's $\rho = .351, p = .000$). This positive correlation may be related to a high proportion of Asian participants in the sample, an issue that will be explored in the results section. Previous reliability studies (Watson et al.) have found these factors to have small to moderate negative correlations (r s from $-.15$ to $-.23$), but these studies were performed with Midwestern U.S. university populations, which probably contained a smaller percentage of Asian participants.

A voting preference measure (see Appendix) was used to test how voting preferences were affected by the manipulation. This measure asks the participant to consider 7 political

candidates and vote for the one they would favor based on the issue of immigration alone. It assessed whether the participant preferred a political candidate with a moderate or more extreme anti- or pro-immigration position. The participant's choice resulted in a "voting preference" score (1=most anti-immigration; 7=most pro-immigration). A voting extremity variable was calculated by subtracting the participant's voting score from the median of all participant scores.

The voting scale was pre-tested with 26 participants from the same subject population three months before data collection for the present study. The pre-testing consisted of having participants sort the seven items based on how pro- or anti-immigration the items were. The item sorting achieved a reliability of .94 (Cronbach's α) across subjects.

Integrative complexity was measured with the Paragraph Completion Test (PCT), with six sentence stems (three on each page). The PCT asks participants to complete each sentence stem, and to follow it with a few more sentences to complete the paragraph. The sentence stems cover three cognitive domains: interpersonal ("When a friend acts differently...", "Strangers..."), intrapersonal ("Confusion...", "When I feel anxious..."), and institutional ("Rules...", "The health care system in Canada..."). The participants were told that they had three minutes to complete each paragraph but were not timed. Except for a few subjects, all paragraphs were completed before the end of the experiment.

The PCT is usually used to study conceptual complexity, or the relatively stable dimension of complexity associated with a global, domain nonspecific, organization of cognitive structure (see Coren & Suedfeld, 1990), while a domain-specific writing sample is often used to study integrative complexity as it is affected by experimental manipulations. The two measures have shown a moderate correlation ($r = .33$), indicating they both measure the structural elements of thinking -- differentiation and integration (de Vries & Walker, 1987). The PCT was used in

this study to measure the impact of threatening people and places on the more global level, rather than the integrative complexity about any specific domain.

The materials were scored for complexity using guidelines published in a scoring manual (Baker-Brown et al., 1992). Each paragraph is coded for the level of conceptual complexity exhibited in the paragraph, on a scale of 1 to 7. A score of 1 indicates unidimensional, dichotomous thinking; 3 indicates the recognition of multiple dimensions; 5 indicates the recognition of integrative relationships between the dimensions; 7 indicates differentiated and highly integrated conceptual processing. Scores of 2, 4, or 6 are intermediate levels in the scale. The mean of all paragraphs is taken to represent an overall integrative complexity score on a scale of 1 to 7. This measure was coded by the experimenter, blind to the experimental condition for each paragraph. A subset of paragraphs was scored independently by two other trained complexity coders, who achieved interrater reliability of .84 (Cronbach's α) with the experimenter.

After all participants had completed the questionnaires, the participants were debriefed about the intent of the experiment, its hypothesis, and allowed to ask questions of the experimenter.

Results

To analyze main effects and interaction effects for the dependent variables of interest, I used a 2×2 ANOVA. Table 1 lists all dependent variables along with their means and standard deviations for each cell in the 2×2 ANOVA, and significant effects are indicated. Since the hypotheses involve the doubly threatening effects of darkness combined with immigrant outgroups, planned contrast tests were conducted in addition to the omnibus ANOVA interaction. The dark/immigration condition was contrasted against the other three conditions to find theoretically relevant relationships. In order to analyze the moderating effects of BDW and

PNS, regression analyses (details explained in the BDW section below) were conducted. The results will be presented for each of the dependent variables, BDW and PNS moderation, and immigration effects will be explained. Correlations between the dependent variables and BDW and PNS are listed in Tables 2 and 3, respectively. Retrospective power values for the 3-way interactions are also listed in Tables 2 and 3. Unless stated otherwise, α levels of .05 are used for significance testing, and exact significance values are always reported. Negative affect scores had an extremely positively skewed distribution, so analyses of correlations with negative affect were done with Spearman's ρ , as it is robust to violations of normality (Guilford, 1965).

Voting Behavior

There were no significant main effects or interaction effects for the independent variables on voting behavior. The means for each group were in the expected direction on extremity, and opposite to the expected direction on voting score.

Affect

An analysis of variance showed that immigration slide groups reported a higher level of negative affect than the budget groups, $F(1,121) = 4.03, p = .047$. Negative affect was higher in the dark-immigration condition, while being similarly lower in the other three conditions. The planned contrast test was significant, $t(43.85) = 2.06, p = .045$. These results indicate that participants experience more negative affect when exposed to immigration slides than budget, but this effect may be accentuated by being in the dark. This finding is consistent with the hypotheses. The manipulations had no significant effect on positive affect.

Integrative Complexity

There were no significant main effects or interaction effects of the manipulation conditions on the IC measure. The IC measure is divided into three domains: interpersonal, intrapersonal, and institutional. To further examine possible effects, I analyzed each domain and

included the results in Tables 1, 2, and 3. However, interpretation of domain-specific results should be made with caution -- each domain only contains two sentence stems, but at least five stems should be scored for complexity results to be reliable and valid (P. Suedfeld, personal communication, April 2001).

Belief in a Dangerous World

To examine the main effects and moderating effects of BDW, I conducted a series of regression tests. Using a method explained in Schaller, Park, & Meuller (2003), I standardized the independent variables: illumination (-1, 1), slide (-1, 1), and BDW (z-score transformation), and calculated each of the interaction terms by multiplying the standardized values together (Illumination \times Slide, Illumination \times BDW, Slide \times BDW, and Illumination \times Slide \times BDW). The resulting seven variables were entered as predictors in a series of regression analyses on each of the dependent variables. Table 2 shows the correlations between BDW and all dependent variables.

These analyses showed no significant effect of BDW on the voting behavior measure either as a main effect or as a moderating variable.

There was a significant main effect of BDW on negative affect ($\beta = .187, p = .045$), and on overall integrative complexity ($\beta = -.24, p = .011$). The direction of the effects supports the hypotheses that higher BDW is associated with higher negative affect and lower complexity.

In addition to the main effects of BDW, this study also is interested in the degree to which BDW might act as a moderator of people's affective and cognitive responses to darkness and immigration. Several interesting results emerged from our analysis of BDW's moderating effects. The BDW \times Illumination interaction predicted positive affect (PA), a result that approached but did not attain significance ($\beta = -.176, p = .064$). To explore the nature of this interaction, a correlation was done, which showed that BDW and PA were negatively, although

not significantly, correlated in the dark ($r = -.19, p = .122$), while the correlation in the light was weaker ($r = .095, p = .474$). There was no significant moderating effect of BDW on negative affect in any of the interactions.

The analysis found a three-way BDW \times Illumination \times Slide interaction for integrative complexity ($\beta = -.185, p = .048$). This interaction was driven by a strong negative correlation between BDW and integrative complexity in the dark/immigration condition ($r = -.429, p = .01$), whereas correlations in the other three conditions were weaker and nonsignificant ($r_s < -.289$ and $p_s > .16$). This supports the hypothesis that the moderating effect of BDW on complexity change is stronger in the dark/immigration double threat condition than in the other conditions.

Personal Need for Structure

A similar regression analysis was performed to investigate any main effects or moderating effects of Personal need for structure (PNS) on the dependent variables. There were no main effects of PNS on any of the dependent variables. Table 3 shows the correlations between PNS and all dependent variables.

The PNS \times Slide interaction showed a significant effect for voting extremity ($\beta = .198, p = .041$), and integrative complexity ($\beta = -.201, p = .034$). Participants in the budget slide show condition exhibited a moderate negative correlation between PNS and voting extremity ($r = -.288, p = .033$). Participants in the immigration slide show condition showed a moderately negative correlation between PNS and integrative complexity, ($r = -.283, p = .019$). Relationships in the other conditions were weak and nonsignificant ($r_s < .09, p_s > .51$).

Immigration Generation Effects

Since the slide show condition and the voting measure are both immigration-relevant, I analyzed any moderating effects that being a 1st or 2nd generation immigrant might have on the voting measure and slide show conditions. I entered a standardized variable representing the

number of generations since immigration to Canada (-1 for 1st generation, 0 for 2nd generation, 1 for third or greater generation) into a regression equation as a main effect, along with the 2 immigration and slide main effects and 4 interaction variables.

There were no main or moderating effects of immigration generation on voting behavior, and no Generation \times Slide interaction effects on any of the dependent variables. There was a significant main effect of immigration generation on integrative complexity ($\beta = .189, p = .041$), with a positive correlation that approached significance ($r = .168, p = .061$). An ANOVA comparison was significant, $F(2, 122) = 6.409, p = .002$, and a Tukey's HSD post-hoc comparison showed that 2nd generation immigrants were significantly higher in complexity than 1st generation immigrants ($M = 1.81$ vs. 2.20), but there were no significant differences between 3rd or greater generation immigrants and the other groups.

An ANOVA and Tukey's HSD test also revealed immigration generation differences for BDW and PNS. The 2nd generation immigrants had lower PNS scores than 1st generation immigrants ($M = 3.31$ vs. $3.80, F(2,122) = 4.317, p = .015$). The 2nd generation immigrants also had lower BDW scores than 1st and 3rd or greater generation immigrants ($M = 3.11$ vs. 3.77 and $3.71, F(2,122) = 5.225, p = .007$).

Demographic Differences

One demographic variable that may affect the results is the presence of a large proportion of Chinese participants (40%) compared to other ethnicities (other Asian = 25%; Caucasian = 28%). An ANOVA revealed a significant difference between the ethnic groups, $F(3,121) = 6.60, p < .001$, and a Tukey's HSD showed Chinese participants to be significantly higher than Caucasians in BDW ($M_s = 3.93$ vs. 3.15), and showed less variability in the measure ($SDs = .70$ vs. $.83$).

The high proportion of participants who indicated they were of Asian ethnicity (65%) may help explain the puzzling moderate positive correlation between PA and NA observed in the data. Chinese and other Asian participants showed a significant moderate correlation between PA and NA (Spearman's $\rho = .438, p < .001$), while non-Asian participants had a weaker nonsignificant correlation (Spearman's $\rho = .248, p = .109$). Some hypothesized reasons for this difference will be explored in the discussion section.

Discussion

Contrary to the hypotheses, higher BDW was not a moderator in people's responses to either darkness or threatening outgroups, but rather higher BDW people seem to generally experience slightly more negative affect across all the conditions. Higher BDW individuals showed a generally lower level of integrative complexity, which is congruent with research on authoritarianism and complexity. Consistent with the hypotheses, the doubly threatening experience of immigrant outgroup threat in the darkness takes an especially severe toll on integrative complexity for higher BDW people. This finding concurs with the disruptive stress hypothesis (Schroder et al., 1967; Streufert & Schroder, 1965), which posits that after surpassing an "optimum" cognitive load imposed by information load and stressors, people's cognitive complexity is reduced. In the case of the higher BDW participants in this study, the noxiousness of the darkness combined with the threatening outgroup may have challenged their ability to cope with these stressors, resulting in reduced complexity. Lower BDW participants were less affected by these stressors.

The present research supports the general notion that when faced with information about immigrant outgroups, people experience more negative affect. This supports intergroup vigilance theory (Schaller, 2003), and identifies one dimension of experience that may function in intergroup vigilance. Exposure to a potentially threatening outgroup arouses a response in people

that includes greater negative feelings. This effect is especially strong in conditions of darkness, which may be a potent trigger for feelings of danger and thoughts of vulnerability, a result in accord with the hypotheses. Interpretation of this result needs to be qualified because the budget slide show condition may have simply reduced negative affect, as the participants considered only the positive ways a budget surplus could be allocated to help society. However, it would be expected in this case that positive affect would be higher for participants in the budget condition, which was not the case.

There were no significant effects of the manipulations on the voting preference measure, which is contrary to the hypotheses. The resulting means indicated that participants expressed voting preferences more favorable toward immigration after watching the immigration slide show than after watching the budget slide show. Since the results were nonsignificant, no inferences can be made about them. Regardless, the results are interesting. It may be that the pro-immigration slides were more persuasive than the anti-immigration slides, or that many of the participants were reminded of the so-called political incorrectness of anti-immigration viewpoints, occasioning the endorsement of moderate or pro-immigration positions. If these hypotheses were correct, I would expect that this general movement in voting toward the pro-immigration position would compress the variability of the voting measure against a ceiling effect. Instead, the immigration slide show occasioned greater variability in immigration voting than did the budget slide show. This greater variability seems to indicate the presence of a third variable that is influencing some, but not all people to endorse more pro-immigration positions in the immigrant conditions.

This result may be due to impression management (IM) concerns aroused by watching the immigration slide show. The immigration slide show, followed by the immigration-specific voting measure, might act to arouse the so-called Gamma, or moralistic, constellation of IM

concerns (see Paulhus & John, 1998). Subjects higher in IM concerns who may have reacted to the slide show with anti-immigrant sentiment might subsequently endorse more moderate or pro-immigration candidates to allay their IM concerns. In the budget condition, such concerns would not have been aroused for higher IM concerned participants, and the voting preference score would not be moved toward a more pro-immigrant position. Table 1 showed the mean immigration voting score was more pro-immigration in the immigration slide condition, which would support this hypothesis. Since IM was not measured, its effects cannot be controlled for to test this hypothesis.

Another explanation exists for the voting preference difference -- each immigrant generation responded differently to the immigration condition. Participants who were 1st and 2nd generation immigrants indicated more pro-immigration voting preferences in the immigration condition, while 3rd and greater generation immigrants chose voting preferences less pro-immigration in the immigration slide condition than the budget slide condition. Since the sample had a high percentage of 1st and 2nd generation immigrants, their influence may have caused an increase in the overall mean. The differences were nonsignificant, and it is impossible to rule out sampling error as the cause for these differences.

There were no significant differences between conditions for integrative complexity or voting extremity. It is likely that for most participants (higher BDW participants being an exception), the stimulus materials were not powerful enough to elicit such responses from individuals. However, the direction of the means was as predicted. As shown in Table 1, integrative complexity was lower, and voting extremity was higher, for participants in the immigration condition. The 2nd generation immigrants were, on whole, significantly higher in complexity than their 1st or 3rd or greater generation counterparts. Although there are no published studies of complexity differences between immigrant generations, I can postulate some

possible reasons for this difference. One possible factor is the use of two languages in the home. It would be expected that parents of 2nd generation immigrants use both their native language and the host culture's language, while at the same time their children are learning and using the host culture language in school. If this were the case, there might be an increased cognitive flexibility or complexity as a result of navigating both languages simultaneously. Another possible explanation is cultural disparities in interpretation. If the children of 1st generation immigrants are exposed to multiple, contradictory, cultural interpretations of the same event or situation, they may learn to use more differentiated and integrated thinking. These interpretations would be very valuable hypotheses to test.

The significant strong positive correlation between negative affect and both BDW and PNS that emerged in the light/budget condition was unexpected. Unlike the other three conditions, the light/budget condition also had a moderate positive correlation between BDW and positive affect, although it was nonsignificant. Why higher BDW and PNS levels might be associated with more negative affect in a condition of no threat is inconsistent with the hypotheses and remains to be explained.

Taken together, what do the results tell us about the affective and cognitive consequences of threatening people and places? Darkness itself, at least of short duration, does not have a significant effect on positive or negative affect, nor is there an effect on integrative complexity. Exposure to information about a threatening outgroup, in this case, immigrants, led people to "feel" more negatively, and in the darkness this effect was accentuated. Integrative complexity was affected by the dark/immigration threat, but was moderated by BDW, such that higher BDW participants experienced more reductions in complexity.

It appears that BDW moderates people's responses by influencing cognition rather than affect. The results that Schaller, et al. (2003) obtained showing more danger-relevant

stereotyping in higher BDW individuals may be due to changes in cognition, perhaps cognitive simplification. The prevalent conception of stereotyping identifies it as a cognitive process rather than an affective one (cf. Fiske, 1998). The present research supports this concept.

Another personality variable that moderated cognitive processing in this study was personal need for structure (PNS). The results showed that higher PNS individuals exhibited simplified cognition when presented with the immigrant-relevant information. This result supports the hypotheses, and is in line with previous research on stereotype formation (Schaller et al., 1995) which found that high PNS individuals use more simplistic reasoning strategies in forming erroneous stereotypes. The present results lend support to the notion that these individuals use what Schaller, et al. (1995) called a “simplistic two-dimensional cataloging system” (p. 553) when encoding group-relevant information. However, the present results showed this effect to be present only in the immigrant slide show condition, so the effects of PNS on cognition are activated in intergroup threat conditions, but not environmental threat (darkness) conditions.

BDW and PNS showed a low correlation ($r = .147, p = .10$), which indicates that they are measuring largely different moderating processes in this experiment. The data reveal that their moderating effects on cognition operate in different conditions. While BDW moderates cognition in the combined immigrant outgroup and darkness condition, PNS operates in the condition of immigrant outgroup threat. While higher PNS individuals may be more worried about the threat to social order presented by immigrant outgroups, higher BDW individuals are more affected when the threats are combined. These results bolster previous research by Schaller (i.e. Schaller et al., 1995; Schaller et al., 2003), and illustrate the importance of these two individual difference variables in understanding these individual differences in social cognition when we are exposed to threatening persons or places.

Some of the characteristics of the participants in this experiment require discussion. There were 91 (72%) 1st and 2nd generation immigrants in the sample. First generation immigrants indicated a more pro-immigration voting preference than 2nd and 3rd or greater generation immigrants ($M_s = 4.65, 4.43, \& 4.38$, respectively), but the differences were not significant, $F(2,121) = .577$. The lack of a significant difference between the generations is puzzling. It would be expected that participants who were recent immigrants or children of immigrants would be more likely to endorse pro-immigrant candidates than participants who have a longer generational history in the country. Two surveys lend limited support to this expectation. A national telephone poll in the United States of America (USA) (Puente, 1993) and a survey conducted specifically with Mexican American immigrants in Texas (Binder, Polinard, & Wrinkle, 1997) showed that support for restrictive immigration policies increases with the number of generations immigrants are in the USA.

These surveys differ from the present research in that they were conducted in the USA and in the general population, while this research draws from a Canadian university student population. Little empirical research exists on Canadian immigrant attitudes toward the subject, but anecdotal evidence from Britain indicates that 2nd generation teenage immigrants experience considerable tension between supporting immigration and concern for the protection of their host culture (Vasagar, 2001). Support for the influence of university education on attitudes toward immigration is provided by an analysis of a national survey in the USA. Having baccalaureate or graduate degrees is associated with attitudes more favorable toward immigration (Haubert & Fussell, 2004).

Another generational difference was that 2nd generation immigrants had lower BDW and PNS levels than 1st generation immigrants, and lower BDW levels than 3rd or greater generation immigrants. While no published studies have examined immigrant generational differences in

BDW or PNS, it may be that the children of 1st generation immigrants to Canada (who would have higher BDW and PNS levels) may develop a sense of security and flexibility comparatively lower than their parents, as a result of comparatively more stable political or economic conditions in Canada. As their parents relate stories embedded with higher dangerous world beliefs or needs for structure, the children may feel a comparative sense of security and flexibility. The effect of parents' BDW and NFS levels on the development of their children, in both immigrant and non-immigrant populations would be an interesting avenue of research to pursue.

Another demographic variable that affects the results is the presence of the large proportion of Chinese participants. Chinese participants were significantly higher than Caucasians in BDW, and showed less variability in the measure. This characteristic of the sample makes the results less generalizable outside the population sampled. One possible explanation for this difference in BDW scores and variance would be that socio-cultural background differences affect how Caucasian and Chinese participants interpret the items on the scale. The BDW scale was developed with Canadian university students, and there are no published reports of validation cross-culturally.

I found a moderate positive correlation between PA and NA, which may be related to the high proportion of Asian participants (65%) in the sample. A similar pattern of correlations has been observed in previous research using the PANAS with Asian participants (S. J. Heine, personal communication, May 12, 2004), and may be explainable by a theory that people from Chinese and other East Asian cultures are more adept at dialectical thinking that allows the maintenance of two contradictory positions on the same issue, while so-called Western thinking tends toward analytic thinking processes that polarize contradictory viewpoints (cf. Nisbett,

Peng, Choi, & Norenzayan, 2001; Peng & Nisbett, 1999). The degree to which this theory holds for affect would be a valuable avenue of research to pursue.

The present research demonstrated the moderating effects of two individual difference factors, BDW and PNS, on affective and cognitive responses to a threatening outgroup and situation. Although the results are qualified by a sample that included a disproportionate number of immigrants and ethnic Asian participants, the results hold, at least in the population studied. Any additional research should address the limitations of this research. First, the domain of the voting task and the threatening outgroup slides should not be confounded. Second, the non-outgroup slide condition should include positively and negatively valenced slides to avoid unintentionally inducing positive affect or reducing negative affect in the non-threatening condition. Third, the validity and reliability of the PANAS measure should be studied among Asian immigrant populations so comparisons with non-Asian groups can be made more confidently. Finally, the use of an immigration-specific integrative complexity measure might help illustrate better the complexity-changing effects of the threatening outgroups.

Conclusion

The ways we respond to threatening people and situations are likely to be evolved, adaptive behaviors that have persisted for millions of years. We have means for detecting intergroup threats based, in part, on how outgroup members deviate from our cultural norms and values, which would be an effective strategy when evaluating newcomers to a group. As we encounter immigrants from very different cultures, our affect and our cognition are going to be affected by these perceived threats, and we will respond to cope with the threats. One such way to cope is to categorize and reduce the complexity of the information we are facing about our environment, allowing us to then evaluate and act on the threats more efficiently. The desire for

structure may be one way we have evolved to cope with the complexity of information about outgroup threats.

Similarly, we may have evolved ways of quickly detecting and acting on threats in the environment. As we are faced with situations of varying degrees of dangerousness, we must decide whether we need to be more vigilant, taxing our limited cognitive resources, or whether we can be less vigilant, and may devote more resources to other tasks. Chronic dangerous world beliefs may be one way we have evolved to deal with such contingencies. If we can more efficiently deal with situational dangers, we can be effective cognitive managers (Suedfeld, 1992), allocating cognitive resources to where they are needed.

When we move these processes into the contemporary context, they serve us for better or worse. In the present study, the moderation of BDW and PNS was shown to apply in specific conditions of threat. When we are faced with information about an immigrant outgroup, we may respond with negative affect, especially if we perceive a situational threat such as darkness. We also may experience more or less cognitive simplification, depending on our individual BDW or PNS levels. Those of us with a high levels of PNS may respond to immigrant outgroup members with more simplified cognitions, which may occasion categorization and group stereotypes. Those with a high BDW level may experience more simplified cognition if we perceive the double threat of an immigrant outgroup and threatening situations.

The threatening situation we used in the present research, darkness, is a potent, basic fear that elicits responses in a wide range of people. It would be interesting to know whether there are threats posed by immigrant outgroups that also tap such basic fears and elicit cognitive and behavioral consequences. For example, might threats to resource availability (e.g. immigrants using up fresh water supplies or depleting food stocks) trigger such fears of danger? If so, I would expect that such a threat response would be moderated by BDW.

Another interesting question unanswered by the present research is whether there are specific varieties of immigrant outgroup threats that high PNS individuals are more vigilant about. One such specific threat may be the threat to social order posed by immigrants' differing beliefs and cultural practices. Another such threat might be the conflicting, complex array of benefits and costs to the host culture that are associated with immigrants. High PNS individuals may be motivated to attempt to reduce the complexity of this information, by ignoring some information, or thinking more simplistically. This experiment lends some credence to this hypothesis, but such a hypothesis will need to be more fully explored.

As we face a more globally integrated future, with complex sets of costs and benefits of global integration, the issues of individual responses to immigrant outgroup threat that I have raised here will become more critical. It is important to know how our responses are moderated by our differences in danger beliefs and needs for structure. If it is true that these responses are the product of millions of years of evolutionary history, the likelihood that we will change our automatic responses is little or nil. However, the awareness of our propensity to make automatic attributions, and their costs and benefits, will allow us to make better decisions about important issues like immigration policy.

References

- Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. San Francisco, CA: Jossey-Bass/Pfeiffer.
- Baker-Brown, G., Ballard, E. J., Bluck, S., de Vries, B., Suedfeld, P., & Tetlock, P. E. (1992). The conceptual/integrative complexity scoring manual. In C. P. Smith (Ed.), *Motivation and personality: Handbook of thematic content analysis* (pp. 400-418). Cambridge: Cambridge University Press.
- Baldwin, B. A. (1972). Change in interpersonal cognitive complexity as a function of a training group experience. *Psychological Reports*, 30(3), 935-940.
- Binder, N. E., Polinard, J. L., & Wrinkle, R. D. (1997). Mexican American and Anglo attitudes toward immigration reform: A view from the border. *Social Science Quarterly*, 78(2), 324-337.
- Butcher, K. F., & Piehl, A. M. (1998). Cross-city evidence on the relationship between immigration and crime. *Journal of Policy Analysis and Management*, 17(3), 457-493.
- Byrne, A., & Eysenck, M. W. (1995). Trait anxiety, anxious mood, and threat detection. *Cognition & Emotion*, 9(6), 549-562.
- Calvo, M. G. (2000). Early vigilance and late avoidance of threat processing: Repressive coping versus low/high anxiety. *Cognition & Emotion*, 14(6), 763-787.
- Coren, S., & Suedfeld, P. (1990). A power test of conceptual complexity: Textual correlates. *Journal of Applied Social Psychology*, 20(5), 357-367.
- de Vries, B., & Walker, L. J. (1987). Conceptual/integrative complexity and attitudes toward capital punishment. *Personality & Social Psychology Bulletin*, 13(4), 448-457.

- Enoch, Y. (1994). The intolerance of a tolerant people: Ethnic relations in Denmark. *Ethnic and Racial Studies*, 17(2), 282-300.
- Eysenck, M. W. (1991). Trait anxiety and cognition. In C. D. Spielberger, I. G. Sarason & et al. (Eds.), *Stress and emotion: Anxiety, anger, and curiosity, Vol 14* (pp. 77-84). Washington, DC: Hemisphere Publishing Corp.
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. T. Gilbert, S. T. Fiske & et al. (Eds.), *Handbook of social psychology, Vol 2* (4th ed., pp. 357-411). New York, NY: McGraw-Hill.
- Fiske, S. T. (2000). Stereotyping, prejudice, and discrimination at the seam between the centuries: Evolution, culture, mind, and brain. *European Journal of Social Psychology*, 30(3), 299-322.
- Fleishman, J. (2004, April 18, 2004). Tolerance and fear collide in the Netherlands. *Los Angeles Times*, p. A9.
- Florack, A., Piontkowski, U., Bohman, A., Balzer, T., & Perzig, S. (2003). Perceived intergroup threat and attitudes of host community members toward immigrant acculturation. *Journal of Social Psychology*, 143(5), 633-648.
- Green, M., Williams, L. M., & Davidson, D. (2003). In the face of danger: Specific viewing strategies for facial expressions of threat? *Cognition & Emotion*, 17(5), 779-786.
- Grillon, C., Pellowski, M., Merikangas, K. R., & Davis, M. (1997). Darkness facilitates the acoustic startle reflex in humans. *Biological Psychiatry*, 42(6), 453-460.
- Guilford, J. P. (1965). *Fundamental statistics in psychology and education* (4th ed.). New York: McGraw-Hill Book Company.
- Hall, G. S. (1897). A study of fears. *American Journal of Psychology*, 8(2), 147-249.

- Harris, R. M. (1981). Conceptual complexity and preferred coping strategies in anticipation of temporally predictable and unpredictable threat. *Journal of Personality & Social Psychology*, 41(2), 380-390.
- Haubert, J., & Fussell, E. (2004). *Social bases of perceptions of immigrants: New class theory and pro-immigrant sentiment*. Unpublished manuscript.
- Hogan, H. W. (1977). Complexity, extremity, affect, and threat as dimensions of person perception. *Journal of Psychology*, 96(2), 321-325.
- Junger-Tas, J. (2001). Ethnic minorities, social integration, and crime. *European Journal on Criminal Policy and Research*, 9, 5-29.
- Kuna, D. P. (1976). Threatening behavior and complex judgments: A test of the vigilance and Pollyanna hypotheses. *Representative Research in Social Psychology*, 7(1), 6-12.
- Mears, D. P. (2001). The Immigration-Crime Nexus: Toward an Analytic Framework for Assessing and Guiding Theory, Research, and Policy. *Sociological Perspectives*, 44(1), 19p.
- Neuberg, S. L., & Newsom, J. T. (1993). Personal need for structure: Individual differences in the desire for simpler structure. *Journal of Personality & Social Psychology*, 65(1), 113-131.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2), 291-310.
- Ohman, A., Flykt, A., & Lundqvist, D. (2000). Unconscious emotion: Evolutionary perspectives, psychophysiological data and neuropsychological mechanisms. In R. D. Lane & L. Nadel (Eds.), *Cognitive neuroscience of emotion* (pp. 296-327): Oxford University Press.

- Paulhus, D. L., & John, O. P. (1998). Egoistic and moralistic biases in self-perception: The interplay of self-deceptive styles with basic traits and motives. *Journal of Personality*, 66(6), 1025-1060.
- Peng, K., & Nisbett, R. E. (1999). Culture, dialectics, and reasoning about contradiction. *American Psychologist*, 54(9), 741-754.
- Pettigrew, T. F., & Meertens, R. W. (1995). Subtle and blatant prejudice in western Europe. *European Journal of Social Psychology*, 25(1), 57-75.
- Porter, C. A., & Suedfeld, P. (1981). Integrative complexity in the corresponding of literary figures: Effects of personal and societal stress. *Journal of Personality & Social Psychology*, 40(2), 321-330.
- Puente, M. (1993, July 14, 1993). USA cool to huddled masses: Sentiment sours as rate of arrival rises. *USA Today*, p. 1A.
- Schaller, M. (2003). Ancestral environments and motivated social perception: Goal-like blasts from the evolutionary past. In S. J. Spencer, S. Fein & et al. (Eds.), *Motivated social perception: The Ontario symposium, Vol 9* (pp. 215-231). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Schaller, M., Boyd, C., Yohannes, J., & O'Brien, M. (1995). The prejudiced personality revisited: Personal need for structure and formation of erroneous group stereotypes. *Journal of Personality & Social Psychology*, 68(3), 544-555.
- Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality & Social Psychology Bulletin*, 29(5), 637-649.

- Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing: individuals and groups functioning in complex social situations*. New York: Holt Rinehart and Winston.
- Shah, J. Y., Brazy, P. C., & Higgins, E. T. (2004). Promoting us or preventing them: Regulatory focus and manifestations of intergroup bias. *Personality & Social Psychology Bulletin*, 30(4), 433-446.
- Sillars, A., & Parry, D. (1982). Stress, cognition, and communication in interpersonal conflicts. *Communication Research*, 9(2), 201-226.
- Streufert, S., & Nogami, G. Y. (1989). Cognitive style and complexity: Implications for I/O psychology. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology 1989* (pp. 93-143). Oxford, England: John Wiley & Sons.
- Streufert, S., & Schroder, H. M. (1965). Conceptual structure, environmental complexity and task performance. *Journal of Experimental Research in Personality*, 1(2), 132-137.
- Suedfeld, P. (1992). Cognitive managers and their critics. *Political Psychology*, 13(3), 435-453.
- Suedfeld, P., & Granatstein, J. L. (1995). Leader complexity in personal and professional crises: Concurrent and retrospective information processing. *Political Psychology*, 16(3), 509-544.
- Suedfeld, P., Leighton, D. C., & Conway, L. G. (in press). Integrative complexity and cognitive management in international confrontations: Research and potential applications. In M. Fitzduff & C. E. Stout (Eds.), *Psychological approaches to dealing with conflict and war*. Westport, CT: Praeger Publishers.

- Suedfeld, P., & Tetlock, P. E. (2001). Individual differences in information processing. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (pp. 284-304). Malden, MA: Blackwell Publishers, Inc.
- Timmer, A. S., & Williamson, J. G. (1998). Immigration policy prior to the 1930s: Labor markets, policy interactions, and globalization backlash. *Population and Development Review*, 24(4), 739-771.
- United States. Congress. House of Representatives. (2003). *Congressional Record*. Retrieved May 6, 2004, from <http://thomas.loc.gov/cgi-bin/query/C?r108:/temp/~r108Ln7GDS>
- Vasagar, J. (2001, May 23, 2001). Welcome to Britain: Stuck in the middle. *The Guardian*, p. 6.
- Warr, M. (1990). Dangerous situations: Social context and fear of victimization. *Social Forces*, 68(3), 891-907.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality & Social Psychology*, 54(6), 1063-1070.

Appendix

*Immigration Voting Preference Measure***Voting Task**

Here are positions political candidates take on the issue of immigration. Please choose a single candidate you would vote for if you were voting on the basis of this one issue alone. Check the space before the position statement you would vote for.

_____ Priority should be given to Canadians when it comes to jobs and resources from this country. We have a small population, which cannot support immigrants living on welfare. Highly skilled workers with expertise that can't be found in Canada should be allowed to immigrate and better Canada's economy, but immigrants must not take jobs from Canadians.

_____ Immigration applications should be widely available, but the selection criteria for entering foreigners should be specifically defined. The government should allow people who are skilled workers or have significant business interests into Canada, but we should also allow for legitimate unskilled or unemployable persons to immigrate to Canada, such as refugees from political persecution (and in some cases, economic persecution). Refugees from war should be evaluated carefully but quickly.

_____ The Canadian economy sometimes needs highly skilled workers from other countries to fill jobs Canadians can't fill or don't want. Also, as global citizens, we have an obligation to help foreigners who are politically persecuted, or are refugees from countries at war. Only under these circumstances should our border be opened.

_____ Canada should remain pure. Foreigners who come here end up stealing Canadian jobs or living on welfare. Canadian workers and taxpayers should not have to bear this burden. Under my administration, Canadians will not suffer from immigration.

_____ Refugees from regions of conflict, political instability, or political persecution should be granted immediate access to the country. Skilled workers, those who have family in Canada, and those who have business or investment interests should also be accepted. Also, we are a wealthy country, and can afford to harbor some immigrants who are unemployable, and those persecuted economically.

_____ Our borders should be open to all those who wish to enter or leave Canada. People should think of themselves as citizens of the world, and thus should be free to move from region to region without thinking about arbitrary lines. Workers who want to work in Canada and those who cannot work but contribute to our diversity should be welcomed.

_____ As Canadians, we have a responsibility to citizens of other nations of the world. We should share our resources by allowing all people fleeing from war, political persecution, political instability, and those who come from economically disadvantaged countries immediate access to Canada. All those who apply and are employable and will contribute something to Canada should also be allowed to enter.

Table 1

Means and Standard Deviations for All Dependent Variables

	Budget Slides		Immigration Slides		
Dependent Variables	Light (N=25)	Dark (N=30)	Light (N=34)	Dark (N=35)	Sig. Effects
Affect					
Negative Affect	1.37 (.36)	1.41 (.39)	1.47 (.44)	1.66 (.66)	b, d
Positive Affect	2.00 (.86)	2.09 (.68)	2.02 (.72)	2.22 (.52)	
Voting Behavior					
Voting Preference	4.48 (1.16)	4.37 (1.27)	4.62 (1.39)	4.66 (1.37)	
Extremity	.72 (1.02)	.83 (1.02)	.97 (1.17)	1.00 (1.14)	
Integrative Complexity					
Overall	1.95 (.50)	1.98 (.37)	1.87 (.51)	1.86 (.49)	
Interpersonal	2.06 (.57)	2.29 (.51)	1.88 (.63)	2.17 (.61)	a
Intrapersonal	1.86 (.70)	1.74 (.62)	1.81 (.64)	1.70 (.64)	
Institutional	1.90 (.76)	1.90 (.66)	1.93 (.65)	1.68 (.67)	

Note: Significant Effects Legend

a = Illumination main effect

b = Slide main effect

c = Illumination \times Slide interaction

d = Contrast effect (Dark/Immigration vs. all other conditions)

Table 2

Correlations Between Belief in a Dangerous World (BDW) and All Dependent Variables

Dependent Variable	Overall r	<i>r</i> for Budget Slides		<i>r</i> for Immigration Slides		Power	Sig. Effects
		Light (N=25)	Dark (N=30)	Light (N=34)	Dark (N=35)		
Affect							
Negative Affect	.113	.462 *	.004	.017	.105	.250	a
Positive Affect	-.117	.290	-.172	-.05	-.236	.186	
Voting Behavior							
Voting Preference	-.107	-.221	-.27	-.029	-.037	.055	
Extremity	.000	-.122	.099	.174	.152	.068	
Integrative Complexity							
Overall	-.202 *	-.289	-.125	-.289	-.429 *	.509	a, d
Interpersonal	-.01	.034	.056	.178	-.326	.327	
Intrapersonal	-.188 *	-.430 *	-.011	-.093	-.306	.539	
Institutional	-.243 **	-.206	-.231	-.143	-.401 *	.174	

** significance < .01

* significance < .05

Note. Significant Effects Legend (As Revealed By Regression)

a = BDW main effect

b = Illumination × BDW interaction

c = Slide show × BDW interaction

d = Illumination × Slide show × BDW interaction

Table 3

Correlations Between Personal Need for Structure (PNS) and All Dependent Variables

Dependent Variable	Overall r	<i>r</i> for Budget Slides		<i>r</i> for Immigration Slides		Power	Sig. Effects
		Light (N=25)	Dark (N=30)	Light (N=34)	Dark (N=35)		
Affect							
Negative Affect	.100	.416 *	-.145	.031	-.008	.072	
Positive Affect	.028	.006	.006	-.290	.247	.249	
Voting Behavior							
Voting Preference	-.132	-.262	-.210	.006	-.103	.054	
Extremity	-.085	-.374	-.276	.104	.035	.056	c
Integrative Complexity							
Overall	-.123	-.016	.215	-.346 *	-.231	.053	c
Interpersonal	-.069	.134	.068	-.266	-.176	.413	c
Intrapersonal	-.093	-.123	.246	-.205	-.196	.172	
Institutional	-.108	-.035	.071	-.367 *	-.151	.058	

** significance < .01

* significance < .05

Note. Significant Effects Legend (As Revealed By Regression)

a = PNS main effect

b = Illumination × PNS interaction

c = Slide show × PNS interaction

d = Illumination × Slide show × PNS interaction