HOSTILITY: INDIVIDUAL DIFFERENCES IN COGNITIVE PROCESSES

by

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Abstract

High hostile individuals appear to interpret social information as more hostile than it really is, which is thought to be deleterious to their health. The present investigation sought to determine whether activating hostile thought processes affects impression formation and behavior differently in high versus low hostile individuals. Participants were classified as high hostile or low hostile based on their Cook-Medley Hostility Scale scores. Participants were randomly assigned to either a hostile or a neutral semantic priming condition. Low hostile women formed more negative impressions of a hypothetical person when primed with hostile words than neutral ones. No differences were observed for high hostile individuals. Hostile priming also caused low hostile women to exhibit more hostile behaviors than high hostile women. These findings suggest that high and low hostile individuals process hostile information differently and that high hostile individuals do not merely possess a generalized hostile-other bias.
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Researchers have long suspected that psychological factors are implicated in the development of coronary heart disease (Allred & Smith, 1991). This suspicion has inspired a vast amount of research attempting to elucidate the behavioral antecedents of heart disease. Over the past 30 years hostility has emerged as a predictor of deleterious cardiovascular health outcomes. Specifically, hostility has been implicated in the severity of coronary atherosclerosis (Byers, 1991; MacDougall, Dembroski, Dimsdale, & Hackett, 1985; Matthews, Owens, Edmundowicz, Lee, & Kuller, 2006; Williams, Haney, Lee, Kong, Blumenthal, & Whalen, 1980) as well as heart disease incidence (Gonnie, Hans, Van Lenthe, Kempen, Van Eijk, & Mackenbach, 2009; Matthews, Glass, Rosenman, & Bortner, 1977) and mortality (Barefoot, Dahlstrom, & Williams, 1983; Shekelle, Gale, Ostfeld, & Paul, 1983).

Despite its association with poor cardiovascular health, exactly how hostility may confer risk of heart disease has remained elusive. Various mechanisms have been proposed. For instance, according to the psychophysiological model a general reactivity mechanism is responsible for the connection between hostility and heart disease (Smith & Christensen, 1992). Specifically, this model presumes that hostile individuals chronically experience heightened cardiovascular reactivity (e.g., elevated blood pressure) and that this general reactivity is what predisposes them to develop heart disease. This model appears viable but has not been consistently supported in the literature. Alternatively, Smith’s (1992) transactional model proposes that psychological and social factors mediate the relationship between hostility and heart disease. Smith’s model presumes that hostile individuals possess a “unique cognitive style” (p. 401) that creates stressful social interactions which, in turn, elicit greater physiological reactivity (e.g., elevated blood pressure) that contributes to illness (Allred & Smith, 1991). If hostile cognitions and behaviors mediate the relationship between physiology and illness, then a
clear theoretical understanding of how hostile thought processes and behaviors function is necessary before interventions aimed at reducing the psychological factors that exacerbate the disease process can be implemented successfully. Accordingly, the purpose of the present study was to explore individual differences in the cognitive processes mediating hostile behavior. Specifically, the present study addressed whether activating hostile thought processes would affect impression formation or behavior differently in high versus low hostile individuals.

**Defining Hostility**

Since the emergence of the study of hostility in the context of coronary heart disease research, the construct has been defined using different theoretical notions. Consequently, the term “hostility” is not a uniform psychological construct throughout the literature. Related constructs such as anger, cynicism, and aggression are frequently used interchangeably with hostility (Barefoot, 1992; Megargee, 1985; Spielberger et al., 1985). This becomes problematic when studies of hostility are incorrectly assumed to refer to and measure the same construct. In order to avoid confusion and miscommunication, Barefoot (1992) proposed using a comprehensive definition in which hostility is viewed as a multifaceted construct with cognitive, affective, and behavioral components. The **cognitive component** of hostility consists of negative attitudes or beliefs about others and the world (Barefoot, 1992). This includes **cynicism**, a set of negative attitudes or beliefs about human nature in general, as well as **hostile attributions**, beliefs that the self is the target of the antagonistic behavior of others (Barefoot, Dodge, Peterson, Dahlstrom, & Williams, 1989). The **affective component** of hostility is comprised of emotional states such as anger, annoyance, disgust, contempt, resentment, envy, and jealousy (Barefoot, 1992; Smith, 1992). Lastly, the **behavioral component** of hostility includes acts such as verbal and physical aggression (Barefoot, 1992) as well as facial expressions such as fewer non-
Duchenne smiles (Prkachin & Silverman, 2002). The definition of hostility used in this study is consistent with Barefoot’s framework.

**Hostility and Heart Disease**

Coronary heart disease is the leading cause of death in Canada. In 2005, heart disease accounted for just over 30% of all deaths in both men and women (Statistics Canada, 2009). Heart disease is also the most costly disease in Canada; heart disease was responsible for about $22 billion in expenditures in Canada in 2005 (Heart and Stroke Foundation of Canada, 2010). Not only does heart disease negatively affect our health care system through its associated costs, it has substantial long-term mental, physical, emotional, and social consequences for those it affects. Consequently, a considerable amount of research has been devoted to investigating the processes and risk factors that contribute to the development of heart disease.

Cardiologists Friedman and Rosenman (1959, cited in Smith & Leon, 1992) reportedly noticed that some heart patients were more likely than non-patients to exhibit a specific pattern of behavior characterized by competitive achievement orientation, time urgency, and easily-aroused anger or hostility. This pattern became referred to as Type A behavior. Though research on Type A behavior flourished for some time, null findings cast a shadow of doubt over this construct as the key psychosocial determinant of heart disease. Consequently, attempts at isolating the exact components of Type A that lead to heart disease ensued. For instance, Dembroski, MacDougall, Williams, Haney, and Blumenthal (1985) demonstrated through component scoring of the Type A Structured Interview, the gold standard of techniques for measuring Type A behavior, that there was no relationship between global Type A and disease severity, but that hostility was significantly related to coronary atherosclerosis severity. Such findings prompted researchers to contend that perhaps hostility was the “toxic” component of the
Type A construct that is responsible for its association with heart disease (Siegman & Dembroski, 1989). Further studies have revealed that hostility predicts severity of coronary atherosclerosis (Byers, 1991; MacDougall et al., 1985; Matthews et al., 2006; Williams et al., 1980) as well as heart disease incidence (Gonnie et al., 2009; Matthews et al., 1977) and mortality (Barefoot et al., 1983; Shekelle et al., 1983). Moreover, the most recent meta-analytic review supports the contention that hostility is an independent predictor of heart disease (Miller, Smith, Turner, Guijarro, & Hallet, 1996).

**Mechanisms by which hostility confers risk.** Because hostility is implicated in the development of heart disease, how it confers risk is of specific concern. One influential account is the psychophysiological reactivity model (Smith & Christensen, 1992). This model proposes that hostile individuals experience elevated cardiovascular and neuroendocrine responses to stress and that this heightened reactivity damages the heart predisposing the development of heart disease. Investigations of the relationship between individual differences in hostility and physiological reactivity, however, have revealed mixed results. While some studies have revealed a relationship between blood pressure reactivity and scores on various measures of hostility (e.g., Dembroski, MacDougall, Shields, Petitto, & Lushene, 1978; Diamond, Schneiderman, Schwartz, Smith, Vorp, & Pasin, 1984; Jorgensen & Houston, 1986; Steptoe, Melville, & Ross, 1984), others have obtained negative findings (e.g., Hastrup, Kraemer, Hotchkiss, & Johnson, 1986; Manuck, Proietti, Rader, & Polefrone, 1985). Thus, a general reactivity mechanism has not been consistently supported.

Alternatively, it has been proposed that the physiological reactivity experienced by hostile individuals does not generalize to all stressors, but is instead specific to social sources of stress (Smith & Leon, 1992). Indeed, studies reveal that scores on the Cook-Medley Hostility
Scale are associated with blood pressure reactivity to social interactions such as high-conflict role-playing (Hardy & Smith, 1988), controversial debate (Smith & Allred, 1989), and harassment during a word-identification task (Suarez & Williams, 1989), but unrelated to cardiovascular responses to standard laboratory stressors such as a cold pressor and mental arithmetic (Sallis, Johnson, Trevorrow, Kaplan, & Horvell, 1987), mental subtraction and timed Stroop tasks (Smith and Houston, 1987), and cognitive stressors (Kamarck, Manuck, & Jennings, 1990). Evidence that social stressors differentially affect hostile versus non-hostile individuals suggests that the effect of hostility on heart disease is mediated by social factors, consistent with Smith’s (1992) transactional model. Smith proposed that behavior confers risk of heart disease because interpersonal hostility provokes reciprocal hostility, which in turn increases intrapersonal conflict (which can then elicit cardiovascular reactivity) and social isolation leading to an elevated risk of heart disease.

The Moderating Role of Sex

The way that men and women experience and express hostility and aggression differs (Knight, Guthrie, Page, & Fabes, 2002). Men are generally more aggressive and impulsive (Struber, Luck, & Roth, 2008) whereas women are more suppressive and pessimistic with their hostile feelings (Stoppard, 2000). Men and women also manifest different behaviors in threatening social situations. MacLaren, Best, and Bigney (2010) found that women were more likely to orient away from threats whereas men were more likely to choose a confrontational style of reaction. Recent findings also suggest that sex has a moderating effect on the relationship between hostility and cardiovascular function. Hughes and Stoney (2000) found that men show less parasympathetic withdrawal during psychological stressors than women. Ruiz, Uchino, and Smith (2006) replicated this finding. Weng, Lin, and Jiang (2010) found that sex moderated the
relationship between multidimensional hostility and health outcomes. Specifically, expressive hostility (e.g., external manifestations like verbal and physical aggression) exacerbated psychosomatic symptoms (e.g., fatigue, headache, weakness, etc) in females but buffered it in males, whereas suppressive hostility (e.g., holding anger inside) exacerbated psychosomatic symptoms in males. Thus, sex is an important variable to consider when investigating hostility. Because sex influences how individuals experience and express hostility, it is likely that sex also impacts the way that hostility affects social relationships and health outcomes.

**Social Cognitive Dimensions**

Underlying all social cognition theories is the idea that people hold cognitive representations of their social environment in memory and access those representations to process and interpret social information (Huesmann, 1998). Borrowing from information processing theories, human cognitive processes are likened to computer processes where a sequence of cognitive processes lead to the output of a particular behavior. Social behavior operates as a function of biologically determined structures (hardware), cognitive processes (software), memory databases that hold social and other information (knowledge structures), and environmental inputs (cues) perceived by the individual (Huesmann, 1998). Within this framework, knowledge structures are represented as a network of *nodes* interconnected by *links* (McNamara, 2005). Nodes can represent semantic constructs (i.e., knowledge about the meaning of words and concepts) or episodic constructs (i.e., knowledge about events, people, or objects). Links connecting nodes together represent the relationship between those nodes (e.g., the link between the node representing knowledge of cats is linked to the node for dogs by their relationship as mammals). New information can be *encoded*, or integrated into existing memory structures and existing information can be *retrieved* from memory stores via the activation of
associated nodes. Larger macro knowledge structures referred to as *schemas* (Huesmann, 1998) contain substantial information organized to facilitate comprehension about a concept, its attributes, and its relationship to other concepts. Different kinds of schemas hold different kinds of information. *Self-schemas* organize information about the self; *other-schemas* organize information about other people; *event-schemas* organize information about events, and so forth.

**Social cognitive mechanism of hostility.** Two influential social information-processing models have been proposed to explain how cognitive processes mediate aggressive behavior, one developed by Huesmann and his colleagues, and the other developed by Dodge and his colleagues (Huesmann, 1998). Even though these models have mainly focused on aggressive behavior of children, a review of the proposed mechanisms mediating aggression is pertinent because similar processes likely mediate aggression in adults.

Huesmann (1998) combines Crick and Dodge’s (1994) reformulated social information processing model of aggression with his own initial model (Huesmann, 1988) to highlight the core processes common to both models. Both models presume that an individual faced with a social situation uses his or her preexisting set of biologically determined capabilities and cognitive database of social knowledge to evaluate and interpret situational cues, and to choose and enact an appropriate behavioral response. For example, a child that is faced with a peer who is attempting to initiate rough-and-tumble play first forms a mental representation of the social situation. The child does this by selectively attending to internal and external (situational) cues, encoding those cues, and interpreting them based on past experiences and previously acquired social knowledge. Social knowledge obtained through previous experience is stored in the cognitive database in the form of schemas. Schemas are recalled from memory and used to interpret and understand the present social situation (e.g., information about peers).
Interpretations of social cues can be influenced by causal inferences, which are attributions about the cause of an event or the intent of a peer (e.g., Jack wants to play with me, Jack wants to hurt me). After a situation is interpreted, possible behavioral responses are reviewed based on appropriateness of the response, self-efficacy for enacting the response, and desired outcome. A behavior is then selected and enacted (e.g., play with Jack, fight with Jack).

**Individual differences in cognitive processing.** Despite the implied common underlying structure and function of mental processes, variations in behavior and cognition are possible because of individual differences in the interpretation of social cues, the content of knowledge structures, the accessibility of constructs, and the evaluation of behavioral responses. Because a given social situation likely contains many external cues, which cues are attended to and how they are interpreted varies from person to person. Because hostile individuals possess a bias toward interpreting ambiguous cues as more hostile than their non-hostile counterparts (Guyll & Madon, 2003), they are likely to interpret social situations as more hostile than they really are. Moreover, evidence suggests that hostile individuals selectively attend to hostile cues and ignore non-hostile cues. For instance, Allred and Smith (1991) found that hostile individuals recalled more hostile adjectives following hostile social interaction than their non-hostile counterparts did. Though social information processing models presume that all individuals represent information in knowledge structures (schemas), the content of these structures varies based on their unique past experiences. Habra (2006) found that high hostile individuals processed social support-related information differently than low hostile individuals. High hostile participants evaluated offers of social support more negatively after their social support schemas were cued than after their hostility schemas were cued, whereas low hostile showed the opposite effect.

Hostile individuals are presumed to have encoded in memory a greater number of hostile
schemas or to possess more extensive and better elaborated hostile scripts than non-hostile individuals. Consequently, hostile schemas or scripts should be more readily activated and retrieved by hostile individuals. In addition, schemas that are frequently activated may no longer require cues to be retrieved and therefore become *chronically accessible* (Caprara & Cervone, 2000). Because behavioral scripts are evaluated before being enacted, the evaluation can differ between hostile and non-hostile individuals. Hostile individuals likely possess normative beliefs that condone more hostility than non-hostile individuals do. Thus, even if similar aggressive or hostile scripts are activated in hostile and non-hostile individuals, non-hostile individuals may deem them less socially acceptable and be less likely to enact them than hostile individuals.

**Priming: Activating knowledge structures.** A line of research that informs the present is research on priming. *Priming* involves the presentation of category-relevant information in order to activate specific category representations or schemas in memory making them more readily accessible. Referring back to the network model of memory, access to a specific concept (e.g., cat) can be facilitated by previous exposure to a related concept (e.g., dog). According to the spreading activation model, exposure to a concept (i.e., priming) activates its internal representation allowing it to be retrieved from memory. The activation of one concept spreads to related concepts because of their meaningful connections, facilitating their retrieval. For example, concepts such as *dog, cat, horse, and cow* might each be represented in memory, connected by their relationship(s) to each other (e.g., they are all mammals, they all have four legs). The activation of the concept *dog* spreads to the related concept *cat*, which subsequently becomes more readily accessible because it is already partially activated (McNamara, 2005).

Priming can be accomplished in a variety of ways. A classic research paradigm that employs priming is the *lexical decision task* in which participants are tasked with classifying
stimuli as either words or non-words. Meyer and Schvaneveldt (1971) found that participants correctly identified stimuli pairs as words significantly faster when they were semantically related (e.g., BREAD-BUTTER) than when they were not (e.g., BREAD-DOCTOR).

Accordingly, this type of priming became referred to as semantic priming. In semantic priming the stimulus to which participants respond (e.g., to indicate whether or not the stimulus is a word) is the target and the preceding stimulus is the prime (McNamara, 2005).

Priming has also been used to study attention and automatic information processing. A common priming paradigm uses a sentence construction task, in which participants are asked to construct a grammatically correct four- or five-word sentence from a group of five or six words as quickly as possible. For example, the group of words “he breaks it arm her” can be used to construct the sentence “he breaks her arm”. This type of task is used to surreptitiously prime constructs of interest in order to influence subsequent ostensibly unrelated tasks without participants’ explicit awareness. For example, Srull and Wyer (1979) used a sentence construction task to activate concepts associated with either hostility or kindness in order to influence a subsequent impression formation task where a target person was evaluated along several personality dimensions. Another common paradigm is a word presentation task in which prime words are presented briefly (e.g., for 50-100 ms) on a computer screen to participants across several trials to surreptitiously influence subsequent tasks. For example, Bargh and Pietromonaco (1982) presented hostility relevant words subliminally or below the threshold of conscious awareness to influence participants’ evaluations of target individuals.

**Influencing perception and behavior.** There has been a considerable amount of research in the area of automatic information processing which has demonstrated that it is possible to influence both perception and behavior via priming. Research reveals that priming
can influence social perception immediately following exposure to primes. For example, Higgins, Rholes, and Jones (1977) found that participants judged a hypothetical person described as ready to cross the Atlantic in a sailboat more negatively after being primed with the word “reckless” than with the word “adventurous”. Likewise, Srull and Wyer (1979) found that the more participants were exposed to words semantically related to “hostility” during a sentence construction task, the more their subsequent ratings of a hypothetical person named Donald were consistent with the primed trait. Bargh and Pietromonaco (1982) found similar results by presenting hostility relevant words subliminally or below the threshold of conscious awareness. They found that the more participants were exposed to hostile words, the more negative their evaluations of Donald were.

In addition to influencing impression formation, priming has been shown to affect actual behavior. For example, Bargh, Chen, and Burrows (1996) used a sentence construction task to prime participants with one of three constructs: rude, polite, or neutral (e.g., using words like disturb versus patiently versus watches, respectively). The authors found that participants in the rude priming condition interrupted the experimenter significantly faster than participants in the polite and neutral priming conditions and that a greater proportion of those in the rude condition interrupted the experimenter than those in the neutral and polite conditions. In their second study, Bargh et al. found that participants exposed to words related to the construct of “old” walked slower when leaving the experiment than those participants who were exposed to words related to the construct of “young”.

**Direction of priming effects.** The literature outlines different ways that priming can influence impression formation (DeCoster & Claypool, 2004). Priming can result in **assimilation**, where impressions are biased toward primes (Higgins et al., 1977; Srull & Wyer, 1979), or
contrast, where impressions are biased away from primes. Two different types of contrast effects are presumed to exist. First, anchoring occurs when extreme primes (e.g., Hitler as a hostile stimulus) are used as standards of comparison in impression formation tasks, causing participants to evaluate the hypothetical target as possessing less of the primed trait. Second, correction occurs when participants become aware that primed traits have influenced their impressions and consciously correct their evaluations away from the primed trait. Evidence reveals that personality can also affect the direction of priming effects. Priming can have differential effects depending on whether the individual is low or high on a given trait. For example, Maier, Bemer, and Hau (2007) found that, when primed with hostile words, low trait anxious individuals evaluated others negatively, whereas high trait anxious individuals (i.e., those who are most sensitive to hostility) evaluated others positively. Habra (2006) found that the effect of priming is also influenced by trait hostility. Specifically, she found that hostile individuals process social support-related information differently than non-hostile individuals, such that hostile participants evaluated helpful responses in stressful situations more negatively when primed with social support related words than with hostile words, whereas non-hostile participants showed the opposite effect.

The Present Study

There were three independent variables: sex, hostility, and condition. Sex had two levels, male and female; hostility had two levels, low and high; and condition had two levels, neutral and hostile.

The present study employed a priming paradigm where primes were either semantically related (e.g., loathe, hate, despise) or unrelated (e.g., originate, scan, devise) to the concept of hostility. Priming participants with words semantically related to hostility was expected to
activate the construct of hostility in memory and thereby bias their subsequent perception during an impression formation task and behaviour during an interview toward a more hostile direction. Because the content of schemas differs from person to person, it was presumed that the content of hostile schemas held by high hostile individuals would differ from that of low hostile individuals and that activating these schemas would differentially affect the perceptions and behaviors of these two groups.

A main effect of hostility was expected such that, relative to their low hostile counterparts, high hostile individuals would give more negative evaluations of others because they generally tend to view others more negatively. A main effect of priming condition was also expected such that, overall, the activation of hostile schemas would lead to more negative evaluations of others than the activation of neutral schemas. Of particular interest was the interaction between hostility and priming condition. It was expected that the effect of priming would depend on trait hostility. That is, it was expected that the difference between the ratings given by high hostile and low hostile individuals when primed with neutral words would differ significantly from the difference between the ratings given by high hostile and low hostile individuals when primed with hostile words. For low hostile individuals it was expected that the activation of hostile schemas would prompt more negative evaluations of others than the activation of neutral schemas. Two possible predictions were made about the results of the hostile priming and neutral conditions for high hostile individuals. First, if the activation of hostile schemas in high hostile individuals has an additive effect on the perception of others it was expected that hostile individuals would evaluate hypothetical persons more negatively when primed with hostile words than neutral words and that this difference would be significantly larger than that for low hostile individuals. Second, it is possible that the activation of hostile
schemas in high hostile individuals would lead them to make less negative evaluations of others than the activation of neutral schemas if they view hostility as more benign (or less malevolent) than their non-hostile counterparts.

Because research has demonstrated that sex differences exist in the expression of hostility and the manifested cardiovascular response to psychological stressors, examining sex is important when investigating hostility. Thus, sex was included as an independent variable in the present study. No specific predictions were made about the pattern of results.

**Word Rating Study**

The purpose of the word rating study was to obtain the stimulus words used in the priming task. A list of 198 words was compiled, half of which were words thought to convey hostility (Appendix A) and the other half were words thought to be unrelated to hostility (Appendix B). Participants in the word rating study rated this list of words on hostility, valence, and imageability. These ratings were used to select 45 words that were rated high in hostility and low in valence (i.e., extremely negative) for the experimental condition and 45 words that were rated as low in hostility and neutral in valence (i.e., neither positive nor negative) for the control condition. In addition, the imageability ratings were used to ensure that the experimental and control words were matched on how easily they are to imagine. Using these ratings to select the stimulus words ensured the validity of the priming conditions and that any possible effects in the priming study could be attributed to the intended effects rather than differences in extraneous variables.

**Method**

**Participants.** Forty-five people were recruited using flyers posted around the University of Northern British Columbia. Participants were compensated with $10 cash. Six participants
were excluded from the analysis because they did not know over 20% of the words presented in
the rating package and/or English was not their first language. Two participants were excluded
because they decided to discontinue the experiment. One participant was excluded because he
was obviously completing the ratings randomly. The overall sample was comprised of 36 people
(20 women, 16 men), with a mean age of 27.24 (SD = 6.03). Two participants did not indicate
their age.

**Apparatus and Materials.**

**Word selection.** The words selected for inclusion were derived from related priming
studies in the literature such as those conducted by Srull and Wyer (1979) and Bargh and
Pietromonaco (1982). Hostile words more closely related to physical aggression rather than
hostility (e.g., beat, whip, punch, etc) were omitted in favor of words connoting covert forms of
aggression (e.g., loathe, abhor, reproach, etc). Additional hostile and neutral words were selected
using the thesaurus feature in Microsoft Word 2002. Specifically, synonyms of words like loathe
were selected for the hostile word list and synonyms for seemingly neutral words like depict
were selected for the neutral word list. The neutral and hostile words were also matched on
CELEX word frequency (Baayen, Piepenbrock, & Van Rijn, 1993). The average CELEX word
frequency was 12.67 (SD = 43.20) for hostile words and 13.00 (SD = 45.77) for neutral words.

**Rating booklet.** The rating booklet was 33 pages and contained a list of 198 words which
consisted of 99 words selected for their hostile connotation (e.g., MOCK, DEMEAN, YELL, etc;
Appendix A) and 99 neutral words (e.g., TELL, DEVISE, GAZE, etc; Appendix B). The order of
the hostile and neutral words was randomized. Three rating scales were used for each of the 198
words: hostility, valence, and imageability (Appendices C, D, and E, respectively). Hostility was
rated on a 7-point scale ranging from 1 “not at all hostile” to 7 “very hostile”. Valence was rated
on a 7-point scale ranging from 1 “extremely negative” to 7 “extremely positive”. Lastly, imageability (how easily a word can be imagined) was rated on a 7-point scale ranging from 1 “not imageable” to 7 “highly imageable”.

**Procedure**

The word rating study was approved by UNBC’s Research Ethics Board. Participants entering the lab were greeted by the experimenter and were oriented to an experimental room and seated at a desk. An information sheet (Appendix F) with a description of the experiment was provided and the participant was given time to read through it. The content of the information sheet was reiterated verbally and participants were given the opportunity to ask questions. Participants then signed a consent form (Appendix G). Once ready to begin the experiment, participants were provided with the rating booklet and rating instructions. The presentation order of the ratings was counterbalanced to create three unique rating booklets. Accordingly, 15 participants completed the hostility ratings first, the valence ratings second, and the imageability ratings third; another 15 participants completed imageability first, hostility second, and valence third; and the last 15 participants rated valence first, imageability second, and hostility third. When the experiment was completed participants were fully debriefed verbally and given a copy of the debriefing sheet (Appendix H) that explained the purpose of the experiment. Participants were also given the opportunity to ask questions about the experiment.

**Analysis and Results**

Of the 99 hostile words rated by participants, the 45 words with the highest mean hostility ratings ($M = 6.16, SD = 0.28$) were selected for use in the subsequent priming study. This ensured that the words selected as hostile primes were empirically consistent with the construct of hostility. The valence ratings for the 45 selected hostile words were low ($M = 1.69,$
SD = 0.25) ensuring that these words were perceived as negative rather than positive and therefore also empirically consistent with the construct of hostility. Of the 99 neutral words rated by participants, 45 words with mean valence ratings closest to 4, meaning that they were ‘neither negative nor positive’, (M = 4.37, SD = 0.24) were selected for use in the subsequent priming study. This ensured that the selected words did not evoke highly negative or positive reactions. These words were also low on hostility (M = 2.82, SD = 0.27) to ensure that they were not confounded with the hostile words.

An independent samples t test revealed that the words selected as hostile primes were significantly more hostile than those selected as neutral primes, t(58) = 44.79, p < .001, SE = 0.08, 95% CI = 3.21-3.51, which confirmed that both hostile and neutral primes were consistent with the meaning they were intended to evoke. The mean hostility rating was 6.18 (SD = .30) for the hostile prime words and 2.82 (SD = .28) for the neutral prime words. Another independent samples t test revealed that the neutral primes were significantly more positive than the hostile primes, t(58) = 52.13, p < .001, SE = 0.07, 95% CI = 2.55-2.82, which confirmed that both hostile and neutral primes were consistent with the valence they were intended to evoke. The mean valence rating was 4.35 (SD = .26) for the neutral prime words and 1.67 (SD = .28) for the hostile prime words. A third independent samples t test revealed that the hostile and neutral words selected as primes were not significantly different on imageability, t(58) = 1.94, p = .24, SE = 0.23, 95% CI = -.18-.73. The mean imageability rating was 5.23 (SD = 0.71) for the hostile words and 4.95 (SD = 1.03) for the neutral words.

Of the 45 hostile words selected for use in the priming study, 30 were randomly designated as hostile primes and the remaining 15 were designated as test words for the recognition memory test to be conducted after the priming task (Appendix I). Independent
samples *t* tests revealed that the 30 hostile primes did not differ significantly from the 15 hostile test words on ratings of hostility (*M* = 6.18 vs. 6.11; *SD* = 0.30 vs. 0.23), valence (*M* = 1.67 vs. 1.74; *SD* = 0.26 vs. 0.23), and imageability (*M* = 5.23 vs. 5.48; *SD* = 0.71 vs. 0.72).

Likewise, of the 45 neutral words selected for use in the priming study, 30 were randomly designated as neutral primes and the remaining 15 as test words for the recognition memory test (Appendix J). Independent samples *t* tests revealed that the 30 neutral primes did not differ significantly from the 15 neutral test words on ratings of hostility (*M* = 2.82 vs. 2.80; *SD* = 0.28 vs. .27), valence (*M* = 4.35 vs. 4.41; *SD* = .26 vs. .18), and imageability (*M* = 4.95 vs. 5.02; *SD* = 1.03 vs. .69).

An independent samples *t* test confirmed that the words selected as hostile test words were significantly more hostile than those selected as neutral test words, *t*(28) = 36.29, *p* < .001, *SE* = 0.09, 95% CI = 3.12-3.50, consistent with the findings for the prime words. The mean hostility rating was 6.11 (SD = .23) for the hostile test words and 2.80 (SD = .27) for the neutral test words. Another independent samples *t* test revealed that the neutral test words were significantly more positive than the hostile test words, *t*(28) = 35.14, *p* < .001, *SE* = 0.08, 95% CI = 2.51-2.83, consistent with the findings for the prime words. The mean valence rating was 4.41 (SD = .18) for the neutral test words and 1.74 (SD = .23) for the hostile test words. A third independent samples *t* test revealed that the hostile and neutral words selected as test words were not significantly different on imageability, *t*(28) = 1.80, *p* = .08, *SE* = 0.26, 95% CI = -.06-.99. The mean imageability rating was 5.48 (SD = .72) for the hostile words and 5.02 (SD = .69) for the neutral words.

**Priming Study**

The purpose of the priming study was twofold. First, the priming study attempted to
replicate previous findings demonstrating that high hostile individuals form more negative impressions of others than low hostile individuals. Second, the priming study was conducted to determine whether the activation of hostile processes functions differently in high hostile versus low hostile individuals.

Previous research shows that high hostile individuals form more pejorative impressions of others than their low hostile counterparts. Allred and Smith (1991) found that high hostile individuals rated a confederate as more hostile following social interaction with him than low hostile individuals. Likewise, Guyll and Madon (2003) found that high hostile individuals evaluated others more harshly and recalled less of the favorable information. Thus, it has been proposed that high hostile individuals possess a “hostile-other schema”, which causes them to interpret social information as more hostile than it really is (Allred & Smith, 1991). If high hostile individuals do possess a hostile processing bias then they would be expected to form a more negative impression of a hypothetical person than low hostile individuals given the same information. Because the neutral priming words were unrelated to a central theme and carried little valence they were not expected to affect the subsequent person evaluation in any systematic way. Thus, exposure to the neutral priming words was expected to reveal differences between how high hostile and low hostile individuals process information when making snap judgments.

Whereas the general activation of schemas is proposed to function similarly across individuals, the individual content and accessibility of those schemas is supposed to differ. Higgins, King, and Mavin (1982) found that how easily a particular construct comes to mind varies from person to person and that impressions of other people are influenced most by those constructs that are chronically accessible, or spring to mind most easily. Moreover, the more frequently a construct is activated in memory, the more accessible it becomes, requiring less
effort to retrieve it (Bargh & Pietromonaco, 1992). Thus, attempting to activate the same mental
construct of hostility in two different individuals should yield different effects when one
individual possesses a highly elaborated hostility schema while the other does not. Because high
hostile individuals are supposed to possess a chronically accessible hostile-other schema,
priming them with hostile cues would be expected to bring to mind hostile thought processes
more easily than it would for low hostile individuals. Moreover, it has been suggested that the
combined effect of prompting temporary access to a construct via priming and chronic
accessibility are additive so that “people are most likely to use a construct if it is chronically
accessible for them and if it is also primed” (Caprara & Cervone, 2000, p. 257). If this is true,
then the activation of hostile schemas in high hostile individuals should have an additive effect
on their perception of others. That is, high hostile individuals primed with hostile words would
be expected to evaluate hypothetical persons most negatively, much more than low hostile
individuals primed with high hostile words and more than high hostile individuals primed with
neutral words. Alternatively, it is possible that the activation of hostile schemas in high hostile
individuals would lead them to make less negative evaluations of others than the activation of
neutral schemas if they view hostility as more benign (or less malevolent) than their non-hostile
counterparts.

Method

Participants. A total of 75 undergraduate students at the UNBC participated in this
study. Participants signed themselves up for the experiment online using the Psychology
Research Participation System. Because this set of participants was sampled from the same
university community as the participants in the word rating study, it is assumed that the ratings
of the stimulus words provided by the first group were applicable to the second group.
Participants completed the Cook-Medley Hostility Scale as part of the online prescreening test. Participants were compensated with 1% course credit for their involvement in the experiment. The overall sample was comprised of 75 students (44 women, 31 men), with a mean age of 22.43 (SD = 4.94). Two participants were excluded from the analysis because their data were considered to be outliers based on two criteria. First, unlike all the other participants, their ratings on the Nice factor were higher than their ratings on the Nasty factor. This pattern was inconsistent with the hostile behavior of the target individual they were evaluating. Second, their standard scores were higher than 2.5.

**Apparatus and Materials.**

**Cook-Medley Hostility Scale.** The Cook-Medley Hostility Scale (Cook & Medley, 1954) is a 50-item, true-false self-report questionnaire derived from the Minnesota Multiphasic Personality Inventory (MMPI). Scores can range from 0 to 50. Participants were identified as either high or low in trait hostility using a median split of 18 (SD = 6.38). The mean hostility score for the low hostile group was 12.63 (SD = 4.00) and the mean hostility score for the high hostile group was 26.24 (SD = 5.18).

**Computer and software.** The priming task was administered using an Intel® Pentium® D CPU with a 3.20 GHz processor and 3.00 GB of RAM. The monitor was 19 inches and set to a resolution of 1024 × 768 pixels. Participants’ responses were registered using a regular computer keyboard. SuperLab 4.0.2 was the stimulus presentation software that was used for the priming and person evaluation tasks.

**Stimulus words.** The stimulus words used in the priming study consisted of hostile and neutral primes and test words obtained in the word rating study (Appendices I and J).

**Vignettes.** The hostile vignette is a 253 word paragraph describing a hypothetical
stimulus person, Daniel, engaging in several sequential hostile behaviors such as refusing to pay his rent until the landlord repaints his apartment and demanding his money back after buying a gadget at a store (Appendix K).

**Anger interview.** The anger interview is a brief 5-10 minute interview in which the participant recalls and describes an interpersonal incident that made them angrier than they have ever been (Appendix L).

**Video camera.** The interview was videotaped using a Sony DVCAM Digital Camcorder (Model no. DSR-PD 150) and Sony Mini DV Digital Video Cassettes.

**Procedure**

The priming study was approved by UNBC’s Research Ethics Board. Participants entering the lab were greeted by the experimenter, oriented to an experimental room and seated at a desk. An information sheet (Appendix M) describing the experiment was provided and the participant was given time to read through it. The content of the information sheet was reiterated verbally and participants were given the opportunity to ask questions. Participants then signed a consent form (Appendix N). Once ready to begin the experiment, participants were oriented to the computer station where the first part of the experiment was conducted. Once seated at the computer participants were instructed to follow the prompts provided by the computer and direct any questions or concerns arising during the course of the experiment to the experimenter. When the first task was initiated by the participant, the experimenter took a seat outside the room at a desk within view of the participant. Participants completed a series of tasks on the computer which included a priming task, an impression formation task, a free recall memory test, and a recognition memory test. After completion of the computer tasks, participants were directed to another experimental room to conduct the videotaped anger interview with the experimenter.
**Priming task.** During the priming task, participants were seated at the computer station and instructed to maintain their gaze on a fixation cross (+) displayed in the middle of the screen. In the experimental condition the fixation cross was replaced by hostile words (e.g., “PERSECUTE”, “LOATHE”, “DESPISE”, etc) whereas, in the control condition the fixation cross was replaced by neutral words (e.g., “ORIGINATE”, “DEPICT”, “INSPECT”, etc). Participants were randomly assigned to either the control or experimental condition. Each word was displayed for three seconds and then replaced by a fixation cross displayed for half a second, then the next word, etc. Thirty unique words were presented once in each condition (Appendices F and G). Prior to the presentation of the words, participants were instructed to “really think about the meaning of each word as it is presented”. A practice trial preceded the experimental trial where seven words, unrelated to the experimental words, were presented (i.e., PENCIL, PAPER, PEN, ERASER, CHAIR, TABLE, DESK).

**Impression formation task.** The impression formation task was administered via the computer and began immediately after the priming task ended. During this task participants were prompted to read a paragraph describing a hypothetical stimulus person, “Daniel”, engaging in hostile behaviors (Appendix K). After reading the vignette, participants were prompted to evaluate Daniel by indicating the degree to which they considered each of twelve trait words (i.e., hostile, unfriendly, aggressive, kind, considerate, thoughtful, boring, conceited, narrow-minded, dependable, sympathetic, intelligent) to describe him on a 7-point scale where 1 indicated “strongly disagree” and 7 indicated “strongly agree”. Participants made their ratings using the 1 to 7 numeric keys on the keyboard. The presentation order of the 12 trait words was randomized for each participant. This task was the same for both the experimental and control conditions. This vignette was taken from Srull and Wyer (1979). The paragraph was constructed
from participant ratings of a large pool of individual behaviors along a scale ranging from 0 (‘not at all hostile’) to 10 (‘extremely hostile’). Five ambiguous behaviors (i.e., those rated lower than the mean rating of any behavior identified as hostile and higher than any behavior identified as non-hostile) were randomly selected to create the Donald vignette.

Recall memory test. Next participants completed a free recall memory test. They were instructed to type as many words from the priming task as they could remember in two minutes. Typed words were recorded by the computer. This task was the same for both the experimental and control conditions.

Recognition memory test. Next participants completed a recognition memory test. Forty-five words were presented in random order one at a time. Thirty of these words were previously presented during the priming task and 15 of the words were new words not previously presented but related semantically to the priming words used during the priming task (Appendices F and G). Each word was presented in the middle of the computer screen one at a time. For each word, participants used the keyboard to indicate whether the word was previously presented or not (i.e., they pressed 1 for “no, I did not see this word earlier” and 7 for “yes, I did see this word earlier”). Participants in the neutral priming condition received neutral words and participants in the hostile priming condition received hostile words.

Anger interview. The participant was seated in the experimental room in a chair facing the experimenter, who was seated in a chair in front of the participant. The video camera was positioned just behind and to the left of the experimenter. The experimenter conducted an abbreviated Anger Interview (Appendix L) during which the experimenter asked the participant to describe an interpersonal experience where they felt the most anger they have ever felt. The participant was instructed to describe the incident. After the participant was finished describing
the incident, the experimenter instructed the participant to further imagine the incident, focusing his or her attention to sensory cues associated with the experience. At that point the experimenter elicited further descriptions by asking several specific questions (e.g., “What was it that made you so angry?”, “How did you react?”). The interview was videotaped for use in the next experiment. When the experiment was completed, participants were fully debriefed verbally and given a copy of the debriefing sheet (Appendix O) that explained the purpose of the experiment. Participants were also given the opportunity to ask questions about the experiment.

**Design and Data Reduction**

Participants were classified as either high hostile or low hostile based on their scores on the Cook-Medley Hostility Scale (CMHS). Participants who scored higher than the median score of 18 on the CMHS were classified as “high hostile” whereas participants who scored 18 or lower were classified as “low hostile.”

The priming study was a 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) between-subjects factorial design. The dependent variables measured impression formation, recall memory, recognition memory, and reaction time during the recognition memory task. To measure participants’ impressions of the hypothetical target person they read about after the priming manipulation, a *global hostility rating* was derived by taking an average of six of the 12 characteristics the target person was evaluated on (i.e., aggressive, hostile, unfriendly, kind, considerate, and thoughtful, where the last three characteristics were reverse scored). Recall memory was measured by the number of words correctly identified during the two-minute memory test. Two dependent variables were derived from the recognition memory test. First, the *discrimination index (A’)* gave participants’ ability to discriminate between old and new items on the recognition memory task. Values closer to 1 indicate good
discrimination performance, values closer to 0 indicate reverse discriminability (i.e., misidentifying old words as new and new words as old), and a value of 0.5 indicates poor discrimination or chance performance. The discrimination index was calculated from a pair of hit (H) and false alarm (FA) rates using Snodgrass and Corwin’s (1988) equations. When \( H \geq FA \), \( A' = 0.5 + \frac{[(H - FA)(1 + H - FA)]}{(4H(1 - FA))} \) and when \( FA > H \), \( A' = 0.5 - \frac{[(FA - H)(1 + FA - H)]}{(4FA(1 - H))} \). Hit rate gave the percent of old words correctly identified as old ones in the recognition memory test and was calculated using Snodgrass and Corwin’s (1988) correction formula where 0.5 was added to each frequency and divided by \( N + 1 \), where \( N \) was the number of old items presented (30 words). False alarm rate gave the percent of new words incorrectly identified as old ones in the recognition memory test and was also calculated using Snodgrass and Corwin’s (1988) correction formula where 0.5 was added to each frequency and divided by \( N + 1 \), where \( N \) was the number of new items presented (15 words). Second, the bias index (\( B'' \)) gave participants’ general response bias and was calculated using Snodgrass and Corwin’s (1988) equations using the same pair of hit (H) and false alarm (FA) rates for each participant. When \( H \geq FA \), \( B'' = \frac{[H(1 - H) - FA(1 - FA)]}{[H(1 - H) + FA(1 - FA)]} \) and when \( FA > H \), \( B'' = \frac{[FA(1 - FA) - H(1 - H)]}{[FA(1 - FA) + H(1 - H)]} \). Lastly, three reaction time (RT) measures were obtained. Average RT for new words (i.e., test words) gave the average RT for responding to the 15 new words presented in the recognition memory task. Average RT for old words (i.e., prime words) gave the average RT for responding to the 30 old words presented in the recognition memory task. And RT difference gave the average difference in RT between the old and new words and was calculated by subtracting the average RT for old words from the average RT for new words.

Analysis and Results
Impression formation. A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) factorial analysis of variance (ANOVA) was conducted to determine whether sex, condition, or hostility had an effect on the global hostility rating and whether any interactions between these variables affected the global hostility rating. None of the main effects or interactions were statistically significant.

Because there was no empirical basis for grouping six of the 12 trait descriptors (i.e., aggressive, hostile, unfriendly, kind, considerate, and thoughtful) to create the composite global hostility rating variable and because none of the independent variables had an effect on it, factor analysis was conducted to reduce the original 12 trait descriptors to a smaller number of empirically derived composite variables or factors. To determine the number of factors to extract, two criteria were considered. First, the absolute magnitude of the eigenvalues of the factors indicated that four factors had an eigenvalue above 1. Secondly, the scree test indicated that two factors should be rotated since the plot started to level off at the third factor. Based on these criteria a range of two to four possible factors was chosen. Direct Oblimin rotation was chosen because the factors were expected to be highly correlated with each other and therefore likely to be non-orthogonal (i.e., oblique). Since the rotated factor solution using two factors was most interpretable, it was decided that there were probably two factors underlying the trait measures used.

Loadings of variables on factors, communalities, and percents of variance are shown in Table 1. The communalities for the items aggressive, considerate, dependable, hostile, narrow-minded, sympathetic, thoughtful, and unfriendly were high and those for the items boring, conceited, intelligent, and kind were low. The items considerate, dependable, kind, sympathetic,
and thoughtful and were most associated with factor 1 and the items aggressive, hostile, narrow-minded, and unfriendly were most associated with factor 2. Based on the content of these sets of

Table 1

Factor loadings, communalities ($h^2$), and percent of variance for principal factors extraction and direct oblimin rotation on the 12 trait descriptors.

<table>
<thead>
<tr>
<th>Item</th>
<th>$F_1$</th>
<th>$F_2$</th>
<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressive</td>
<td>-.00</td>
<td>.63</td>
<td>.34</td>
</tr>
<tr>
<td>Hostile</td>
<td>-.14</td>
<td>.64</td>
<td>.37</td>
</tr>
<tr>
<td>Unfriendly</td>
<td>-.17</td>
<td>.63</td>
<td>.42</td>
</tr>
<tr>
<td>Considerate</td>
<td>.75</td>
<td>-.19</td>
<td>.59</td>
</tr>
<tr>
<td>Kind</td>
<td>.54</td>
<td>.04</td>
<td>.27</td>
</tr>
<tr>
<td>Thoughtful</td>
<td>.64</td>
<td>-.03</td>
<td>.45</td>
</tr>
<tr>
<td>Boring</td>
<td>.17</td>
<td>.39</td>
<td>.19</td>
</tr>
<tr>
<td>Conceited</td>
<td>-.37</td>
<td>.29</td>
<td>.19</td>
</tr>
<tr>
<td>Dependable</td>
<td>.67</td>
<td>.01</td>
<td>.45</td>
</tr>
<tr>
<td>Intelligent</td>
<td>.38</td>
<td>.10</td>
<td>.12</td>
</tr>
<tr>
<td>Narrowminded</td>
<td>.14</td>
<td>.72</td>
<td>.49</td>
</tr>
<tr>
<td>Sympathetic</td>
<td>.73</td>
<td>.08</td>
<td>.51</td>
</tr>
</tbody>
</table>

% of variance 23.04 15.54

Note. Factor labels are: Nice ($F_1$) and Nasty ($F_2$). Loadings < .40 are in bold.

items, the two factors were named Nice (considerate, dependable, kind, sympathetic, and thoughtful) and Nasty (aggressive, hostile, narrow-minded, and unfriendly). These two factors accounted for 23.04% and 15.54% of the variance of the 12 variables, respectively.

A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high)

factorial ANOVA was conducted to determine whether sex, condition, or hostility had an effect on the Nice factor and whether any interactions between these variables affected the Nice factor. The ANOVA revealed that there were no significant main effects for sex, condition, or hostility. There was a significant, indicating that mean ratings on the Nice factor varied between men and women as a function of hostility. The interaction was broken down in two ways. First hostility at each level of sex was investigated. The simple effect of hostility at male approached statistical
significance, \( F(1, 65) = 3.82, p = .055, MS_E = .61, \eta^2 = .12 \). Thus low hostile males rated Daniel as significantly less nice than high hostile males. The simple effect of hostility at female was not significant. Thus low hostile females did not significantly differ from high hostile females in their ratings of Daniel on the nice factor. The significant interaction was broken down a second way, where sex at each level of hostility was investigated. The simple effect of sex at low hostility was significant, \( F(1, 65) = 7.86, p < .01, MS_E = .61, \eta^2 = .18 \). This means that, on average, low hostile males rated Daniel as significantly less nice than low hostile females. The simple effect of sex at high hostility was not significant. This means that, on average, high hostile males did not significantly differ from high hostile females in their ratings of Daniel on the Nice factor. No other interactions were statistically significant. The means and standard errors are displayed in Figure 1 below.

A 2 (Sex: male, female) \times 2 (Condition: hostile, neutral) \times 2 (Hostility: low, high) factorial ANOVA was conducted to determine whether sex, condition, or hostility or any interactions between these variables had an effect on the Nasty factor. There were no statistically significant main effects or two-way interactions. There was a significant sex \times condition \times hostility interaction, \( F(1, 65) = 4.88, p = .031, \eta^2 = .07 \). To follow up this three-way interaction, a 2 (Sex: male, female) \times 2 (Hostility: low, high) ANOVA was conducted at each level of sex. At the first level of sex, male, the condition \times hostility interaction was not significant. This two-way interaction was not followed up further. At the second level of sex, female, the condition \times hostility was significant, \( F(1, 65) = 3.89, MS_E = .82, p < .05, \eta^2 = .09 \).

To follow-up this two-way interaction, a one-way ANOVA was conducted at each level of hostility for sex at female. For low hostile individuals, the effect of condition approached
Figure 1. Mean ratings on the Nice factor between men and women for low and high hostile individuals. Significant differences between groups are indicated by different superscripts. Ratings by low hostile men differed significantly from ratings by low hostile women (p < .01) and from ratings by high hostile men (p = .055).

Statistical significance, $F(1, 65) = 3.67, MS_E = .82, p = .06, \eta^2 = .20$, indicating that low hostile women evaluated Daniel significantly more negatively after being primed with hostile words than neutral ones. For high hostile individuals, the effect of condition was not significant, indicating that the ratings provided by high hostile women did not differ significantly between the two priming conditions. The means and standard errors for women’s mean ratings are displayed in Figure 2 and those for men are displayed in Figure 3.

Recall memory. A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) factorial ANOVA was conducted to determine whether sex, condition, or hostility, or
any interactions between these variables had an effect on the number of words correctly recalled during the two minute free recall test. There were no statistically significant effects.

Figure 2. Women’s mean ratings on the Nasty factor for the neutral and hostile priming conditions. Significant differences between groups are indicated by different superscripts. The difference between ratings made by low hostile women primed with neutral words and ratings made by low hostile women primed with hostile words approached statistical significance ($p = .06$).

**Recognition memory.** A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) factorial multivariate analysis of variance (MANOVA) was conducted to determine whether sex, condition, or hostility, or any interactions between these variables had an effect on the discrimination index or the bias index. The MANOVA was not significant.
Figure 3  Men’s mean ratings on the Nasty factor for the neutral and hostile priming conditions. There were no statistically significant differences between groups.

Reaction time. A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) factorial MANOVA was conducted to determine whether sex, condition, or hostility, or any interactions between these variables had an effect on the three reaction time dependent variables. Using Wilks’ Lambda criterion, the combined dependent variables were significantly affected by sex $F(3, 63) = 6.13, p = .001$ and by a sex × hostility interaction $F(3, 63) = 3.08, p = .03$. These significant effects were followed up with individual ANOVAs on each dependent variable. Each ANOVA was tested at the 0.0167 level.

The ANOVAs on the average RT for new words were not significant at the 0.0167 level. The ANOVA on the average RT for old words yielded a significant main effect of sex, $F(1, 65)$
$= 17.12, p < .0167$, indicating that women responded to old words significantly faster ($M = 1318.59, SE = 80.01$) than men did ($M = 1830.66, SE = 94.44$). The sex $\times$ hostility interaction was not significant at the .0167 level. The ANOVA on the average RT difference between old words and new words yielded a significant main effect of sex, $F(1, 65) = 6.93, p < .0167$, indicating that women responded to old words faster than new words ($M = 260.72, SE = 113.32$) whereas men responded to new words faster than old ($M = -200.77, SE = 133.75$).

**Discussion**

**Impression Formation.** Recall that after being exposed to hostile or neutral primes participants in the priming study evaluated ‘Daniel’ on 12 positive and negative descriptors and that by averaging six of these descriptors (i.e., aggressive, hostile, unfriendly, -kind, -considerate, and -thoughtful) the global hostility rating was created. There were no significant effects of sex, condition, or hostility on the global hostility rating. Although previous researchers have used the global hostility rating and variations of it to measure hostile impression formation, the assumption that the six traits comprising this composite variable should be grouped together is not entirely empirically sound. For instance, Srull and Wyer (1979) created a similar composite hostility variable based on the assumption that the traits dislikable, hostile, and unfriendly should be grouped together with the traits kind, considerate, and thoughtful because the first three traits convey hostility and the other three negatively covary with hostility. However, it is possible that these six descriptors are subsumed under more than one factor.

Accordingly, factor analysis was conducted to provide an empirical basis, rather than mere face validity, for grouping the original 12 descriptors into a smaller number of composite variables or factors. Two interpretable factors were extracted. They were named Nice and Nasty based on the content of the items that loaded onto them. Factor 1 was named Nice because items
considerate, dependable, kind, sympathetic, and thoughtful, which loaded most onto this factor, all described positive characteristics. Factor 2 was named Nasty because items aggressive, hostile, narrow-minded, and unfriendly, which loaded most onto this factor, all described negative characteristics. The communalities for items aggressive, hostile, unfriendly, considerate, thoughtful, dependable, narrow-minded, and sympathetic were moderately high which means that the rotated factors accounted for a sufficiently large amount of variance in response on those items and that these variables fit well with the factor solution. The communalities for items kind, boring, conceited, and intelligent were low which means that the rotated factors accounted for an insufficient amount of variance in item response and that these variables do not fit the factor solution well, and should possibly be dropped.

Though it was hypothesized that participants primed with hostile words would make more negative impressions of Daniel than those primed with neutral words, a main effect of condition was not observed for either the Nice or Nasty factor. Likewise, it was predicted that, overall, high hostile individuals would form more negative impressions than their low hostile counterparts, but a main effect of hostility was not obtained either. It appears that overall differences between the conditions or the hostility groups are obscured when collapsed across sex.

Mean ratings on the Nice factor did not vary between priming conditions but they did vary between men and women depending on hostility status. It was hypothesized that high hostile individuals, regardless of sex and condition, would give more negative evaluations of others because they evidence a general bias to judge others more pejoratively. It was also hypothesized that the activation of hostile schemas via hostile priming would lead participants to make more negative evaluations of others than the activation of neutral schemas via neutral
priming. These predictions were not clearly supported. Lastly, it was hypothesized that the effect of priming would depend on trait hostility. This prediction was supported but neither expected pattern of results was seen. Specifically, the activation of hostile schemas in high hostile individuals did not have an additive effect on their perception of others, but it did not produce a clear contrast effect either.

Contrary to prediction, it was low hostile males who rated Daniel the most negatively on the Nice factor, significantly less than both high hostile males and low hostile females did. Why low hostile males differ in their evaluations of Daniel from the other three groups is not immediately clear. It is possible that low hostile males differ from their high hostile male and low hostile female counterparts because their hostile schemas are the least elaborated so that when they encounter hostile behavior it is evaluated more harshly. In other words, because low hostile males likely experience fewer hostile interactions by virtue of their easy going nature, their cognitive representations of social interactions include fewer hostility related behaviors. Thus they may react more strongly to hostile behavior because it is less expected and more salient than it is for individuals who experience hostility more frequently.

Differences in ratings on the Nasty factor were statistically significant for women but not for men. For women, mean ratings on the Nasty factor varied between high and low hostile individuals as a function of priming condition. Specifically, low hostile women in the hostile priming condition formed more negative impressions of Daniel than low hostile women in the neutral priming condition. This indicates that hostile priming led low hostile women to assimilate the primed construct of hostility into their impressions of Daniel and evaluate him more negatively. This effect also shows that the priming manipulation successfully activated hostile thought processes in low hostile women and, as predicted, biased their subsequent judgments in a
more hostile direction. It was hypothesized that this effect would differ for high hostile individuals. Unfortunately, impression ratings made by high hostile women did not differ between the two priming conditions so it is unclear whether activating hostile thought processes in high hostile women had the same effect on their impressions of Daniel.

**Recall Memory.** The two minute recall memory test was administered to determine whether hostility would influence memory for prime words. If high hostile individuals possess a bias to attend to hostile cues then they would presumably remember more hostile prime words than low hostile individuals. There were no significant findings.

**Recognition Memory.** Like the recall memory test, the recognition memory test was administered to determine whether hostility would influence memory for prime words. If high hostile individuals possess a bias to attend to hostile cues then they would presumably recognize more hostile prime words than low hostile individuals. There were no significant findings for this variable.

**Reaction time.** Overall, women responded significantly faster to old words than men did. As well women responded to old words faster than new words, whereas men responded to new words faster than old ones.

**Video Rating Study**

The purpose of the video rating study was twofold. First, this study was conducted to determine whether activating hostile cognition elicits different behavior from high hostile individuals than from low hostile individuals. It was expected that participants would behave consistently with the impressions they formed in the priming study. That is, if activating hostile thought processes caused participants to form negative impressions then it should also have caused them to behave with greater hostility. Likewise, if activating hostile thought processes
caused participants to form more positive impressions that their behavior should also have been less hostile. Secondly, this study was conducted to determine whether behavioral differences elicited by hostile category activation between high and low hostile individuals were perceptible to objective viewers. Ambady and Rosenthal (1992) found that people were remarkably accurate in their judgments based on brief non-interactive and nonverbal ‘thin slices’ of behavior. Their meta-analysis also determined that using longer periods of behavioral observation did not increase the accuracy of predictions. Specifically, predictions based on 30 second observations did not differ significantly from predictions based on 4 and 5 minute observations. Moreover, Ambady and Rosenthal (1993) found that using even thinner slices of behavior (e.g., 6 and 15 seconds) were just as accurate as 30 second clips. The present study used similar methodology to investigate the accuracy of judgments made by observers of behavior exhibited by high and low hostile individuals.

Method

Participants. Six UNBC graduate students participated in this study. The overall sample was comprised of three women and three men, with a mean age of 25.17 (SD = 2.23).

Apparatus and Materials.

Videos. Video footage approximately ten minutes in length was obtained for each of the 75 participants in the priming study. These videos were imported to the computer for editing. Excerpts of behavior were randomly sampled from these videos to obtain three separate ten-second video clips that were then edited to create a 30 second video sample for each of the 75 participants. All video samples were selected from within the interview such that only the participant (not the interviewer) was shown to be speaking. The 30 second samples were then assembled in a random sequence with a trial number preceding each clip to create 75 sequential
30-second video clips saved in .wmv file format.

**Rating booklets.** The rating booklet was comprised of a 4-item scale for each of the 75 participants to be rated (Appendix P). Ratings were to be made on a 5-point scale ranging from 1 “strongly disagree” to 5 “strongly agree”. The items were friendliness, anger, disgust, and contempt, which were found to differentiate well between hostile versus non-hostile individuals (Prkachin, Hall, & Sherry, 2008).

**Procedure**

The video rating study was approved by UNBC’s Research Ethics Board. Participants entering the lab were greeted by the experimenter and were oriented to a desk. An information sheet (Appendix Q) providing a description of the experiment was provided and the participant was given time to read through it. The content of the information sheet was reiterated verbally and participants were given the opportunity to ask questions. Participants then signed an informed consent form (Appendix R). Once ready to begin the experiment, participants were oriented to the computer station where the experiment was conducted. Participants viewed seventy-five 30 second video samples on the computer using Window Media Player and made ratings of each clip using a pen and paper rating booklet provided. Specifically, participants provide a rating on the four items for each of the seventy-five 30 second video samples. Participants completed the experiment individually. When the experiment was completed participants were fully debriefed verbally and given a copy of the debriefing sheet that explained the purpose of the experiment. Participants were also given the opportunity to ask questions about the experiment.

**Design and Data Reduction**

This experiment used a 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2
(Hostility: low, high) factorial between-subjects design. It was analyzed in an ANOVA model. The dependent variables were the four personality characteristics rated by observers. A composite hostile behavior variable, Observed Hostility, was derived from the four items (i.e., unfriendliness, anger, disgust, and contempt) because they were previously found to differentiate well between hostile versus non-hostile individuals (Prkachin et al., 2008).

**Analysis and Results**

Intraclass correlations were computed for the four behavioral dimensions rated by decoders. The intraclass correlations ranged from .46 to .57 with a mean of .50 (See table 2).

Table 2

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A 2 (Sex: male, female) × 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) factorial ANOVA was conducted for Observed Hostility to determine whether sex, condition, or hostility had an effect and whether any interactions between these variables had an effect on the dependent variable. There was a significant sex × condition × hostility interaction, $F(1, 65) = 6.45$, $p < .01$, $\eta^2 = .08$. To follow up this three-way interaction, a 2 (Condition: hostile, neutral) × 2 (Hostility: low, high) ANOVA was conducted at each level of sex. At the first level of sex, male, the condition × hostility interaction was not significant. Thus, this two-way interaction was not followed up further. At the second level of sex, female, the condition × hostility interaction was statistically significant, $F(1, 65) = 4.37$, $MSE = .21$, $p < .05$, $\eta^2 = .10$. To follow up this two-way interaction, a one-way ANOVA was conducted at each level of condition for sex at female.
Figure 4. Observed hostility between neutral and hostile priming conditions for high and low hostile female participants. Significant differences between groups are indicated by different superscripts. When primed with hostile words, low hostile women showed significantly more hostility than high hostile women ($p < .025$).

For the neutral priming condition, the effect of hostility was not statistically significant, indicating that high hostile and low hostile women did not differ on observed hostility after being primed with neutral words. For the hostile priming condition, the effect of hostility was statistically significant, $F(1, 65) = 5.39, MSe = .21, p < .025, \eta^2 = .35$, indicating that, in the hostile priming condition, low hostile women were observed to show significantly more hostility than high hostile women. Means and standard errors are displayed in Figure 4 for women and Figure 5 for men.
Figure 5. Observed hostility between neutral and hostile priming conditions for high and low hostile male participants. There were no statistically significant differences in observed hostility between low and high hostile men in the two priming conditions.

Discussion

Participant behavior during the anger interview was expected to differ depending on hostility status and priming condition. It was hypothesized that if the effects of chronic accessibility and hostile priming are additive, high hostile individuals would exhibit more hostile behavior in the hostile priming condition than high hostile individuals in the neutral condition and low hostile individuals in the hostile priming condition. Significant findings were only observed for female participants. Observed hostility did not differ significantly between low and high hostile women in the neutral condition. In the hostile condition, low hostile women
exhibited more hostile behavior (unfriendliness, anger, disgust, and contempt) than high hostile women. This suggests that the effects of chronic accessibility and hostile priming are not additive. At the very least high hostile women would be expected to show more hostile behavior than low hostile women. Because low hostile and high hostile women exhibited the same level of hostility after being primed with neutral words, it is likely that the hostile schemas need to be cued before they are used.

**General Discussion**

Activating hostile schemas in memory was expected to have a different effect on the impressions formed and behavior exhibited by high hostile individuals than low hostile individuals. Some support for this prediction was obtained. In particular, it has been proposed that the effects of chronic accessibility and hostile priming are additive (Caprara & Cervone, 2000). Thus activating hostile schemas via priming in high hostile individuals who already possess chronically accessible hostile-other schemas should lead them to form significantly more negative impressions of others and to exhibit significantly more hostile behavior than their low hostile counterparts. Support for this prediction was not obtained.

First, because of the chronic accessibility of hostile schemas, hostile individuals were expected to make more negative hostile impressions and express more hostile behavior in the neutral condition than low hostile individuals. This finding was not obtained. This suggests that even though high hostile individuals possess a greater number of hostile schemas or more extensive and better elaborated hostile scripts than non-hostile individuals, these schemas need to be cued specifically before they are used. The lack of a difference between groups in the neutral priming condition further suggests that chronic accessibility does not mean that these hostile thought processes are chronically active, as suggested by some authors (e.g., Pervin, 2003).
Moreover, it is apparent that the hostile behaviors described in the vignette were insufficient to
cue hostile thought processes because there were no differences in impression ratings between
groups in the neutral condition. Secondly, comparisons between low and high hostile individuals
exposed to hostile prime words did reveal some differences. Contrary to prediction, however,
high hostile women expressed significantly less hostility than low hostile women after being
primed with hostile words suggesting that the effects of priming and high hostility on behavior
were not additive. Moreover, the impressions formed by high hostile men and women were not
significantly different across conditions also suggesting that the effects were not additive.
Because the impressions formed by low hostile women in the hostile condition were significantly
more negative than those formed by low hostile women in the neutral condition, it is clear that
the priming manipulation worked. Otherwise, it would not have successfully induced low hostile
individuals to assimilate the prime words into their evaluations.

It was proposed that another way in which activating hostile thought processes in high
and low hostile individuals could have differed was for high hostile individuals to make less
negative evaluations and express less hostile behavior than low hostile individuals. It was
proposed that if high hostile individuals view hostility as more benign than their low hostile
counterparts do, then they would evaluate Daniel more positively. That is, because activating
hostile schemas could also increase access to normative beliefs about hostility, high hostile
individuals would form less negative impressions of Daniel because they possess normative
beliefs that condone more hostility than non-hostile individuals. This prediction did not obtain
either. High hostile individuals did not make less negative evaluations when primed with hostile
words than neutral ones and they did not make less negative evaluations than their low hostile
counterparts. If high hostile individuals were using their normative beliefs to judge Daniel, it is
likely that these beliefs would also have an affect on their behavior in the anger interview. Specifically, if high hostile individuals were condoning Daniel’s hostile behavior when evaluating it, then they would also be expected to exhibit more, not less, hostile behavior than low hostile individuals during the interview. This was not the case.

Because these results did not conform to the initial predictions that were made, an alternative explanation was sought. It appears that hostile priming had an assimilation effect for low hostile individuals (i.e., their behavior was biased toward the primed construct) and a contrast effect for high hostile individuals (i.e., their behavior was biased away from the primed construct). The assimilation effect for low hostile individuals is readily apparent, as it is clear that the impressions formed by low hostile women were biased toward the primed hostile category and their behavior was also biased to be more negative. The contrast effect is less apparent as it is only clearly evident from the behavior ratings, where high hostile individuals expressed less hostility than their low hostile counterparts. To understand why both assimilation and contrast effects were present, several ideas need to be reviewed.

Most explanations of contrast effects emphasize features of the priming stimuli such as extremity (DeCoster & Claypool, 2004). For example, Herr (1986) found that using primes that are extreme examples of a category (e.g., Hitler as an example of hostility) biased subsequent evaluations of a hypothetical person ‘Donald’ to be less hostile than when more moderate examples of a category were used (e.g., Alice Cooper). Herr proposed that this effect occurs because the extreme prime is used as a standard (i.e., anchor) to which the hypothetical target person is compared, causing the target to appear to have less of the primed trait when the prime is an extreme exemplar (i.e., Hitler) than when the prime is a moderate exemplar (i.e., Alice Cooper). Thus this type of contrast effect has been named anchoring (DeCoster & Claypool,
Priming method has also been implicated as a moderator of priming direction. Different priming methods use varying depths of processing ranging from the unconscious to the conscious. In their meta-analysis of priming effects, DeCoster and Claypool (2004) concluded that priming method significantly moderated anchoring effects. In particular, semantic priming tasks (i.e., those where participants are directed to focus on the meaning of the primes) produced the strongest anchoring effects when compared to the simple presentation of primes, memory tasks, and procedural tasks (e.g., identifying primes as words or non-words). It is proposed that anchoring effects occur more often with semantic priming because thinking about the meaning of primes increases their salience and underscores their relevance to the target making it particularly likely that they will be used as a standard of comparison (DeCoster & Claypool, 2004).

However, the present findings cannot solely be due to the extremity of primes or the use of semantic primes because the same semantic primes were used for low and high hostile individuals yet they were affected differently. Thus, an explanation must take into account the moderating role of individual differences on the direction of priming. Maier et al. (2007) provide such an explanation. They found that the direction of priming varied as a function of trait anxiety such that assimilation effects turned into contrast effects with increasing trait anxiety. They argued that this pattern of results occurred because hostile priming stimuli were more salient for highly anxious individuals than low anxious individuals because they are more sensitive to threat, causing them to overcorrect for the effect of the primes, leading to a contrast effect.

Maier et al.’s (2007) findings suggest that salience is not necessarily an absolute property of priming stimuli, but variable depending on the perceiver. That is, the same prime word can
vary in the connotation that it holds for different people and become more salient for one person than another, triggering different schemas and a different priming direction. This should be particularly true of the present priming method because it used a semantic task that had participants focus on the meaning of the primes, which is largely driven by the unique content of their memories. For example, a hostile prime like the word loathe should be perceived as more salient or extreme (or both) when it easily brings to mind specific social instances of past dislike (e.g., I loathe my neighbor Bill) and less salient when it does not bring to mind specific relevant personal experiences or when it brings to mind more moderate instances of dislike (e.g., I loathe broccoli). Thus, high hostile individuals should find hostile primes more salient because they possess a hostile-other schema that, presumably, incorporates a greater number of personal hostile experiences than individuals who do not possess such a schema, such as low hostile individuals.

It is proposed that the high salience of hostile primes for high hostile individuals led to a lower threshold for the activation of hostile schemas, bringing to mind particularly extreme hostile exemplars from personal experience (e.g., my neighbor Bill is a real jerk, and so is the gas station attendant, Jenny) that were, in their extremity, inconsistent with the hypothetical target person. If this inconsistency resulted in an anchoring effect, high hostile individuals should have evaluated the target as less hostile than low hostile individuals did in the hostile priming condition. Though high hostile females did make slightly lower ratings than low hostile females, this difference was not statistically significant. In contrast, the pattern was reversed for males, but was not significant either. It is possible that the target was not deemed inconsistent with the activated hostile schemas but that those schemas were deemed inapplicable so that they were not used to make evaluations. Thus, instead of a true contrast effect, target impressions made by high
hostile individuals in the hostile condition did not differ from those made by high hostile individuals in the neutral condition, whose schemas were not activated.

Even though the differences were not statistically significant for comparisons across conditions, it appears that the behavior of low hostile women was rated as more hostile in the hostile priming condition than in the neutral priming condition whereas the behavior of high hostile women was rated as more hostile in the neutral priming condition than in the hostile priming condition. Thus, it appears as though the behavior of low hostile individuals was biased toward the primed construct, which is consistent with the effect of priming on impression formations. In contrast, it appears as though the behavior of high hostile individuals was biased away from the primed construct, which is also consistent with the effect of priming on impression formations.

Limitations

One limitation of the present study was that the impression formation task was not naturalistic. Even though the ‘Daniel’ paragraph has been used in numerous studies, it may be poorly suited to the investigation of hostile thought processes underlying social information processing because it is not a social interaction. Because participants had no prior experience with the target person, as he was hypothetical, and because his hostile behavior was not directed at them, it is possible that his behavior had little personal relevance. *Self-relevance* can be thought of as a circumstance in which one is personally involved where the outcome has consequences for the self (Guyll & Madon, 2004). Because social situations can vary in self-relevance, so can the impressions that are formed of people involved in them. For example, an argument between two people has less self-relevance for a witness than it does for a participant. And while a witness may form a slightly negative impression of someone who is arguing with
another person, participation in the argument may lead to judgments of that same person as more negative by virtue of its greater self-relevance. By the same token, in the present study, the target’s hostile behavior should have had low self-relevance for participants because the behavior was not directed at them. In contrast, hypothetical behavior directed at the self or a hostile interaction with a real person would presumably have had higher self-relevance and produced more negative impressions.

A lack of self-relevance may have made it less likely that participants would judge Daniel using their personal schemas and may explain, in particular, why there was no effect of priming on the impression formation task for high hostile individuals. Guyll and Madon (2004) found that self-relevance moderated the effect of trait hostility on social information processing. Specifically, the authors had low and high hostile individuals form impressions of a hypothetical person who victimized another person. In the low self-relevance condition participants evaluated an individual victimizing an unknown other, whereas in the high self-relevance condition they imagined themselves as the victim. High hostile individuals only formed more negative impressions than low hostile individuals when they viewed themselves as the victim of aggression. The authors proposed that high hostile individuals may be more likely to use their hostile-other schemas in situations where there is a direct personal threat. In the present study, it is possible that high hostile individuals did not differ from low hostile individuals in the neutral priming condition because they did not consider the target’s behavior a threat.

**Future Directions**

The results of the present investigation argue against the idea that high hostile individuals simply use a generalized “hostile-other” schema to make negative impressions of other people. It appears that hostile inferences are not automatically and indiscriminately applied to all other
people by high hostile individuals. It is likely that whether or not a hostile inference is made depends on the nature of the relationship between the hostile individual and the person being judged. Because the activation of hostile thought processes did not affect the judgments made by high hostile individuals, a prior relationship with the target may be necessary before differences can be observed. Further research could explore the effect of activating hostile thought process on the perception of individuals with whom the high hostile person already has a relationship.

Like previous studies investigating the processing biases related to hostility, the present study focused on the hostile individual’s perception of another person’s behavior. Little research, however, has examined how the self-concept of high hostile individuals relates to their view of others and whether this differs from low hostile individuals. Clarifying the role of the self-concept in hostile cognition and behavior could prove to be a worthwhile endeavor. There is already evidence that examining views of the self in relation to views of others can help our understanding of aggression. For example, Bradshaw and Hazan (2006) found that both views of the self and views of others were associated with covert aggression (i.e., anger and hostility) and that individuals with both the lowest self-esteem and lowest other-esteem were the most hostile. Accordingly, future research could investigate whether high hostile individuals evaluate behavior differently when it is attributed to the self than when it is attributed to another person.
References


Hostile word list

| ABHOR       | DISAPPROVE | MAD       |
| ACCUSE      | DISDAIN    | MALICE    |
| AFFRONTE    | DISLIKE    | MALIGN    |
| AGGRAVATE   | DISPARAGE  | MALTREAT  |
| ANGER       | DISPUTE    | MANIPULATE|
| ANGERED     | DISREGARD  | MEAN      |
| ANNOYED     | DISRESPECT | MERCILESS |
| ANTAGONIZE  | ENRAGED    | MIFFED    |
| ARGUE       | EXPLOIT    | MISTREAT  |
| ASSAIL      | FAULT      | MOCK      |
| BEGRUDGE    | FRUSTRATED | NASTY     |
| BELITTLE    | FUMING     | NEGLECT   |
| BLAME       | FURIOUS    | OFFENDED  |
| BULLY       | GOAD       | OUTRAGED  |
| CENSURE     | HARASS     | PATRONIZE |
| CLASH       | HATE       | PEEVED    |
| CONDEMN     | IMPOSE     | PERSECUTE |
| CONDESCEND  | INCENSED   | PROVOKE   |
| CONFRONT    | INCITE     | QUARREL   |
| CONTEMPT    | INFLAMED   | RAGE      |
| CRITICIZE   | INFURIATED | RANT      |
| CRUEL       | INSTIGATE  | REBUKE    |
| DEBASE      | INSULT     | REPRIMAND |
| DEBASE      | INTERFERE  | REPRIMAND |
| DEBATE      | INTRUDE    | REPROACH  |
| DEGRADE     | INVADED    | RESENT    |
| DEMAN       | IRATE      | REVILE    |
| DENIGRATE   | IRKED      | RIDICUL   |
| DENOUNCE    | IRRITATED  | SCOFF     |
| DEPLORE     | JEER       | SEETHE    |
| DEPRESE     | LESSENED   | SHOUT     |
| DEPREDICT   | LIVID      | SLIGHTED  |
| DESPIRE     | LOATHE     | VIOCEOUS  |
| DETEST      |            | YELL      |
Neutral word list

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<tr>
<td>CONCOCT</td>
<td>GAZE</td>
<td>SPiT</td>
</tr>
<tr>
<td>CONFER</td>
<td>GENERATED</td>
<td>SPOT</td>
</tr>
<tr>
<td>CONNECT</td>
<td>GLIMPSE</td>
<td>SQUABBLE</td>
</tr>
<tr>
<td>CONVERSE</td>
<td>GUARANTEED</td>
<td>STIPULATED</td>
</tr>
<tr>
<td>CONVEYED</td>
<td>GUARD</td>
<td>TELL</td>
</tr>
<tr>
<td>CONVOCATE</td>
<td>GUIDE</td>
<td>TRANSMIT</td>
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<tr>
<td>COORDINATE</td>
<td>HOOK</td>
<td>TRIGGER</td>
</tr>
<tr>
<td>DELEGATED</td>
<td>INFER</td>
<td>UNFOLD</td>
</tr>
<tr>
<td>DELINEATE</td>
<td>INFLATE</td>
<td>UNFURL</td>
</tr>
<tr>
<td>DEMARCATED</td>
<td>INSPECT</td>
<td>WIDEN</td>
</tr>
</tbody>
</table>
Appendix C

Hostility Rating Scale

Please rate how *hostile* each of the following words are on the 7-point scale provided, where 1 indicates “not at all hostile” and 7 indicates “very hostile”. Please circle your responses.

<table>
<thead>
<tr>
<th></th>
<th>Not at all hostile</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Very hostile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEER</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCAN</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc...</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

Valence Rating Scale

Please rate how *positive* or *negative* each of the following words are on the 7-point scale provided, where 1 indicates “extremely negative” and 7 indicates “extremely positive”. Please circle your responses.

<table>
<thead>
<tr>
<th></th>
<th>Extremely negative</th>
<th>2</th>
<th>3</th>
<th>Neither negative nor positive (neutral)</th>
<th>5</th>
<th>6</th>
<th>Extremely positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>JEER</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>SCAN</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>etc…</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Appendix E

Imageability Rating Scale

Please rate how imageable each of the following words are on the 7-point scale provided, where 1 indicates “highly imageable” and 7 indicates “not imageable”. A highly imageable word is one that represents an object or concept that can easily be imagined, whereas a not imageable word is one that represents an object or concept that cannot easily be imagined. Please circle your responses.

<table>
<thead>
<tr>
<th></th>
<th>Not imageable</th>
<th>2</th>
<th>3</th>
<th>Neither non-imageable nor imageable (neutral)</th>
<th>5</th>
<th>6</th>
<th>Highly imageable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>JEER</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>SCAN</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>etc…</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Appendix F

Information sheet: Word Rating Study – Hostility, Valence, and Imageability Ratings

Research Investigators:
Weronika Sroczynski (Graduate Student)  
Phone: 960-5300  
E-mail: sroczyn@unbc.ca

Dr. Ken Prkachin (Supervisor)  
Phone: 960-6633  
E-mail: kmprk@unbc.ca

Research Support: Social Sciences and Humanities Research Council of Canada (SSHRC) 2008 Spring-Summer Research Project Award (RPA)

The following information is provided to inform you of the purpose and goals of the research and what your participation in this research will involve. Please ask the researcher if you have any questions or need further information on something mentioned here. Please take the time to read and understand this form.

Purpose: The purpose of the present study is to obtain ratings on a list of English words. These ratings are necessary in order to validate their meaning for use in a later study. The ratings provided will be used to determine experimental and control words that are identical in terms of word frequency, letter length, and imageability (how easily they are imagined). This is crucial because it ensures that the observed effects in the later study cannot be attributed to differences in these extraneous variables rather than the intended effects of these words.

Compensation: You will be compensated with $10 for your participation in this study.

Procedure: This study will take place in one session that is estimated to last 30-45 minutes, depending on the speed with which you complete the word ratings. You will complete the study individually. The researcher will be present in case you need their assistance. After reading this information sheet, you will be asked to sign and retain a copy of the consent form indicating that you understand the study and what you are being asked to do. Once the consent form is complete you will be handed 3 identical questionnaire sets containing approximately 200 English words each. You will be asked to rate each set of words on a different rating, each using a 7-point scale. When you have finished your ratings you will be debriefed by the experimenter. During this time you are invited to ask any questions you may have. Full details will be sent to you via e-mail letter once all data has been collected, if you select this option on the consent form.

Right to Withdraw: Your participation in this study is completely voluntary. You are free to withdraw from participation at any time without penalty or prejudice. If you do choose to withdraw at any time any responses you contributed can be destroyed and discarded immediately at your request.

Risks: There are no risks involved in participating in this study. The benefit to participating is the opportunity to be a part of research and be exposed to the processes research involves.
Confidentiality & Ethics: All of the information you provide will be completely confidential. It will be stored securely in the laboratory indefinitely and will only be made available to research investigators working on this project or related projects. Your anonymous responses may be re-examined or utilized to contribute to future research conducted in this laboratory only. Only aggregate data (average of all ratings provided by all participants) will be reported. Any concerns about the project can be made to the Office of Research and Graduate Programs, located in the Administration Building at UNBC, on the main floor (960-5820 or by email: reb@unbc.ca).
Appendix G

Consent form: Word Rating Study – Hostility, Valence, and Imageability Ratings

Note: the Office of Research and Graduate Programs at the University of Northern British Columbia (UNBC) is available to protect your rights. This office will receive any complaints or concerns you may have with regard to your involvement in this study. The office is located on the main floor of the Administration Building (960-5820) or by email: reb@unbc.ca.

I, ____________________________________________, have read the description of the study "Word Rating Study – Hostility, Valence, and Imageability Ratings" described in the foregoing information sheet.

I understand that, as a participant, I will be asked to perform the tasks outlined in the information letter. I further understand that any information collected through my participation in this study is to be used for research purposes only and that my anonymity will be protected at all times. I have been assured that my participation in the study is voluntary and I may withdraw at any time without penalty or prejudice. I further understand that once I withdraw I can request to have any of my responses destroyed immediately. I understand there are no known risks involved in participating in this study. I recognize that the benefit to being involved in this study is the opportunity to be a part of research and be exposed to the research process.

I have read and understood the foregoing and the information letter and give my consent to participate.

Date: __________/_________/________/
   Day    Month    Year

Age:_____

Sex (circle one): Male    Female

Participant’s signature:_________________________________________

Witness:_______________________________________________________

Would you like to receive a brief e-mail summary of the results? Please circle  YES    NO

If YES, provide email address:____________________________________
Appendix H

Debriefing handout: Word Rating Study – Hostility, Valence, and Imageability Ratings

In this study you provided ratings on three scales. These ratings allow us to select experimental and control words that validly fit the categories that we are interested in. Because we are interested in identifying hostile words, we asked you to rate a large set of words in terms of how hostile they are. So rather than assuming that a particular word is hostile or not hostile, we take the average of the hostility ratings provided by all participants for a given word to determine if that word is hostile. For example, if the average score for a word on the hostility rating scale (where 1 means “not at all hostile” and 7 means “very hostile”) is 6.5, then we know that this word connotes high hostility. Without obtaining these kinds of ratings, we cannot validly classify words as “high hostile” or “low hostile” words.

**Hostility ratings.** Hostility ratings were obtained on a 7-point scale where 1 indicated “not at all hostile” and 7 indicated “very hostile”. Words rated high on this scale indicate that they connote high hostility whereas words rated low on this scale indicate that they connote low hostility. The purpose of obtaining hostility ratings for words like “loathe” and “irate” was to ensure that the words we select as hostile actually connote hostility. Obtaining hostility ratings for words like “rotate” and “solve” serves to ensure that words we select as neutral connote low levels of hostility and are therefore actually neutral and not confounded with the hostile words.

**Valence ratings.** Valence ratings were obtained on a 7-point scale where 1 indicated “extremely negative” and 7 indicated “extremely positive”. Words rated high on this scale indicate that they have a positive valence whereas words rated low on this scale indicate that they have a negative valence. The purpose of obtaining valence ratings for words like “loathe” and “irate” was to ensure that the words we select as hostile are actually considered to be negative rather than positive and therefore consistent with the construct of hostility. Obtaining valence ratings for words like “rotate” and “solve” serves to ensure that the words we select as neutral are actually neutral in valence so that they do not evoke highly negative or positive reactions.

**Imageability ratings.** Imageability ratings were obtained on a 7-point scale where 1 indicated “not imageable” and 7 indicated “highly imageable”. Words rated high on this scale indicate that they are easily imagined (or imaged) whereas words rated low on this scale indicate that they are not easily imagined. The purpose of obtaining imageability ratings was to ensure that the words we select as hostile are equally imageable as the words we select as neutral.

If you have any questions about any aspect of the project, or would like more information about the results of the study, please feel free to contact Dr. Ken Prkachin at 960-6633, or Weronika Sroczynski at 960-5300.

Thank you for participating in this project – your contribution is greatly appreciated!
## Appendix I

Hostile word list (condition 2)

<table>
<thead>
<tr>
<th>Hostile primes</th>
<th>Hostile test words</th>
</tr>
</thead>
<tbody>
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<td>MISTREAT</td>
<td>ANGER</td>
</tr>
<tr>
<td>BELITTLE</td>
<td>YELL</td>
</tr>
<tr>
<td>MAD</td>
<td>CRUEL</td>
</tr>
<tr>
<td>CONTEMPT</td>
<td>OUTRAGED</td>
</tr>
<tr>
<td>SHOUT</td>
<td>BLAME</td>
</tr>
<tr>
<td>ARGUE</td>
<td>EXPLOIT</td>
</tr>
<tr>
<td>MALTREAT</td>
<td>DISPARAGE</td>
</tr>
<tr>
<td>DENOUNCE</td>
<td>MEAN</td>
</tr>
<tr>
<td>PERSECUTE</td>
<td>QUARREL</td>
</tr>
<tr>
<td>MALICE</td>
<td>INVADE</td>
</tr>
<tr>
<td>ABHOR</td>
<td>INSULT</td>
</tr>
<tr>
<td>CONDEMN</td>
<td>MOCK</td>
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<tr>
<td>HARASS</td>
<td>MERCILESS</td>
</tr>
<tr>
<td>SEETHE</td>
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</tr>
<tr>
<td>ANTAGONIZE</td>
<td>ENRAGED</td>
</tr>
<tr>
<td>DEMEAN</td>
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</tr>
<tr>
<td>NASTY</td>
<td></td>
</tr>
<tr>
<td>DEGRADE</td>
<td></td>
</tr>
<tr>
<td>IRATE</td>
<td></td>
</tr>
<tr>
<td>ACCUSE</td>
<td></td>
</tr>
<tr>
<td>ANGERED</td>
<td></td>
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<td>INFURIATED</td>
<td></td>
</tr>
<tr>
<td>LIVID</td>
<td></td>
</tr>
<tr>
<td>RAGE</td>
<td></td>
</tr>
<tr>
<td>BULLY</td>
<td></td>
</tr>
<tr>
<td>LOATHE</td>
<td></td>
</tr>
<tr>
<td>FURIOUS</td>
<td></td>
</tr>
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<td>DESPISE</td>
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<td>HATE</td>
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## Appendix J

Neutral word list (condition 1)

<table>
<thead>
<tr>
<th>Neutral primes</th>
<th>Neutral test words</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROTATE</td>
<td>ASSIGN</td>
</tr>
<tr>
<td>ORIGINATE</td>
<td>DELEGATED</td>
</tr>
<tr>
<td>UNFOLD</td>
<td>SPOT</td>
</tr>
<tr>
<td>ENLARGE</td>
<td>FASTEN</td>
</tr>
<tr>
<td>NAMED</td>
<td>PROFESS</td>
</tr>
<tr>
<td>MODERATE</td>
<td>Widen</td>
</tr>
<tr>
<td>GAZE</td>
<td>REVOLVE</td>
</tr>
<tr>
<td>QUANTIFY</td>
<td>ALLOT</td>
</tr>
<tr>
<td>APPOINT</td>
<td>DETAIL</td>
</tr>
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<td>DESIGNATE</td>
<td>GLIMPSE</td>
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<td>DEPICT</td>
<td>OUTLINE</td>
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<td>SCAN</td>
<td>ADHERE</td>
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<td>SCANNED</td>
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<tr>
<td>CONFER</td>
<td>Delineate</td>
</tr>
<tr>
<td>EXCAVATE</td>
<td>Evaluate</td>
</tr>
<tr>
<td>ATTACH</td>
<td></td>
</tr>
<tr>
<td>INFLATE</td>
<td></td>
</tr>
<tr>
<td>ASSESSED</td>
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</tr>
<tr>
<td>INSPECT</td>
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<td>SHIFT</td>
<td></td>
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<td>QUANTIFIED</td>
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<td></td>
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<td>MANEUVER</td>
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</tr>
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<td>MONITOR</td>
<td></td>
</tr>
<tr>
<td>TELL</td>
<td></td>
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<td>AFFIX</td>
<td></td>
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<td>STIPULATED</td>
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</tr>
<tr>
<td>ACRUE</td>
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</tr>
<tr>
<td>DETECT</td>
<td></td>
</tr>
<tr>
<td>DRUM</td>
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</tr>
</tbody>
</table>
Appendix K

Impression formation task, hostile paragraph (i.e., the ‘Donald’ vignette from Srull & Wyer, 1979)

I ran into my old acquaintance Daniel the other day, and I decided to go over and visit him, since by coincidence we took our vacations at the same time. Soon after I arrived, a salesman knocked at the door, but Daniel refused to let him enter. He also told me that he was refusing to pay his rent until the landlord repaints his apartment. We talked for a while, had lunch, and then went out for a ride. We used my car, since Daniel’s car had broken down that morning, and he told the garage mechanic that he would have to go somewhere else if he couldn’t fix his car that same day. We went to the park for about an hour and then stopped at a hardware store. I was sort of preoccupied, but Daniel bought some small gadget, and then I heard him demand his money back from the sales clerk. I couldn’t find what I was looking for, so we left and walked a few blocks to another store. The Canadian Blood Services had set up a stand by the door and asked us to donate blood. Daniel lied by saying he had diabetes and therefore could not give blood. It’s funny that I hadn’t noticed it before, but when we got to the store, we found that it had gone out of business. It was getting kind of late, so I took Daniel to pick up his car and we agreed to meet again as soon as possible.
Appendix L

Anger Interview Protocol

(Interviewer reads bold text; instructions to interviewer are italicized)

The purpose of this part of the study is to investigate the kinds of experiences you have when you feel angry. I will ask you some questions about an interpersonal incident in your life in which you felt the angriest you have ever felt. So an incident like a conflict between you and another person or group of people that made you really angry.

From time to time it may sound like I am repeating things. I won’t be doing this to give you a hard time, but to try to be sure I understand how that situation really felt to you.

If I start to ask about anything that you would not like to talk about, then let me know and we can move on. This is not a test of any sort.

All right?

Okay then, (first name), lets get started.

1. Describing the problem.

I want you to take a moment now to think about an incident in which you felt the angriest you have ever felt. When you are ready, describe this incident.

2. Re-experiencing the problem.

Okay. I want you to further imagine the incident that made you angry. If other people were there, imagine the way they looked and acted. How their voices sounded... and what you could see and hear around you...

Try to make the paragraph sound rhetorical and ask all the questions before the subject answers. Try to get the subject to “get back” into the situation.

Now that you are back in that situation:

a) What was it that made you so angry? ...what else? ...tell me more.
b) How did you react? What did you do?
c) What were others saying or doing?
d) What did you say or do in return?
e) How did you feel? ...tell me more.
f) What were some of your thoughts?
g) How did you feel physically? How did your body respond? (heart beating faster, muscles tensed up )
h) Anything else you want to add?
Appendix M

Information sheet: Priming study

Research Investigators:
Weronika Sroczynski (Graduate Student)  
Dr. Ken Prkachin (Supervisor)
Phone: 250-960-5300  
Phone: 250-960-6633  
E-mail: sroczyn@unbc.ca  
E-mail: kmprk@unbc.ca

The following information is provided to inform you of the purpose and goals of the research and what your participation in this research will involve. Please ask the researcher if you have any questions or need further information on something mentioned here. Please take the time to read and understand this form.

Purpose: The purpose of the present study is to compare how people with different personalities perform on a series of tasks that involve words and evaluating others. The researcher, Weronika Sroczynski, is conducting this study as part of her master’s thesis.

Compensation: You will receive 1% course credit for your participation in this study.

Procedure: This study will take place in one session that is estimated to last no longer than 30-45 minutes. During the study, you will complete several tasks. You will complete a brief self-report questionnaire and some other tasks on the computer. You will also complete a brief interview with the experimenter. This interview will be videotaped for coding purposes and used in another study.

Right to Withdraw: Your participation in this study is completely voluntary. You are free to withdraw from participation at any time without penalty or prejudice. If you do choose to withdraw, any responses that you contributed will be destroyed and discarded immediately.

Risks: While there are no risks involved in participating in this study, participation in the interview may elicit negative thoughts or feelings. Though these are likely to be benign and short-lived, should you feel you require it, Counseling Services is available to you at UNBC. You can contact the counseling services reception at 250-960-6369 to make an appointment or you can visit them in person in room 5-196.

Benefits: Your participation in this research will help advance scientific understanding of how personality characteristics affect social cognitive processes and memory. The personal benefit to participating is the opportunity you will have to contribute to research and to learn about the processes research involves.

Confidentiality & Anonymity: All of the information you provide will be completely confidential. It will be stored securely in the laboratory and will only be made available to research investigators working on this project or related projects. With respect to the responses that you provide on the computer tasks, only your anonymous responses (i.e., identified by participant number and not name) may be re-examined
or utilized to contribute to future research conducted by this laboratory. As well, only aggregate data (average of all ratings provided by all participants) will be reported.

The interview you complete will be videotaped so that we can measure your reactions. This will be done by showing edited parts of the interview to research assistants who are part of this project and who will apply behavioral rating scales. No personal identifying information (e.g., your name) will be attached to these videos or given to these raters. The research assistants will be bound by principles of confidentiality not to disclose any information about the interview.

Ethics:
Any ethical concerns about this project can be made to the Office of Research, located in the Administration Building at UNBC, on the main floor (250-960-5820 or by email: reb@unbc.ca).
Appendix N

Consent form: Priming Study

Note: the Office of Research at the University of Northern British Columbia (UNBC) is available to protect your rights. This office will receive any complaints or concerns you may have with regard to your involvement in this study. The office is located on the main floor of the Administration Building (250-960-5820) or by email: reb@unbc.ca.

I, ________________________________, have read the (please print your full name) description of the study “Priming Study” described in the foregoing information sheet.

I understand that, as a participant, I will be asked to perform the tasks outlined in the information sheet. I further understand that any information collected through my participation in this study is to be used for research purposes only and that my anonymity will be protected at all times. I have been assured that my participation in the study is voluntary and that I may withdraw at any time without penalty or prejudice. I further understand that once I withdraw, my responses will be destroyed immediately. I understand there are no risks involved in participating in this study. I recognize that the benefit to being involved in this study is the opportunity to be a part of research and be exposed to the research process.

I have read and understood the foregoing and the information letter and give my consent to participate.

Date: __________/__________ /___________/
Day Month Year

Age: ______

Sex (circle one): Male  Female

Participant’s signature: ________________________________

Witness: ________________________________

Would you like to receive a brief e-mail summary of the results? YES  NO  (Please circle)

If YES, provide email address: ________________________________
Appendix O

Debriefing handout  Participant Screening and Priming Study

In this study we are interested in how activating hostile representations affects 1) how people evaluate others and 2) what words people remember. We are also interested in whether personality has an affect on these outcomes.

Research in the area of automatic information processing and social perception indicates that presenting category-relevant information increases accessibility to that category and can influence perception. This is called priming. Priming with hostile words, for example, will activate representations or associations of hostility in memory, which may include characteristics like negative attitude or affect, animosity, antagonism, or unfriendliness, etc.

While priming can be accomplished in a variety of ways, in this study you were consciously primed with hostile words (or neutral words in the control condition). The purpose of this priming was to determine whether the activation of hostile representations in memory would affect subsequent evaluations of the hypothetical stimulus person (i.e., “Daniel”) described in the short vignette. It has been shown that exposure to hostile words can lead participants to impute greater hostility to others, where the more participants are exposed to hostile words, the more negative are their evaluations of others.

We are also interested in whether personality has an effect on these evaluations. Average scores for participants with high and low hostility scores will be compared. Specifically, we are interested in whether people high in hostility differ from those low in hostility in how they evaluate the hypothetical stimulus person they read about and which of the priming words they remember.

Lastly, as described in the information sheet, the interview you completed was videotaped so that we can measure your reactions. This will be done by showing edited parts of the interview to research assistants who are part of this project and who will apply behavioral rating scales. No personal identifying information (e.g., your name) will be attached to these videos or given to these raters. The research assistants will be bound by principles of confidentiality not to disclose any information about the interview. The purpose of obtaining these ratings is to determine whether priming with hostile words, relative to priming with neutral words, affects behavior during the interview in a way that is discernable to others.

If you have any questions about any aspect of this project please feel free to contact Dr. Ken Prkachin at 250-960-6633, or Weronika Sroczynski at 250-960-5300. If you would like to speak to someone about the feelings this study may have elicited for you, we refer you to Counseling Services at UNBC. For more information regarding services or to make an appointment, contact counseling services reception at 250-960-6369, or in person in room 5-196.

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Appendix P

Video ratings

You have just viewed a brief 30 second video sample. Please rate the degree to which the person in the video sample expressed the following characteristics using the 5-point scale where 1 indicates “strongly disagree” and 5 indicates “strongly agree”. Please circle your responses.

<table>
<thead>
<tr>
<th>Participant #1</th>
<th>Strongly Disagree</th>
<th>Neither agree nor disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Shows anger</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Shows disgust</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Shows contempt</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Appears unfriendly</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix Q

Information sheet: Video rating study

Research Investigators:
Weronika Sroczynski (Graduate Student)         Dr. Ken Prkachin (Supervisor)
Phone: 250-960-5300                            Phone: 250-960-6633
E-mail: sroczyn@unbc.ca                       E-mail: kmprk@unbc.ca

The following information is provided to inform you of the purpose and goals of the research and what your participation in this research will involve. Please ask the researcher if you have any questions or need further information on something mentioned here. Please take the time to read and understand this form.

Purpose: The purpose of the present study is to compare how people with different personalities are evaluated by others. The researcher, Weronika Sroczynski, is conducting this study as part of her master’s thesis.

Procedure: This study will take place in one session that is estimated to last no longer than 1.5 hours. You will complete the study individually. During the study, you will view 30-second video samples for 75 people. You will evaluate each person on 15 qualities, indicating the degree to which they display those qualities.

Right to Withdraw: Your participation in this study is completely voluntary. You are free to withdraw from participation at any time without penalty or prejudice. If you do choose to withdraw, any responses that you contributed will be destroyed and discarded immediately.

Risks: There are no risks involved in participating in this study.

Benefits: Your participation in this research will help advance scientific understanding of how personality characteristics affect behavior. The personal benefit to participating is the opportunity you will have to contribute to research and to learn about the processes research involves.

Confidentiality & Anonymity: All of the information you provide will be completely confidential. It will be stored securely in the laboratory and will only be made available to research investigators working on this project or related projects. Only your anonymous responses (i.e., identified by participant number and not name) may be re-examined or utilized to contribute to future research conducted by this laboratory. As well only aggregate data (average of all ratings provided by all participants) will be reported.

Ethics:
Any ethical concerns about this project can be made to the Office of Research, located in the Administration Building at UNBC, on the main floor (250-960-5820) or by email: reb@unbc.ca.)
Appendix R

Consent form: Video Rating Study

Note: the Office of Research at the University of Northern British Columbia (UNBC) is available to protect your rights. This office will receive any complaints or concerns you may have regarding your involvement in this study. The office is located on the main floor of the Administration Building (250-960-5820) or by email: reb@unbc.ca.

I have read the description of the study "Video Rating Study" described in the foregoing information sheet.

I understand that, as a participant, I will be asked to perform the tasks outlined in the information sheet. I further understand that any information collected through my participation in this study is to be used for research purposes only and that my anonymity will be protected at all times. I have been assured that my participation in the study is voluntary and that I may withdraw at any time without penalty or prejudice. I further understand that once I withdraw, my responses will be destroyed immediately. I understand there are no risks involved in participating in this study. I recognize that the benefit to being involved in this study is the opportunity to be a part of research and be exposed to the research process.

I, ____________________________, have read and understood the foregoing and the information letter and give my consent to participate.

Date (DD/MM/YYYY): __________/

Participant’s signature: __________________________________________

Witness: _______________________________________________________

Would you like to receive a brief e-mail summary of the results? YES    NO  (Please circle)

If YES, provide email address: _______________________________________

(please print your full name)