Priming Emotions Using Metaphors Representative of Family Functioning

by

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Abstract

The aim of this experimental study was to explore the possibility of priming emotions by exposure to relational frame networks consistent with hegemonic ideologies (power, control, domination) represented by graphical narratives. It was hypothesized that cultural ideologies supportive of aggression are cognitively embedded or programmed such that when exposed metaphorically would prime negative (anxious, angry, sad) emotional responses. Conversely, ideologies supportive of egalitarian and cooperative ideologies would prime positive emotions (happy, neutral). It was also hypothesized that emotional responding would change when the ideologies were expressed within the very personal social construct of family dynamics. To test these hypotheses, the investigator designed a computer, web-based methodology in which groups of participants watched one of two children's games, King of the Mountain or Clubhouse Building, depicted by colored circles interacting on the computer screen consistent with either the aggressive (King of the Mountain) ideology or the cooperative (Clubhouse Building) ideology. In two other groups the relational function was transformed by suggesting to the participants that the games represented their families, and they were asked to what degree they identified with the metaphors as their families. A control group watched colored circles move without purpose on the screen. Following exposure, a Lexical Decision Task and the Uwist Mood Adjective Checklist measured emotion and mood priming in all five groups. Participants included 333 Auburn University students who were taking introductory psychology courses. The results showed that emotion and mood were primed given group assignment. The King of the Mountain peer play activity group that illustrated aggressive or violent struggle for purposes

of domination was primed for negative emotion. Unexpectedly, however, the Clubhouse Building peer play activity group that depicted cooperative interaction for the successful completion of an external goal, also primed for negative emotion. Consistent with the hypothesis that hegemonic cultural ideologies are embedded, it was suggested that cultural ideologies or programming may act as templates that are applied contextually and in various degrees. Another finding indicated that participants who viewed the play activities and indicated the metaphor was consistent with their family functioning, showed less priming for negative affect. This was contrary to the hypothesis that personalizing the metaphors would increase negative emotion. Implications for the findings, limitations of the study, and directions for future research are discussed.

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Table of Contents

List of Tables

List of Figures

1. Introduction

There are several different conceptualizations of aggressive human behavior. Biological, evolutionary, social learning, and social constructivist are but a few that contribute to understanding a phenomena that has caused humankind much short and long term pain and suffering on personal and global stages. Although this paper will outline several perspectives in order to appreciate the complex contextual factors associated with aggression, the present study will primarily focus on a conceptualization of aggression from a Relational Frame theoretical perspective. This is a relatively recent behavioral analytic explanation of language and cognition that has been empirically applied to various areas of human functioning with some success. First an abridged, general overview of the scope of human aggression and its effects will be presented.

The Scope of Violence

Violence is a global issue as well as a domestic and personal one (Wink, 1989). For example, since World War II there have been approximately 400,000 war-related deaths annually in developing nations where power is concentrated against a more powerless group for the purpose of domination (Scott, 1990). The effects are devastating as they impede human progress in significant areas of health, education, and welfare (DuVall, 2008). On a personal level, families and communities are tragically disrupted or destroyed, sometimes not fully recovering for many years or generations to come. Equity theory and other related literatures suggest that people who are violated experience an increase in negative emotion, and a sense of loss and cost accrual (Stillwell, Baumeister, & Del Priore, 2008). For example, the literature suggests that people are motivated to maintain a sense of fairness in their relationships, and transgressions that

appear unjust often result in perceived costs. The perceived inequity and negative emotion generated motivates victims to seek justice often in the form of retaliatory violence, especially if they receive social support or at least believe they will not be punished. However, the literature also shows that acts of revenge, although often justified by avengers, are interpreted as excessive by perpetrators. Perpetrators then self-identify as victims, also motivated to pursue revenge, thus creating an escalation of conflict (Marongui & Newman, 1987; Stillwell et al. 2008). In this way, violence is exponentially additive unless other factors that include self-reflection and moral/ethical reasoning intervene (Stillwell et al. 2008).

According to the World Health Organization, research shows that global gender-based violence against women is increasing (Watts & Zimmerman, 2002). These specific forms of violence include female infanticide, genital mutilation, dowry deaths, acid throwing, honor killings, domestic violence, and rape. Violence not only produces psychological and physical harm to people, in this case women, but research evidence suggests that those who have been victimized suffer from multiple, negative, long-term health effects, such as obesity, stress-related illnesses, and substance abuse (Watts & Zimmerman, 2002). At its core, culturally based violence against women is often understood as a tool to enforce gender domination and to mortally wound a culture in times of war; for it is women who bear children and raise future generations. Unfortunately, violence in general, including violence against women, is also increasing in the United States (USDJ, DOJ, 2007).

In 2006, there were 1,417,745 documented violent crimes committed in the United States (USDJ - DOJ, 2007). Since 2004, violent crime has increased, and compared to other developed nations, the United States has much higher rates of reported violent crimes, even though most nations include more categories under the rubric of "violent crimes," such as simple battery

(DOJ, 2006). Nationwide, men commit most violent crimes and are the primary victims of their violence. A 1996 report for the Juvenile Justice System (Fox, 1996) indicated that the trend of violent crime committed by juveniles is increasing and is expected to continue for years to come (DOJ, 1996).

Public reaction to the violence seen, heard, and experienced is characterized by dismay and outrage (Lowry, Nio, & Leitner, 2003; Sundt, Cullen, & Applegate, 1998). The faces of men, women, and children who have been victimized are paraded across television screens twenty-four hours a day, and the effects of these powerful images are public fear and anger. Increasingly, communities are demanding more severe penalties against all offenders, which includes adjudicating youths in adult courts (Lowry, et al, 2003). The United States has the highest rates of incarceration as compared to anywhere else in the world (DOJ, 2004). While incarceration might offer some short-term comfort by isolating and punishing perpetrators, reactivity such as this appears to have done little to address the serious underlying problem of a violent, "warrior" culture that is reaping the harvest of seeds sown (Mosher, 1991). In other words, violence not only lies in perpetrators but also is inherent in the cultures that produce them. Violent cultures generally imbue individuals to model and teach their offspring destructive, controlling behaviors, to construct, support, and maintain hierarchical relationships and social structures based on coercion and objectification of humanity, and to enforce ideologies that provide tacit permission to those who would perpetrate domination by blatant horror and atrocity (Bandura, 1973; Goldwert, 1983; Jost, Kruglanski, Glaser, & Sulloway, 2003).

Addressing Violence

Attempts to address criminal violence have been almost exclusively directed toward male perpetrators whether they are children, youths, or adults (McNeill, 2002). For example, one targeted population that has received considerable attention in terms of media exposure is men who have committed sexual crimes. Generally, treatment programs for them have not shown the reduction in recidivism for which many had hoped, and attention has shifted to youths who have committed such crimes because research indicates they are more responsive to treatment (Hanson, Morton-Bourgon, & Kelly, 2005; Sundt et al, 1998). A recent report suggested that risk prevention aimed at specific populations, risk treatment for those people identified as "at-risk," and violence treatment for those who have already committed violent acts are three avenues for addressing violence in youth (Josephson Institute, 2002). Even so, youths who have benefited from such intervention strategies directed at sexual aggression continue to show higher rates of perpetration of other types of violent crimes (Hanson et al, 2005; Rich, 2003). Addressing the core issue of what motivates dominating or controlling behaviors within a treatment milieu is in its infancy. As is noted in the preceding paragraph, authors tend to identify specific populations, thus overlooking the critical contribution of all individuals in a culture fomenting attitudes and behaviors supportive of aggression. Our desire to dominate is rarely addressed directly, perhaps because it is assumed to be "natural," difficult to pin down, or at least in the short term, rewarding. Perhaps one difficulty is that domination is not uncommon in history and is entirely pervasive, thus giving the impression that it is a "natural" or an inevitable part of humankind. Accepting this, however, is accommodating a falsehood or a kind of propaganda that justifies violence and coerces those who are victims to believe subordination is a normal and tolerable role (DuVall, 2008). This study is an attempt to understand domination

contextually within pragmatic, common, social frameworks or constructions – the play activities of children and the dynamics within families. Until the seeds of violence in the form of aggressive emotions and thoughts, and rigid self-conceptualizations are noticed, named, and diffused, attempts to treat will not be fully successful and suffering from unnecessary aggression is likely to continue.

Current "violence treatment" approaches directed toward targeted populations, specifically, youths, have met with limited success (Sundt et al, 1998). The most successful treatment programs usually provide for a variety of residential therapeutic and learning experiences for perpetrators designed to lower risk of harm to self and others by strengthening self-esteem, social skills, behavioral accountability, and positive, nonintrusive attitudes toward staff, peers, children, and women in general (Sundt et al 1998; Rich, 2003). Mental health providers appear to be aware of, but to date have not clearly articulated, two important tasks related to cultural ideologies that perpetuate aggressive behaviors, and as such ought to influence treatment modality and milieu. The first is creating an internal community or subculture within the residential treatment facility that includes all staff and is consistent with low interpersonal aggression. The second is reconnecting adolescents who have completed sex offender treatment programs with external community individuals, agencies, and/or environments that will continue to provide a continuation of ideologies expressive of low interpersonal aggression. Herein is the crux, such that staff delivering treatment and caring for adolescents before and after their release or discharge, are similarly indoctrinated with community cultural attitudes and qualities consistent with the development and maintenance of aggression even if they do not express overtly violent behavior. Furthermore, the families and community members to whom these children are returned are likewise steeped in cultural hegemonic attitudes with an increasing

saturation of violent images and ideologies via media consistent with coercive power and controlling domination.

It appears that when immersed in cultural ideology, it is difficult to see the subtle and obscured personal behaviors that reflect it, much like the adage that declares the difficulty of seeing the forest for the trees. Researchers of minority issues, however, have long since been aware of this phenomenon. For example, media images that reinforce damaging and long-held stereotypical beliefs about minority groups are recognized as an end product of racism that is often denied by the general population (Merskin, 2001). In addition, denial of white privilege continues to perpetuate discrimination (Boatright-Horowitz & Soeung, 2009). One has only to reflect on the various negative and subordinating images that continue to be taken for granted (i.e Aunt Jemima, Crazy Horse Malt Liquor) and persist as a result of cultural insensitivity (Merskin, 2001). Recognizing cultural ideologies is made even more difficult as what appears to be the result of three processes:

1) We are not a self-reflective society that typically takes the necessary time to slow down long enough to notice our own present-oriented thoughts, emotions, and related behaviors that support aggression or are aggressive.
2) When aggressive internal experiences and behaviors do come to awareness, they may be for the most part dismissed because of general cultural support, acceptance, and reward.
3) Much like an arms race, people fear letting go and trusting alternative ways of being.

Nevertheless, it is likely that real change in rates of violence may in fact require cultural shifts in which general public accountability is accepted whether or not most people are actually

committing overt acts of violence. If it is true that hegemonic ideologies are embedded in cultural constructions, then it should be the case that ideologies supportive of violence are present within basic social structures, such as children's play activities and within families, and that these ideologies have the effect of creating niches replete with contextual contingencies that perpetuate them. Jost, Glaser, Kruglanski, Sulloway, (2003) presented a meta-analysis of relevant empirical research that suggested emotions (fear and uncertainty) motivate and perpetuate attitudes and behaviors supportive of aggression. Relational Frame Theory also offers a unique explanation for embedded cultural programming and provides for treatment rationale of which noticing and naming internal and external experiences are first steps (Hayes, Barnes-Holmes, Roche, 2001; Hayes, Strosahl, & Wilson, 1999). The theory is connected with what are termed third wave cognitive behavioral therapies such as Dialectical Behavior Therapy, used most successfully with personality disorder, and Acceptance and Commitment Therapy, which has so far been shown effective in treating difficulties such as depression, anxiety, posttraumatic stress disorder, chronic pain, and severe mental illness (Hayes, Strosahl, & Wilson, 1999; Roemer & Orsillo, 2009). It has also shown some effectiveness in sex offender treatment programs (Sheehan, 2003). Mindfulness, an important component in both Dialectical Behavior Therapy and Acceptance and Commitment Therapy, is used to assist participants with contacting more closely their inner experiences such as body sensations, and emotional and cognitive events, and environmental surroundings (Hayes et al, 1999). Practicing attunement to present, real time experience addresses an important factor that is often identified in treatment literature as significantly contributory to violence, the role of impulsivity. The practice of mindfulness is one possible solution to the aforementioned problem of addressing cultural ideologies supportive of violence within the general population, and especially, addressing hegemonic attitudes within

those persons given the responsibility of treating or caring for youths who have perpetrated violence. Currently the United States Veterans Health Administration has identified Acceptance and Commitment Therapy as one of several evidence-based therapies that are being promoted as part of their "role out" effort to deliver effective treatment to veterans suffering from the effects of violence, such as those with symptoms of posttraumatic stress disorder (Levine, 2004). It is particularly helpful in addressing impulsivity and cognitive fusion to maladaptive thoughts.

Purpose of the Study

The objective of this project is to examine the possibility that hegemonic ideologies may be cognitively embedded or programmed such that, when exposed, will elicit negative (anxious, angry, sad) emotional responses. In addition, it is proposed that when the ideology is transformed metaphorically to represent family functioning, negative emotional responding will increase as it creates an atmosphere of uncertainty. In other words, the question asked is will processing hegemonic relational frames, specifically those that illustrate hierarchical domination, prime negative emotional responding as compared to egalitarian cooperative frames. And furthermore, if the frames initially presented as objective children's games are then used as metaphors to personalize the experience, will this mediate emotional responding consistent with the metaphor provided. The metaphors used in this study depict peer play and/or family dynamics through physical movement of symbolic people in the form of colored circles (see Appendices A & B). For example, the Egalitarian-Cooperation metaphor shows circles acting cooperatively in service to an external goal or task (Appendix A). The Hierarchical-Domination metaphor shows circles acting independently in service of control and dominance over each other (Appendix B). The latter is hypothesized as creating a context of objectification of others in order that one can exert control for the sake of control, the consequences of which are negative emotions (anxiety, anger,

sadness). Negative emotions generated under such conditions (Jost, et al., 2003) may possibly create a negative feedback loop such that in order to relieve the discomfort, future-centered cognitions motivate more of the same behavior. That is, cognitions deviate from actual present events and cause the individual to engage in the dynamic, the goal being to win the struggle, believing that discontent will be relieved if 'winning' is achieved, and thus feeding a self-contained dynamic. For example, if these assumptions are correct, the more identification with the metaphor, the more likely negative emotion will surface, resulting in more participation in the dynamic and more emotional discomfort. This study examined only the effects of exposure to the dynamics and the effects of identifying with the dynamics.

2. Review of Literature

Bandura's (1973) early writing on violence, or what is more typically referred to in the literature as aggression, noted that agreement on an operational definition can be difficult. He reported that aggression was first operationally defined in 1939 as behaviors designed to injure others. Subsequent definitions developed typologies in an attempt to clarify meaning distinctions. "Instrumental" and "hostile" aggression differentiated behavior expressed as a means to an end versus behavior expressed to hurt others. However, he wrote that above and beyond the acquisition of tangible resources, aggressive behavior also appeared to have powerful social significance because the culture values it and often confers social status on the aggressor (Bandura, 1973). According to Bandura, motivation to behave aggressively may include acquisition of resources, status, and ultimately, power or the feeling that one has "control." Often motives to hurt others are tied to status and power, however, thus confusing distinctions of "instrumental" and "hostile." The last point is significant as recent literature (Jost, et al, 2003) suggests that a significant motive for aggression includes the need to reduce feelings of anxiety and uncertainty, obtained by exerting control which is a means for feeling powerful. In addition to learned behaviors, recent evidence has shown biological indicators that may sustain or moderate aggressive behavior.

Rameriz (2003) reported that the terms "violence" and "aggression" are used so broadly that precise definition is difficult and further complicated by intermingling their meanings under the same rubric. He expressed resignation to conceptual confusion and used the terms synonymously in his investigation of aggression as a biopsychosocial product and cause. As a

result of his research, he concluded "the most important general insight of recent years is that life experience can shape brain chemistry in significant ways, and that experience and neurophysiology form a seamless web" (p. 622). Rameriz (2003) examined studies conducted over the last fifteen years in order to determine the hormonal correlates of aggressive behavior in human infancy and adolescence. He found that the interplay between hormones and the environment are circular in that psychosocial factors were linked to the metabolic and physiological pathways, which were also linked to genetic aspects. The causal component for aggression appeared undeterminable as stress effects hormonal levels. In other words, hormone expression and levels can cause, mediate, and be the consequences of aggression. Sociocultural context and behavioral experiences affect and can change hormonal levels that then influence the incidence of aggression. Rameriz (2003) observed further that in studies of adolescents, boys usually showed more impatience, irritability, risk-taking, and unawareness of dangers as compared to same-aged girls who by that age had substituted for direct aggression, more covert methods such as gossip, contempt, and ostracism. As boys mature to men, they too learn more covert or less violent methods to express aggression, as is required by cultural norms. However, overt or covert aggressive behavior did not seem to be correlated with levels of androgens at any age that would support any notion that androgens "cause" aggression; only that androgens and aggression were interdependent with the environmental context. For example, with regard to "winning and losing," he reported that as adolescent boys watched their sports team win, their androgen levels increased; as their team was losing, their androgen levels decreased. Another recent study by Hoeft, Watson, Kesler, Bettinger, and Reiss (2007) demonstrated an underlying gender difference in neural processing when men and women were tasked to play a game based on acquisition and control of territory. Men appeared more motivated for territorial possession

than women and showed larger corresponding MRI changes in brain areas associated with reward and motivation as acquisitions were gained. In other words, they were more invested in possessing territory due to dramatic affects on reward centers of the brain. Hoeft et al (2007) explained that these areas of the brain were usually associated with addiction and assisted him with understanding why men are overrepresented in history as tyrants and conquerors.

In a study of incarcerated men, higher testosterone levels were related to physical aggression and social dominance (Ehrenkranz, Bliss, and Sheard, 1974), and with inmates who had committed premeditated homicide and knew their victims (Dabbs, Raid, and Chance, 2001). Testosterone levels were not related to sexual crimes (Dabbs et al, 2001). It should also be noted that men who have committed extremely violent crimes including sadistic rape and murder, have shown low plasma testosterone levels (Rabock, Cerna, and Zemek, 1987). The data appear to support Rameriz's notion that hormonal levels are associated with specific contextual cues, and that cultural context may moderate the effects in both directions. Finally, a study designed to assess the relationship of testosterone to language found that higher levels of testosterone in men and women were correlated with the use of fewer words expressing social connections (Pennebaker, Groom, Loew, and Dabbs, 2004). Testosterone levels were unrelated to words conveying anger, sexuality, or achievement. In sum, there appears to be a biological connection to aggression in both men and women; however, males of all ages have higher levels of androgens then females. Testosterone does not cause aggression, is unrelated to sexual aggressiveness, but appears very much related to social dynamics characterized by hierarchical, comparative, power relationships in which language conveying connectedness to others is reduced.

The roots of cultural violence are continuously debated and are often framed in arguments of nature versus nurture (Bandura, 2001; Bowker, 1998; Laland, Odling-Smee, & Feldman, 2000; Rameriz, 2003). The nature model, most often promoted by evolutionary psychologists with respect to violence, suggests that men are inherently controlling of and violent with other men and women in order to promote their genetic heritability (Thornhill & Palmer, 2000). On the other hand, the literature promoted by social constructivists suggests that interpersonal violence, sexual or not, is actively and subtly taught, promoted, modeled, and maintained (Travis, 2003). A bidirectional view acknowledges that evolutionary pressures promote organismic change, but also recognizes that organisms impact the environment via niche construction, serving to create ever-increasing complexity in the case of human existence, and thereby producing new environmental pressures. In other words, sapiens actively "act" in the world and are dynamic co-creators of their own physical and psychological functioning, of their environmental niches, and ultimately of their own contingencies (Bandura 2006, Laland, 2000). Nature and nurture cannot be separated nor is it likely either of these factors overwhelm the other, as a deterministic point of view would claim (Thornhill & Palmer, 2000). A bidirectional perspective recognizes that biology provides for a variety of potentials that may or may not be expressed in any one lifetime or in many lifetimes, or in any one group of lifetimes (Bandura, 2006). Some adaptations fade over time as the environment changes and other pressures require expression of potentials that are more adaptive and which may in time become established adaptations in their own right. For example, the adaptation of being able to move aggressively in one's environment provides for a panoply of potential behaviors that are expressed in a variety of situations, some of which will "freeze," or become more frequent, depending on the demands of the environment. The demands of culture, defined by human

beings in the process of niche construction, elicit and emit potentials, behavioral possibilities. In a violent culture, highly aggressive behaviors, many of which may not reach to the level of obvious violence but are the bedrock for violence, are taught, modeled, and rewarded (Bandura, 2006). For verbally-able humans, language and associated cognitions play an important role in this process, are very significant evolutionary adaptations, and the basis for cultural fluidity that provides human beings with tremendous flexibility (Bandura, 2006; Pelligrini & Gustafson, 2005).

Relational Frame Theory (RFT)

Since the 1980s, behavior analysts have examined the role of language and cognition in ways that may be relevant to the study of aggression (Hayes, Niccolls, Masuda, & Rye, 2002). Relational Frame Theory (RFT), a behavioral theory, uses respondent and operant conditioning to explain complex human behavior (Hayes, Barnes-Holmes, & Roche, 2001). Pavlov demonstrated that a dog could be conditioned to a previously neutral event. However, this could not have occurred if the events were reversed. For example, if the bell was presented after the dog had finished eating, even many times, the expectation of food and the response (salivating) would not occur if the bell rang prior to the presentation of food. There is little evidence that animals, with the exception of humans, learn to predict when important events such as rewards are presented prior to neutral events. Similarly, if a dog is always given a kiblet prior to saying 'snackies,' the word will not have any predictive power for the dog and therefore, when the word is said at any other time, the dog will not respond or link it to food. A human child, on the other hand, if given cookies repeatedly prior to saying the word 'yummies,' will respond with anticipation of getting cookies after hearing the word on a different occasion. This is a well known phenomenon and has been demonstrated many times since an experiment conducted by

Sidman (1971). He trained a learning disabled individual to connect spoken words separately to pictures and printed words. However, following this, the subject spontaneously matched printed words to pictures without any training. In RFT, when relations such as this are formed without training they are called derived stimulus relations. Stimulus equivalence, which was developed as a result of Sidman's previous work, consists of three characteristics demonstrated in matching-to-sample procedures (Sidman, 1986): reflexivity (matching A1 to A1 in an array), symmetry (when trained to match A1 to B1, subject will chose A1 given B1), and transitivity (when trained to match A1 to B1 and B1 to C1, subject will chose A1 given C1 without training). Stimulus equivalence, according to Hayes and Barnes-Holmes (2001), is particularly important in understanding human language as bidirectionality underpins word-object relations. Human beings organize environmental stimuli relationally through verbal learning. The learned relationships increase in number and swell exponentially to become highly complex networks. Returning to the example of the child and cookies, as the child grows and acquires more experiences with 'yummies,' and develops and acquires more words that are equivalent to 'yummies,' for example, "cookies" or "Oreos," then just hearing the latter words will conjure the same memories, images, thoughts, and emotions associated with the original word 'yummies.' Furthermore, these products will also be connected to other related events, people, internal experiences and so on. A complex web of bidirectional, interrelated relational networks emerge. Emotions are also linked to networks that consist of descriptions and evaluations. In this way, networks develop narratives that contain history, cause and effect relationships, and explanations for current behavior, much like schemas form scripts (Hayes & Barnes-Holmes, 2001; Hayes & Strosahl, 2004; Kelly, 1955). These thousands of stories originating from the same histories inform and influence behavior. Much of human cultural transmission is chiefly accomplished

through language acquisition in the process of social learning (Bandura, 2006; Hayes & Barnes-Holmes, 2001). Nonverbal social behaviors are given cultural meaning through language (i.e. "good," "bad"). Thus, once human children become verbal, they quickly learn acceptable interpretations of events that they apply contextually. Evolution has thus provided for human ability to organize and derive verbal meanings from and of the world.

A bottom-up theoretical explanation for aggression derived from verbal meanings provides hierarchical, comparative, coordination, and deictic (from the perspective of self) relational ordering called relational frames (Hayes & Barnes-Holmes, 2001) that are susceptible to *transformation* given contextual cues. Transformation of stimulus functions may explain why despite training children not to be aggressive with peers or within families, children (and adults) continue to be. Relational Frame Theory (RFT) research has shown that if a person is trained that A is the opposite of B, and then A is given a punishing function, B is shown to have reinforcing functions even though direct training has not occurred (Dymond & Barnes, 1995). Within many contexts, nonaggressive behavior is punished, for example, within a work environment in which "workplace bullies" are promoted and those who maintain a balanced life in which their children are provided parental attention, are held back, fired, or more often criticized or harassed (Harvey, Heames, Richey, & Leonard, 2006). Although the dynamics of workplace bullying is well-documented, with the exception of domestic violence, the dynamics of bullying within families without obvious physical violence is not. However, subtler forms of rewarding bullying or coerciveness while punishing nonaggressiveness can easily be imagined. One such example might be when a competitive sports mentality is applied within a family dynamic in which the most aggressive, either physically or emotionally, is given greater attention and rewards than those family members who participate less in the dynamic, and the

nonaggressive family member receives criticism or ostracism from the family. In this way, verbal training that aggressive behavior is not acceptable is diminished, when nonaggressive behavior is punished, many times subtly, by the withholding of positive rewards or events. In addition, unfortunately, aggressive behavior is also rewarded. Cues of domination or cooperation in a social interaction, such as family, may result in moderation of emotion or may set the occasion for aggressive behavior or reactivity such that aggressive behavior is supported. RFT research has shown that derived stimulus relations are learned, functional operants that can be identified and controlled by environmental factors (Hayes & Dermot-Holmes, 2001). This is possible because of historical relational responding corresponding to contextual cues (Hayes & Barnes-Holmes, 2001). Relational frames are specific kinds of arbitrarily applicable relational responding. Deriving stimulus relations is learned, operant, instrumental behavior.

There are many different types of relational frames, and the most studied and fundamental one is that of "coordination." This relation is one of "sameness" and appears to be the type of learning in early language acquisition (Hayes and Barnes-Holmes, 2001). Naming an object is an example of a frame of coordination as is equivalence responding. Responding to one event in terms of another event along specific dimensions (qualitative or quantitative) are termed comparative relational frames (Hayes and Barnes-Holmes; 2001). For example, big-small, better-worse, are examples of frames of comparison. Hierarchical relations are similar to comparison. Hayes and Barnes-Holmes (2001) indicate that "A is an attribute or member of B" is a hierarchical frame such that apples and oranges are members of a class called fruit. Relations within a family are hierarchical; fathers and mothers have sons and daughters who can be derived to be siblings. Deictic relations are those that specify a relation from the perspective of the speaker. For example, I-you, here-there, and now-then, are deictic relations which appear

to be critical for perspective taking (Hayes and Barnes-Holmes, 2001). A metaphor is a broad and complex relation within relations. According to Hayes and Barnes-Holmes (2001), the word metaphor translates from Greek to mean "Transfer based on sharing." They use the example, "Struggling with anxiety is like struggling in quicksand," to show contact of "formal relations that sustain a verbal relation among events, thereby transforming the function of those events (p. 78)." Clearly, the author is suggesting that struggling with anxiety will make the anxiety worse. The part of the example that characterizes it as metaphor is that the relational network involves a formal relation between two apparently very different events, which transforms the function of one side of the equation, the anxiety and attempting to escape anxiety is part of the problem. The functions of anxiety are possibly transformed, depending on the listener; it is reframed in a new relational network in which it is suggested that anxiety might be better if accepted. In this present study, participants are asked to consider children's play activities as metaphorically representing their family dynamics.

Evidence suggests that evolution, also, may have provided potentials as a result of male hierarchical formation that was once upon a time adaptive for between-male competition, territory acquisition, and impression management with regard to attracting a mate (Thornhill & Palmer, 2000). It is the case that human intelligence and social rules promoted by culture provide increased behavioral flexibility (Rameriz, 2003). A primary assumption in the present study is that within this culture, hegemonic verbal learning generalized from what very well could be hierarchical male formation that has influenced the creation of destructive niches supportive of and promoting aggression, operating generally, albeit in disguised forms, throughout important social structures, such as family. It may also be possible that these hierarchical structures (or relational frames) of domination (contextual cue) provide a negative

feedback loop that is transformational and sustains fear, anxiety, and anger within social systems. These emotions are theorized to then undergird individual compensatory behaviors that continue to construct the hierarchical-domination weltanschauung or worldview in order to provide the illusion of control, the perception of safety, and maintenance of the status quo (Jost et al, 2003; Hayes & Barnes-Holmes, 2001).

Jost et al (2003) provided a top-down social constructivist view that summarized empirical literature designed to understand how culture and individual differences perpetrate and/or support violent hegemony. They offered a theory of Motivated Social Cognition based on past evidence that personality characteristics (authoritarianism, dogmatism, intolerance of ambiguity), existential needs (need for closure, regulatory focus, terror management), and ideological rationalizations (social dominance, system justification) compose the core attitudes that resist change, justifies inequality, and are motivated by dispositional and situational needs to manage fear and uncertainty. Mosher (1991), who examined hypermasculinity to explain violent men, suggested another relevant and related top-down social constructivist view. He suggested that men who commit sexual crimes developed an exaggerated masculine style as a result of a hegemony that provides motivation to control or dominate other men, women, the environment, and emotions. Social Dominance Orientation, a social contructivist theory, suggests that there are individual differences with regard preference for hierarchy within social systems. The Invariance Hypothesis, that everything being equal, men are pre-disposed to group-based hierarchy and score higher than women on social dominance (Sidanius & Pratto, 2003), suggests that Social Dominance Orientation is related to evolutionarily-derived male hierarchical ordering and cultural scripts. These two literatures are consistent with Jost et al (2003), suggesting that cultural hegemony affects individuals by contributing to the individual development of

dispositional traits supportive of violence or aggression, and additionally, by contributing to the context in which interpersonal violence is acceptable within the greater culture. Subjugation is learned and may be expressed in cultural institutions (Henry, Sidanius, Levin, & Pratto, 2005). Beaver, Gold, and Prisco (1992), found that depictions of a traditional American family, used as a control group in their experiment, unexpectedly primed emotions and hypermasculine judgments of a rape scenario, leading to speculation that perhaps culturally-based roles of gender-linked dominant and submissive members within a family support interpersonal aggression and violence against women.

The relationship between family members and expression of control over others has been a difficult concept to measure unless obvious abuse is present. Measurements of family power have a history of methodological difficulties due to problematic definitions and measurements of power and hierarchy (McDonald, 1980; Kahn & Meier, 2001; Shaw, Criss, Schonberg, & Beck, 2004). It is conceptually difficult, yet may benefit from a contextual examination using hierarchical frames as a fundamental unit of analysis. A fundamental task for this study was to design a methodology capable of looking at comparative, deictic, and hierarchical relational frames. The current methodology, using computer graphics and auditory programs, was designed to examine indirectly comparison, deictic, and hierarchy relations by creating metaphors depicting social interactions, including family dynamics, in order to provide an avenue for understanding power effects on emotion within social structures, and within individuals, that may be supportive of aggression as is suggested by Jost et al, 2003. Metaphors, which are consistent with Relational Frame Theory, were used to examine the overarching hypothesis that relationships of hierarchy and control, and transformation of their meaning to and from public to private events, elicit negative emotions.

Induction of mood in order to prime emotion was achieved with a metaphorical representation of a hierarchical-domination social context, graphically illustrated by a common children's play activity, "King of the Mountain." The emotional responses to this prime were compared to a metaphorical representation of egalitarian-cooperation, likewise graphically illustrated by a common children's play activity, "Clubhouse Building." After viewing the graphics, subjects were asked to process the relationships within the play activity involving "peers," and within their family dynamics in the context of the children's games. Children's games were chosen because theories of social play activity suggest that play functions as a means for practicing skills to prepare for adulthood, as a means to exercise as of yet underdeveloped physical and psychological features, and as a mechanism by which complex behaviors are performed that require synchronistic body and brain experiences in order to respond to fluctuating environments (Lewis, 2005; Siaw, Clark, & Fine, 1996). For example, there seems to be considerable quantitative evidence that Rough-and-Tumble (RT) games, such as King of the Mountain, are influenced by cultural values learned during the process of socialization (Fry, 2005). The role of construction play, Clubhouse Building, is prominent in the cognitive developmental literature and is more means oriented than ends oriented (Pellegrini & Gustafson, 2005). These types of imaginative play, presented in an anticipatory sense in both King of the Mountain and Clubhouse Building, are uncommon in the animal world but are frequent in studies of human children. It appears to be related to linguistic training in which symbolic codes are learned for relational understanding (Gomez & Martin-Andrade, 2005). Consistent with RFT, once-learned frames do not truly extinguish, and adults are likely to continue to sympathize and respond to representations of childhood activities. Hypotheses put forth in the present study are designed to predict support for a priming effect given presentations

of metaphors depicting hierarchy-domination and egalitarian-cooperation peer play activities. Five separate groups (control, King of the Mountain peer play activity, King of the Mountain family dynamic, Clubhouse Building peer play activity, and Clubhouse Building family dynamic) were tested to determine if priming effects were achieved.

Hypotheses

1. Among participants who viewed play activities only, without exposure to questions concerning their family functioning, a positive relationship was predicted between King of the Mountain and the facilitation of reaction times to negatively valent emotion (anger, sadness, anxiety) words relative to positive-emotion words (neutral, happy) words on the Lexical Decision Task (LDT) compared to Clubhouse Building and the Control group.
2. For participants who viewed play activities only, a positive relation was predicted between Clubhouse Building and the facilitation of reaction times on the Lexical Decision Task to positively valent emotion words relative to negatively valent emotion words as compared to the King of the Mountain group.
3. Participants in King of the Mountain group also were predicted to self-report or endorse a more negative mood in general as evidenced on the UWIST Mood Adjective Checklist (UMACL) as compared to participants in the other groups.
4. Participants in the Clubhouse Building condition also were predicted to self-report or endorse positive mood in general as evidenced on the Uwist Mood Adjective Checklist (UMACL) as compared to both King of the Mountain conditions (peer play activity and family dynamics).

5. Those students who were exposed to and who showed greater identification with the King of the Mountain family metaphor as representative of their family functioning, were predicted to show faster reaction times to negatively valent emotion-words on the Lexical Decision Task (LDT) and endorse a more negative mood on the Uwist Mood Adjective Checklist (UMACL) as compared to those who were exposed to and who showed greater identification with the Clubhouse Building family metaphor as representative of their family functioning.
6. Significant gender differences were anticipated, such that men would prefer King of the Mountain activities as evidenced by priming for positive emotion and reporting positive mood. Conversely, women would prefer Clubhouse Building activities as evidenced by priming for positive emotion and reporting mood.

3. Method

Participants

Male and female Auburn University college students (n = 389) who were taking psychology courses were recruited for the study. Participants received approximately one hour of extra credit in exchange for their participation. Those students who were less than 19-years old provided a signed student/parental consent form in order to participate. Students participated in the study outside of regularly scheduled classes during planned session times offered to them via the SONA System at Auburn University. Data from the initial fifty participants were corrupted by the computer program and rendered unreadable. Six additional cases were omitted because of participant error. For example, two participants attempted to move too quickly through the timed sequences by clicking randomly on the screen causing the system to crash. One participant terminated prematurely. Three other subjects answered questions randomly (approximately 50% accurate responding on LDT) as determined by analysis of the data sets, and their data was omitted from the analysis. The analysis was conducted using data from the remaining 333 subjects.

Procedures

Each participant was randomly assigned to one of five groups: The Control group (see Appendix C & F for control graphic and questions), King of the Mountain (Appendix B) or Clubhouse Building (Appendix A) without questions concerning family functioning, or King of the Mountain or Clubhouse Building with questions concerning family functioning. In other words, all students were exposed to either the Control or one of two play activities: King of the

Mountain, the hierarchical-domination metaphor, or Clubhouse Building, the egalitarian-cooperative metaphor (see Appendices D & E for peer play questions). The students in the family questions (see Appendix G for family questions) condition, whether King of the Mountain or Clubhouse Building, were asked to what extent their families were represented by the models presented prior to exposure to the Lexical Decision Task (LDT). The other three groups (the control, and the play activity groups) were presented with the experimental task after processing the play activities twice; it having been explained to them that their responses required verification.

The study was developed on an independent, closed website. In order to access it, a web browser, FireFox, was used. The site was designed with these web browser versions in mind: FireFox 2, Safari 3, and Internet Explorer 7. Apple QuickTime 7 was installed, JavaScript Enabled, Cookies Enabled, Screen resolution set to 1024 x 768 pixels, or greater, and headphones were used in order for subjects to hear sound. Computer requirements included 1.0GHz or faster processor, 512 MB RAM, Broadband Internet connection through on-campus, DSL, or Cable, and all other applications were closed, leaving only the web browser opened before beginning. Initially, it was thought that maintaining the study on a website might interfere with accurately recording Lexical Decision Task response times; however, this problem was investigated, and it was determined that the server only affected the response time by a few nanoseconds. This was estimated to introduce only about a 1% error. Participants also used Auburn University computers in one College of Liberal Arts lab during planned sessions to control for computer variables.

Students arrived at the testing location, and were assigned earphones and a computer with the introductory screen of the website visible. They were given written and oral instructions

about what to expect, and given an opportunity to decline participation in the study. Oral instructions included showing them how to adjust the earphones and to follow the oral and visual instructions presented during the website session without attempting to click ahead. They were asked to let the program direct and lead them through the study. Written instruction, animated graphics, and voice-over narratives assisted subjects with understanding the peer play activities and their participation tasks in general. At the bottom of many pages a radio button was visible that when selected advanced subjects to the following page. There were no reverse or "back" buttons, and subjects were instructed as such.

Upon signing onto the website by identifying their sex, an introductory page became visible with voice-over narratives and written explanations explaining the tasks to follow. In essence, it was explained that the subject would watch a children's game while listening to a voice-over narrative. Participants were instructed that the auditory narratives would be presented only once but the animated graphics would be available to them as needed throughout the initial part of the study. On the following page, mood induction began and continued until the Lexical Decision Task (LDT) was presented. Mood induction involved watching the graphics and answering questions about them and was timed at approximately eight minutes, consistent with prior research using the LDT (Ferraro, King, Ronning, Pekarski, & Risan, 2003). Subjects viewed a stationary graphic as the structure of the game (either King of the Mountain or Clubhouse Building) was explained. In the case of the Control condition, subjects were merely asked to observe colored circles as they moved across the screen in a rectangle. Then an animated graphic played six times as the auditory narratives described each "child's" play action, represented by a round colored circle interacting with other round colored circles within a geometric frame, either a rectangle (Control), a triangle (King of the Mountain), or a circle

(Clubhouse Building). When the auditory narratives and play activities of each "child" was completed, the graphic froze in a final order on the page as questions appeared at the bottom. The participants were provided a replay button in order to watch the play activities without narration while responding to relational questions about the game, or in the case of the Control, the colored circles, or family functioning questions, depending on the group to which they were randomly assigned.

Questions about the game were presented beneath the frozen graphic. Participants had the opportunity to observe the animated graphics as many times as necessary to decipher the activity and answer the questions. The purpose of the questions, which were part of the prime, was to further draw the subject into the game by processing more deeply the play activity as an observer, first by asking relevant and concrete questions about what was observed, and then by requiring the subject to endorse evaluative statements about the 'participants' in the game. The prime was timed to take at least eight minutes to be consistent with another study resulting in successful mood induction during which classical music was listened to for eight minutes prior to Lexical Decision Task experimentation (Clore, Ortony, & Foss, 1987; Ferraro, F. King, Ronning, Pekarski, Risan, 2003). Subjects proceeded to the following pages at their own speed and choice by clicking the "next" page button. Two fifths of the subjects were randomly directed to family questions as they related to the metaphors (KOM or CHB) they viewed prior to responding to the Lexical Decision Task (LDT). The other three fifths again answered the same questions with the explanation that their responses needed to be verified. All five groups were time-balanced and answered the same number of questions.

Those subjects who were given family questions initially were shown the frozen graphic (KOM or CHB) with auditory and written explanations suggesting that sometimes children's

games mimic real-life situations. They were then asked to what extent the metaphor represented their family. The following screens presented a series of questions, similar to the ones asked regarding the game, but that directly addressed the subject's status within the hierarchical/comparative frame of family functioning.

Measurements

Lexical Decision Task. After mood induction, subjects were directed to a page describing the first measure, the Lexical Decision Task (LDT). The LDT was comprised of 180 words and nonwords (see Appendix H for LDT words/nonwords). An initial selection of emotion words were obtained from 234 words empirically classified as affective conditions. Consistent with other LDT studies (Ferraro et al, 2003), the nonwords were derived by simply changing two letters of an emotionally laden or neutral word. Therefore, each emotion-laden word was matched to a corresponding nonword. The LDT included 15 anxious, 15 angry 15 sad, 30 happy/positive, 15 neutral, and 90 pseudo-words presented randomly, one at a time. Studies looking at the effects of emotion on lexical decision tasks have found that the LDT is sensitive to affect-induced happy, anxious, sad, and angry states (Ferraro et al, 2003; Fox, Knight, & Zelinski, 1998; Fox & Oakes, 1984).

Subjects were informed that the purpose of the task was to identify, as quickly as possible, whether or not each string of letters presented on the screen was either a word or non-word (Parrot, Zeichner, & Hoover, 2006). They indicated their choice by pressing the ''F'' (left index finger) for "yes" or the ''J'' (right index finger) key for "no," respectively, following the presentation of each string of letters. Subjects were administered ten practice trials (five words and five non-words) in which all word stimuli were neutral because response latencies tend to decrease over initial trials (Parrot et al, 2006). As with Parrot's and his colleague's (2006) study,

the onset of each trial was marked by a horizontally and vertically centered plus sign (+) that served as a visual fixation point. After 500 ms latency, a character string replaced the fixation point. The word or non-word disappeared after the subject responded or following a latency of 3,000 ms, whichever occurred first. This was followed by an inter-trial interval of 200 ms. Again, word stimuli were presented in a randomized fashion on the computer screen. Response times and error rates were collected automatically and stored in the SQL, Auburn University mainframe storage, for transformation and analysis at a later time. Previous studies have shown that participants who were sensitive to the mood induction respond to pseudowords more slowly than they do to emotion relevant words (Merikle & Reingold, 1990). Following this procedure, the Uwist Mood Adjective Checklist (UMACL) was employed to determine self-report of moods (Matthews, Jones, & Chamberlain, 1990).

Uwist Mood Adjective Checklist (UMACL). The UMACL measures three dimensions of energetic arousal, tense arousal, and hedonic tone/pleasure-displeasure statistically derived by factor analysis in studies conducted by Matthews, Jones, and Chamberlain (1990). In their studies, hedonic tone was associated with participants reporting whether or not they ascertained their inner experience as pleasant or unpleasant. Tense arousal was associated with participants reporting feeling anxious or not, and the energetic arousal dimension was most closely correlated with participants reporting levels of physical arousal. The experimental and correlational data observed in past studies have shown satisfactory reliability, and predictive and discriminative validity. The scales noted above appear to be distinct from personality traits and demographic variables (Matthews et al, 1990). However, notable small to moderate state-trait correlations have some theoretical significance such that participants who score high in trait anxiety tend to score higher on the UMACL tense arousal dimension which is identified as a mood state

measure. The measure has also shown to have clinical significance in demonstrating depressed (unpleasant hedonic tone with low energetic arousal) and anxious (high tense arousal) mood states. Each of the three factors is comprised of equal numbers of positively and negatively loaded items (see Appendix I for UMACL).

4. Results

This study examined whether processing metaphors primed emotion and/or mood, and whether or not personalizing the metaphor increased the priming effect. To this end, the Lexical Decision Task was chosen as the primary experimental dependent variable because in past studies it has shown affective sensitivity to environmental stimuli (Ferraro, 2003). In addition, the other dependent variable, the UWIST Mood Adjectives Checklist, was chosen as a self-report instrument that has been shown to have mood sensitivity in response to environmental stimuli (Matthews, 1999).

The results are presented in order from Hypothesis 1 through Hypothesis 5, and gender differences (Hypothesis 6) were examined within each of these analyses. Analyses included One-Way Analyses of Variance (ANOVA) and Multivariate Analyses of Variance (MANOVA) as needed using the statistical analysis program SPSS-PC. Independent variables were defined by each hypotheses and were specified with each analysis. The groups or conditions (metaphors) to which each participant was randomly assigned included: 1. Control with Colored Circles (CCC), 2. King of the Mountain (KOM); 3. KOM with questions about family functioning (KOMF); 4. Clubhouse Building (CHB); and 5. CHB with questions about family functioning (CHBF). In addition, those subjects in KOMF and CHBF, who considered the metaphors as representing their families were asked to what degree they endorsed the metaphors as representing their families, and their response to this query underpins the fifth hypothesis. The 5th hypothesis predicts that the more subjects endorse metaphors as representing their families, the more affect will be primed, and furthermore, that there will be notable differences between

the two groups metaphorically depicting family dynamics (KOMF and CHBF). In addition, the sixth hypothesis suggests gender differences, and data related to gender was extrapolated and reported to clarify some of the results when relevant.

In general, for each hypothesis the dependent variable, experiential emotion measured experimentally with the Lexical Decision Task (LDT) and dimensions of mood measured by subject self-report on the UWIST Mood Adjective Check List (UMACL), was tested to indicate whether or not exposure to the metaphors affected or primed emotion and or mood. Another variable that was deemed relevant to the metaphors, the degree to which the metaphors are perceived to resemble family functioning, was examined to determine if these factors also might contribute to a priming effect. With regard the LDT analysis, the mean of latency scores derived from a series of emotion-words was used as the primary measure. The 45 negative (15 anger, 15 sadness, 15 anxiety) word mean latency responses were summed for each subject, as were the 45 positive (30 happy, 15 neutral) word responses. The negative word mean latency responses were summed, as were the positive word responses. The difference between the two poles (positive minus negative) was calculated and used as the primary statistic for analysis. With regard the UMACL, three components of mood examined by a four-point Likert Scale were analyzed independently and in much the same way as the LDT: Hedonic Tone (pleasant versus unpleasant), Energetic Arousal (biological arousal versus lethargy), and Tense Arousal (tension versus calm). The difference between the two ratings within each component, for example pleasant and unpleasant within the Hedonic Tone factor, is determined and used as the statistic for analysis. Energetic arousal has been correlated in past studies to biological indices, and therefore, can be thought of as levels of physical arousal.

Hypothesis 1:

Among subjects who viewed play activities only, without exposure to questions concerning their family functioning, a positive relationship is predicted between King of the Mountain and the facilitation of reaction times to negative-emotion (anger, sadness, anxiety) words relative to positive-emotion words (neutral, happy) words on the Lexical Decision Task (LDT) compared to Clubhouse Building and the Control group.

Hypothesis 2:

For subjects who viewed play activities only, a positive relation was predicted between Clubhouse Building and the facilitation of reaction times on the Lexical Decision Task to positive-emotion words relative to negative-emotion words as compared to the King of the Mountain group.

The results from the LDT were examined for priming effects in all five groups: Colored Circles Control (CCC), King of the Mountain (KOM), representing goal-directed hierarchical-domination play activity, KOM-F in which the context of the KOM metaphor was transformed to represent subjects' families, Clubhouse building (CHB) group, representing goal-directed egalitarian-cooperation play activity, and CHB-F in which the context of the CHB metaphor was transformed to represent subjects' families. The means and standard errors for the first analysis are reported in Table 1. A Univariate Analysis of Variance was conducted and significance was found ($F = 2.78$; $p = .03$), suggesting that subjects' were emotionally primed given their group assignment. The strength of relationship between group assignment and metaphor exposure was not strong; however, with the factor only accounting for 3.3% of the variance of the dependent variable as evidenced by the partial eta squared.

Table 1
Means and Standard Error for Lexical Decision Task by Group

Group	N	Mean	Std. Error
Control (CCC)	62	-20.11	10.80
King of Mountain (KOM)	66	24.88	10.46
KOM – Family (KOM-F)	72	8.49	10.02
Clubhouse Building (CHB)	64	18.83	10.63
CHB – Family (CHB-F)	69	-1.25	10.23

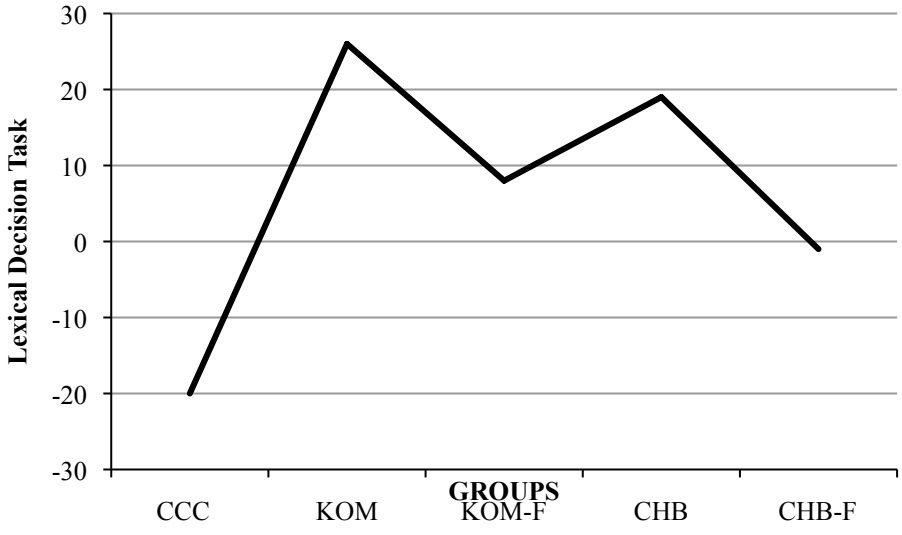
Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB- F = Clubhouse Building Family

Table 2
Univariate Analysis of Lexical Decision Task by Group

Dependent Variable	df	F	p	Eta Squared	Power
Positive – Negative Words	4	2.78	.027*	.033	.76

* Sig < .05

Figure 1
Estimated Marginal Means of Lexical Decision Task by Group



Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB-F= Clubhouse Building Family
Note: Elevations above zero indicate quicker responses to negatively valent emotion words

Because the overall F was significant, post hoc procedures assuming equal variances (Tukey & S-N-K) were conducted to evaluate specific differences among the means (Table 3). This analysis indicated there was a significant difference ($F = 2.78$, $p < .05$) in the means between the Control (CCC) group and the King of the Mountain (KOM) group as predicted in the first hypothesis. However, there was no evidence that the subjects in the Clubhouse Building (CHB) group responded more quickly to positive emotion words on the LDT. In fact, quite the contrary, the results from the less conservative Student-Newman-Keuls (S-N-K) posthoc test suggested that the subjects in the CHB group had a tendency to find negatively valent words more salient ($p = .05$) as compared to the Control group. Both family groups (KOM-F and CHB-F), in which the contexts were transformed from peer play activities to family dynamics, showed that subjects were not primed for more negative emotion as compared to their respective peer play groups. Therefore, students exposed to play activity demonstrating hierarchical domination (KOM) were primed for negative emotions (sad, anxiety, anger), but those exposed to the egalitarian cooperative (CHB) condition also showed some priming for negative emotion, though not as strongly as the KOM group. Although subjects in both family groups appeared emotionally reactive to the metaphors, their responses were not significant as compared to all the groups. Figure 1 shows that the Control group responded much more quickly to positively valent emotion words as compared to the other four conditions.

Table 3
Post Hoc Tests for Lexical Decision Task Comparing Control Group to All Other Groups

Groups Compared to Control	Mean Difference	Tukey	S-N-K
KOM	-45.00*	.025*	< .05*
KOM-F	-28.59	.298	n.s.
CHB	-38.93	.078	< .05*
CHB-F	-18.86	.711	n.s.

* Sig < .05

Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB-F= Clubhouse Building Family
Note: S-N-K = Student-Newman-Keuls

A Univariate Analysis of Variance was conducted to understand what contribution, if any, gender may have had on the results (Table 5). This analysis indicated significant main effects for Group ($F = 3.92$, $p < .01$) and Gender ($F = 6.34$, $p < .05$). The estimated marginal means for this analysis are reported in Table 4. A subsequent plot (Figure 2) was generated to illustrate the main effect for Gender, which appears to account for approximately 2% of the variance, with power remaining moderate. It shows that, across groups, men responded more quickly to positively valent emotion words and women more quickly to negatively valent emotion words.

Table 4
Means and Standard Error of Lexical Decision Task by Gender

Group	N	Mean	Std. Error
Female	232	14.08	5.51
Male	101	-11.29	8.43

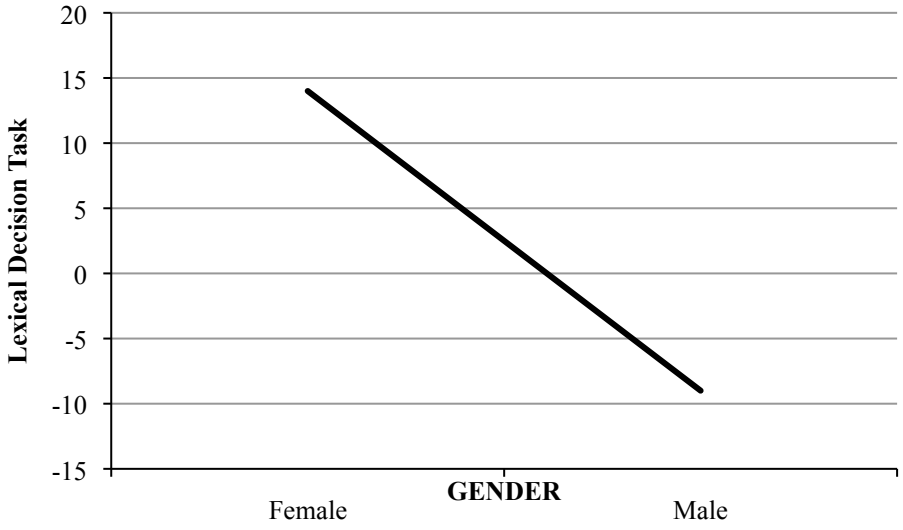
Note: Mean above zero indicates quicker responding to negatively valent emotion words

Table 5
Univariate Analysis of Lexical Decision Task by Group & Gender

Factor	df	F	p	Eta Squared	Power
Group	4	3.92	.004*	.046	.90
Gender	1	6.34	.012*	.019	.71
Group * Gender	4	1.88	.112	.023	.57

* Sig < .05

Figure 2
Lexical Decision Task Main Effect for Gender



Note: Across groups women responded more quickly to negative emotion words than men

Hypothesis 3:

Subjects in King of the Mountain group were also predicted to self-report or endorse a more negative mood, as evidenced on the UWIST Mood Adjective Checklist (UMACL), compared to those in the Clubhouse Building or Control groups.

Hypothesis 4:

Subjects in the Clubhouse Building condition were also predicted to self-report or endorse positive mood, as evidenced on the Uwist Mood Adjective Checklist (UMAC), compared to subjects in the King of the Mountain group.

Table 6

Estimated Marginal Means of Uwist Mood Adjective Checklist Factors (UMACL) by Group

Dependent Variable - UMACL	Mean	Std. Error
Hedonic Tone		
Control	4.92	.54
KOM	3.65	.52
KOM-F	4.76	.50
CHB	3.00	.53
CHB-F	4.15	.51
Tense Arousal		
Control	-3.90	.53
KOM	-2.76	.51
KOM-F	-2.35	.49
CHB	-1.67	.52
CHB-F	-3.10	.50
Energetic Arousal		
Control	-.27	4.67
KOM	-.87	3.87
KOM-F	.60	4.54
CHB	-.16	4.45
CHB-F	-.29	3.30

Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB-F= Clubhouse Building Family

Note: Dependent variable, Energetic Arousal, of the Uwist Mood Adjective Checklist shows large standard error

For these analyses, the UMACL results were examined for priming effects in the five groups: CCC, KOM, KOM-F, and CHB, and CHB-F. The means and standard deviations for this analysis that include the three dimensions of the UMACL, Hedonic Tone (HT), Tense Arousal (TA), and Energetic Arousal (EA) are reported in Table 6.

Univariate analyses were conducted (Table 7) for each of the factors of the dependent variable, UMACL, and significance was found for Tense Arousal ($F = 2.55$; $p < .05$). Subsequent post hoc testing (Tukey, S-N-K) indicated that the subjects in the CHB group, Clubhouse Building peer play activity, reported a significantly tenser mood than the Control (CCC). These results are contrary to the fourth hypothesis that CHB would endorse a more positive mood. There was no evidence that the KOM endorsed tense or dysphoric moods on the UMACL as compared to CHB or the Control. Figure 3 illustrates these results using estimated marginal means.

Table 7
Univariate Analysis of Uwist Mood Adjective Checklist (UMACL) by Group & Gender

Dependent Variable - UMACL	df	F	p	Eta Squared	Power
Hedonic Tone	4	2.30	.059	.027	.67
Tense Arousal	4	2.55	.039*	.030	.72
Energetic Arousal	4	1.08	.367	.013	.34

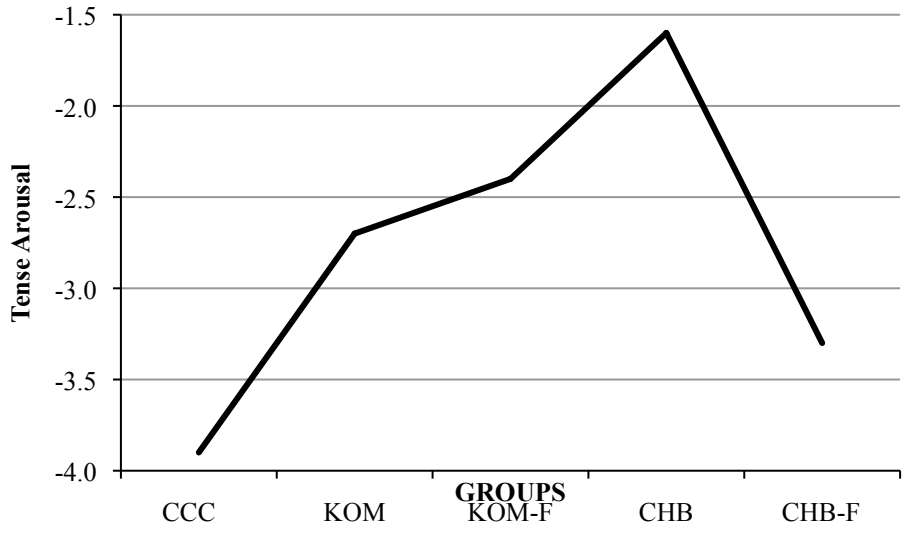
* Sig < .05

Table 8
Post Hoc Tests Uwist Mood Adjective Checklist by Groups

Tense Arousal	Mean Difference	Tukey
Control w/ CHB	-2.23	.022*

* Sig < .05
Note: CHB = Clubhouse Building

Figure 3
Uwist Mood Adjective Checklist - Tense Arousal by Group



Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB-F= Clubhouse Building Family
Note: Participants in Clubhouse Building group reported tenser moods as compared to Control (p = 04)

To further understand what other factors may have influenced these results, Univariate analyses for each factor of the UMACL dependent variable were conducted to understand the contribution of gender (Table 9). No significance was found for any of the UMACL factors at the .05 level with regard a main effect for Gender or Group by Gender interaction. Tense Arousal showed marginal significance for the main effect of Gender and Hedonic Tone showed marginal significance for a Group by Gender interaction shown in Table 9. Figure 4 and 5 illustrates these results. Figure 4 illustrates that women had a tendency to report more tension as compared to men although the results did not reach the .05 significance level. Figure 5 shows that in the KOM group, men had a tendency to report a less pleasant mood than women. Again this was only marginally significant (p = .10).

Table 9

Univariate Tests for Uwist Mood Adjective Checklist (UMACL) by Group & Gender

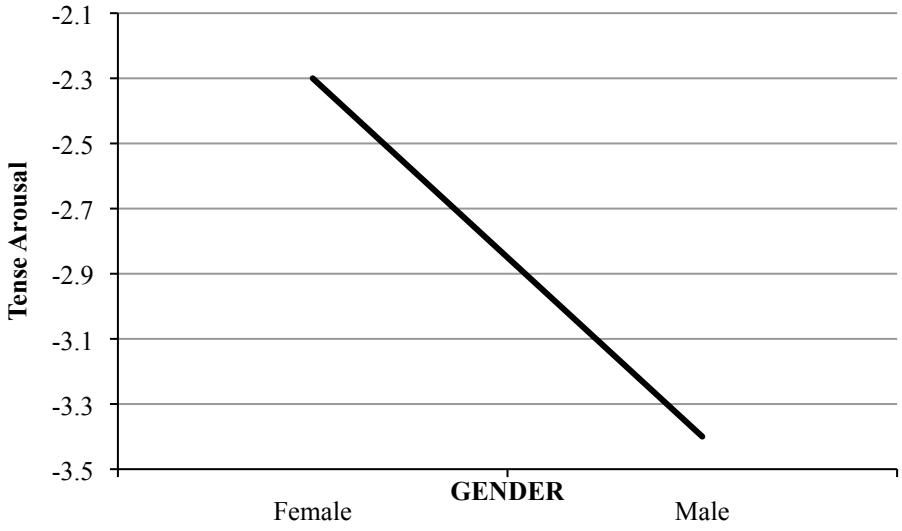
UMACL Factors	Factors	df	F	p	Eta Squared	Power
Hedonic Tone	**Gender**	1	0.45	.50	.00	.10
	Group * Gender	4	1.98	.10	.02	.59
Tense Arousal	**Gender**	1	3.43	.07	.01	.46
	Group * Gender	4	1.75	.14	.02	.53
Energetic Arousal	**Gender**	1	1.14	.29	.00	.19
	Group * Gender	4	0.50	.73	.01	.17

* Sig < .05

Note: Marginal significance indicated for Hedonic Tone by Group and Gender interaction (p = .10) and Tense Arousal by Gender main effect (p = .07)

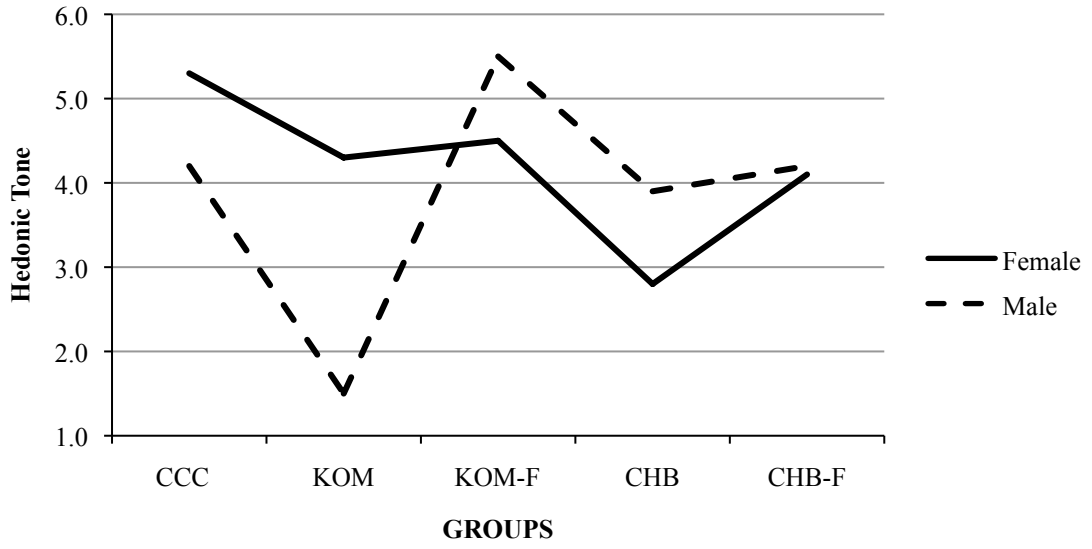
Figure 4

Uwist Mood Adjective Checklist - Tense Arousal by Gender (p = .07)



Note: Marginally significant result indicating women generally reported tenser moods as compared to men

Figure 5
Uwist Mood Adjective Checklist (UMACL) Hedonic Tone by Group & Gender



Note: KOM = King of the Mountain; KOM-F = King of the Mountain Family; CHB = Clubhouse Building; CHB-F= Clubhouse Building Family
Note: Figure illustrates marginally significant interaction between Group and Gender (.10) given dependent variable Hedonic Tone (pleasantness)
Note: Male participants in King of the Mountain group reported less pleasant moods

Hypothesis 5:

It is predicted that subjects in the peer play activity groups (i.e. CHB and KOM) and subjects in the family-related groups (i.e. CHB-F and KOM-F) will show significant differences in their emotional and mood responses as a result of the contextual transformation from a peer-related metaphor to a more personal, family-related metaphor. It is expected that affect and mood will be more negative in the King of the Mountain Family group as compared to the King of the Mountain peer group, and will be more positive in the Clubhouse Building Family group as compared to the Clubhouse Building group.

There was some evidence to support this hypothesis given the results previously reported. For example, subjects in the CHB group reported a tenser mood as compared to all other groups, including the Control and the CHB family group (Figure 3). The subjects in the King of the Mountain group were primed for more negative affect as compared to the Control. Generally, it appears that subjects in the peer play activity groups actually responded with more negative affect and mood than subjects in the respective family groups (Figure 1). It should be noted that the analysis revealed that the Energetic Arousal variances within the groups were not homogenous, as evidenced by Levene's Test of Equality of Error Variances ($p = .007$. A descriptive analysis indicated that the variance in the Clubhouse Building Family group was significantly smaller as compared to the other groups (Table 10).

Table 10
Variances of Uwist Mood Adjective Checklist (UMACL) Energetic Arousal by Group

Group	**Variance**	**Std. Error**
Control	21.84	.59
King of the Mountain	14.98	.48
King of the Mountain Family	20.61	.54
Clubhouse Building	19.82	.56
Clubhouse Building Family	10.86	.40

Note: Clubhouse Building Family group exhibited significantly less variance than other groups indicating source of nonhomogenous variance in groups

Hypothesis 6:

Those students who are exposed to and who indicate greater identification with the King of the Mountain - Family metaphor as representative of their family functioning, will show faster reaction times to negatively valent emotion-words on the Lexical Decision Task and endorse a more negative mood on the Uwist Mood Adjective Checklist as compared to those who are exposed to and indicate greater identification with the Clubhouse Building - Family metaphor as representative of their family functioning.

For these analyses, the latency of reaction times to negative emotion words in the Lexicon Decision Task were examined for priming effects in only the groups that were exposed to the family metaphors (CHB-F and KOM-F). Frequencies are shown in Table 11. Univariate analyses were conducted (Table 12) for each of the dependent variables, including the LDT and the factors of the UMACL. There did not appear to be any evidence to support the hypothesis that simply identifying with the metaphors as representing family dynamics primes emotions. Significance was found for Energetic Arousal indicating an interaction between Group and Family Identification ($F = 5.24$, $p = .02$). This analysis is primarily concerned with the affect of Family Identification and group assignment; therefore, a plot was generated to show this interaction (Figure 7). It illustrates that subjects in the King of the Mountain Family dynamic condition, who to a greater extent identified with the metaphor as representing their family, reported more energetic moods as compared to subjects in the Clubhouse Building Family dynamic who reported more lethargic moods or a lack of physical energy (Matthews, 1990). Low family identification with the metaphors as representing family dynamics did not show any

change in mood across either group. Means and Standard errors for the UMACL are shown in Table 13.

Table 11
Frequencies of Group and Family Identification

Factors	Levels	N
Family Identification	Low Identification	85
	High Identification	56
Group	King of the Mountain Family	72
	Clubhouse Building Family	69

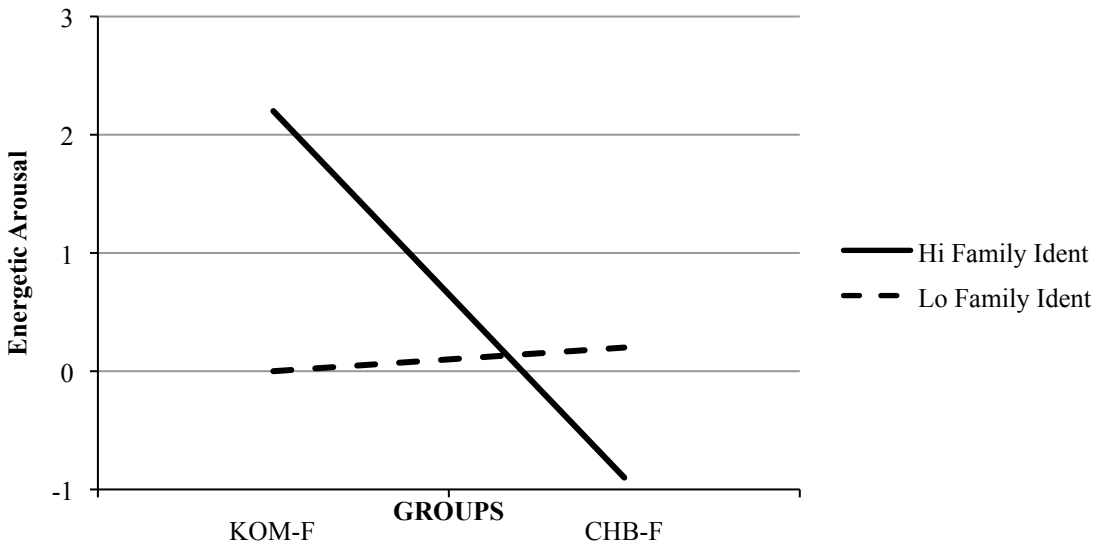
Table 12
Univariate Tests for Uwist Mood Adjective Checklist (UMACL) by Group, Family Identification, and Gender

Dependent Variables	Factors	df	F	p	Eta Squared	Power
Lexical Decision Task	Group	1	0.01	.59	.00	.09
	Family Identification (FI)	1	0.25	.62	.00	.05
	FI* Group	1	0.25	.62	.00	.08
Hedonic Tone	Group	1	0.93	.34	.01	.16
	Family Identification (FI)	1	0.14	.71	.00	.07
	FI* Group	1	1.25	.27	.01	.20
Tense Arousal	Group	1	2.81	.10	.02	.38
	Family Identification (FI)	1	2.49	.12	.02	.35
	FI* Group	1	0.76	.39	.01	.14
Energetic Arousal	Group	1	3.68	.06	.03	.48
	Family Identification (FI)	1	0.54	.46	.01	.11
	FI* Group	1	5.24	*.02	.04	.62

* Sig < .05
Note: FI = Family Identification (the level to which participants indicated that the metaphor represented their family functioning
Note: Marginal significance indicated for Tense Arousal by Group main effect (p = .10) and Energetic Arousal by Group main effect (p = .06)

Figure 6

Uwist Mood Adjective Checklist (UMACL) Energetic Arousal by Group & Family Identification



* Sig < .05

Note: KOM-F = King of the Mountain Family; CHB-F = Clubhouse Building Family

Note: FI = Family Identification (the level to which participants indicated that the metaphor represented their family functioning

Note: Elevations indicate energetic mood, correlated with physical energy in past research, Matthews, G., Jones, D., & Chamberlain, A. (1990). Refining the measurement of mood: The UWIST Mood Adjective Checklist. British Journal of Psychology, 81, 17-42

Table 13
Estimated Marginal Means for Uwist Mood Adjective Checklist by King of the Mountain Family and Clubhouse Building Family Groups & Family Identification

Dependent Variables	Level of Family Identification	Group	MEAN	Std. Error
Hedonic Tone	Low FI	KOM-F	5.18	0.69
		CHB-F	4.44	0.94
	High FI	KOM-F	5.33	1.15
		CHB-F	3.56	0.77
Tense Arousal	Low FI	KOM-F	-3.12	0.69
		CHB-F	-2.72	0.95
	High FI	KOM-F	-2.12	0.79
		CHB-F	-4.04	0.82
Energetic Arousal	Low FI	KOM-F	0.21	0.67
		CHB-F	0.56	0.92
	High FI	KOM-F	-0.19	0.77
		CHB-F	-0.38	0.80

Note: KOM-F = King of the Mountain Family; CHB-F = Clubhouse Building Family
Note: FI = Family Identification (the level to which participants reported the metaphor represented their families)

To further understand if gender may have influenced these results, univariate analyses were conducted for each dependent variable, including the LDT and three dimensions of the UMACL (Table 14). None were significant with the exception of Tense Arousal which showed significant main effects for Group ($F = 5.29$, $p = .02$) and Gender ($F = 9.05$, $p < .01$). The effects are illustrated in Figures 8 and 9.

Table 14

Univariate Tests for Uwist Mood Adjective Checklist (UMACL) by Group, Family Identification, and Gender

Dependent Variables	Factors	df	F	p	Eta Squared	Power
Lexical Decision Task	Group	1	0.53	.47	.00	.11
	Gender	1	1.45	.24	.01	.22
	Group * Gender	1	1.62	.21	.01	.24
	Gender * FI	1	1.62	.21	.01	.24
	Gender * FI * Group	1	.024	.89	.00	.05
Hedonic Tone	Group	1	.93	.34	.01	.16
	Gender	1	.50	.48	.00	.11
	Group * Gender	1	.56	.45	.00	.12
	Gender * FI	1	.02	.90	.00	.05
	Gender * FI * Group	1	.30	.59	.00	.08
Tense Arousal	Gender * FI	1	.02	.90	.00	.05
	Gender * FI * Group	1	.30	.59	.00	.08
	Group	1	5.29	.02*	.04	.63
	Gender	1	9.05	.00*	.06	.88
	Group * Gender	1	.31	.58	.00	.09
Energetic Arousal	Group	1	3.0	.09	.02	.41
	Gender	1	1.25	.27	.01	.20
	Group * Gender	1	.34	.56	.00	.09
	Gender * FI	1	.43	.52	.00	.10
	Gender * FI * Group	1	.29	.59	.00	.08

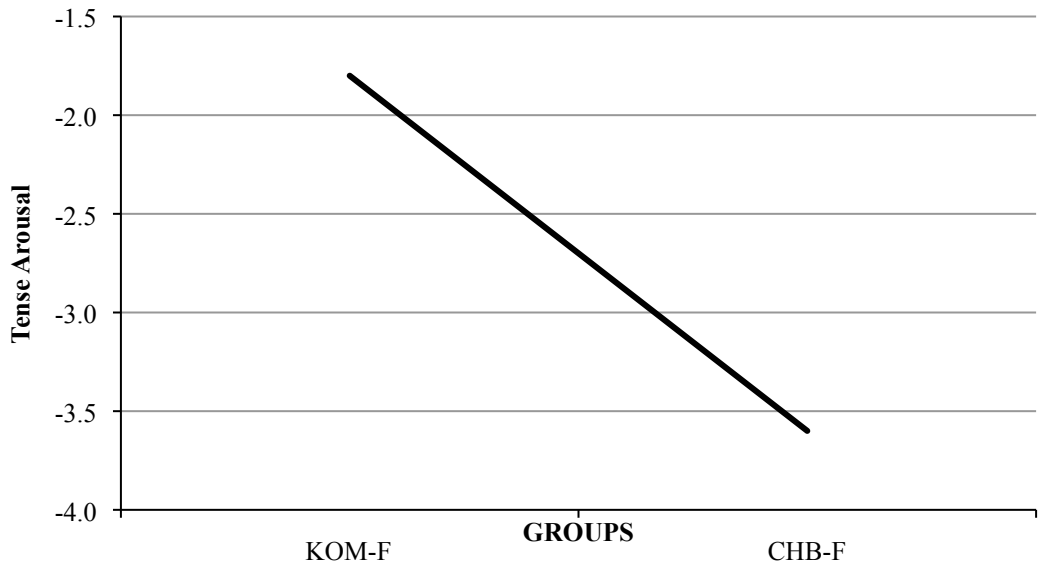
* Sig < .05

Note: FI = Family Identification (the level to which participants indicated that the metaphor represented their family functioning

Note: Marginal significance indicated for Energetic Arousal by Group main effect (p = .09)

Figure 7

Uwist Mood Adjective Checklist (UMACL) Tense Arousal by King of the Mountain Family and Clubhouse Building Groups

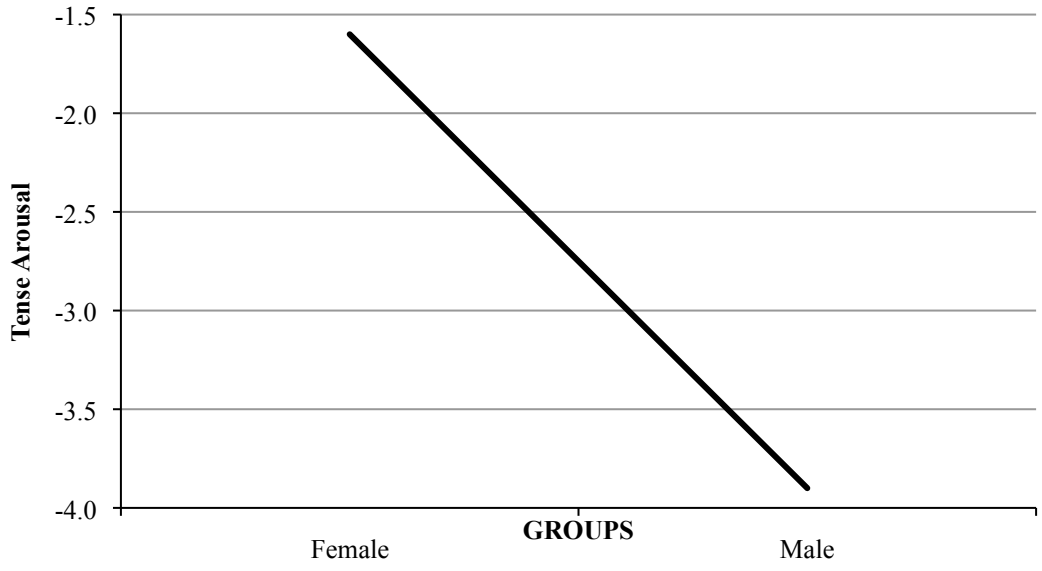


Note: KOM-F = King of the Mountain Family; CHB-F = Clubhouse Building Family

Note: Participants in the King of the Mountain Family group reported tenser moods as compared to those in the Clubhouse Building Family group

Figure 8

Uwist Mood Adjective Checklist (UMACL) Tense Arousal by Gender



Note: In the family groups, women reported tenser moods than men

Figure 8 illustrates that subjects generally reported a more tense mood if they were in the King of the Mountain Family group than if they were in the Clubhouse Building Family group. Figure 9 illustrates that women reported a tenser mood across both family groups as compared to men.

Summary of Results

Given the complexity of the results, they were tabulated for clarification. Table 15 reflects results from all five conditions: 1. Control (CCC), 2. King of the Mountain peer context (KOM), 3. King of the Mountain family context (KOM-F), 4. Clubhouse Building peer context (CHB), and 5. Clubhouse Building family context (CHB-F). Results show that participants in the Control group reported calm moods and were primed for positive affect, men more so than women. Although only marginally significant, participants reported pleasurable moods, and this is consistent with the other findings of low tension and positive affect. Participants in the King of the Mountain group, that depicted a peer play activity based on a hierarchical struggle for domination, were primed for negative emotion, consistent with the first hypothesis. Gender differences emerged such that women tended to report a more pleasurable mood as compared to men; however, again, this result was only marginally significant. With regard the King of the Mountain -Family group in which participants were asked to consider the metaphor as possibly representing their family functioning, participants reported tense moods. Participants who indicated strong identification with the metaphor as representative of their family functioning, reported feeling energetic as compared to participants who indicated strong identification with the Clubhouse Building Family metaphor as representative of their family functioning. Participants in that group reported feeling physically lethargic.

Table 15 **Summary of Results**

Dependent Variables	Gender	CCC Factor	KOM Factor	KOM-F Factor	CHB Factor	CHB-F Factor
Lexical Decision Task (LDT)	LDT	**Positive**	**Negative**		**Negative**	***LoFI + HiPP = Positive***
						LoFI + LoPP = Negative
	Female **-**					
	Male **+**					
Hedonic Tone (HT)	HT	*Hi HT*			*Lo HT*	
	Female		*Hi HT*			
	Male		*Lo HT*			
Tense Arousal (TA)	TA	**Low TA**		**Hi TA**	**Hi TA**	**Lo TA**
	Female**+**					
	Male **-**					
Energetic Arousal (EA)	EA			**Hi FI/Hi EA**		**Hi FI/Lo EA**
	Female Male					

Bold = statistically significant in the current study
Italics & Bold = Significant Future Directions
Italics = marginally significant Future Directions

.06 – Women tend to reported more tense moods across all groups as compared to men
< .05 - Women tend to be primed more for negative emotions across all groups as compared to men

With regard to the Clubhouse Building group, that depicted an egalitarian cooperative play activity in which peers worked together to construct a shelter, subjects reported tense moods and were primed for negative affect, similar to participants in the King of the Mountain play activity. Though only marginally significant, they also reported less pleasant moods. With regard the Clubhouse Building Family group in which participants were asked to consider the metaphor as possibly representing their family functioning, participants reported calm moods. Participants, who indicated strong identification with the metaphor as representative of their

family functioning, reported feeling lethargic as compared to participants who indicated strong identification with the King of the Mountain Family metaphor as representative of their family functioning, who reported feeling energetic.

5. Discussion

The present study attempted to create an experimental methodology with which to test predictions based on Relational Frame Theory (RFT). The theory is a relatively recent cognitive-behavioral perspective that offers unique explanations for complex human phenomena. It is based on the assumption that human behavior is influenced by arbitrarily derived verbal conceptualizations that are in fact learned mutual relations from events (Hayes, et al, 2001). Over time these relations multiply, primarily due to the arbitrarily derived nature of human language, and are formed and integrated into complex networks that include associated emotions. In this study, cultural constructs, in the form of a metaphor, that are supportive of control and domination, are the contextual factors within which networks of other relations reside. For example, hierarchical, deictic, and comparative relations operate within as participants order the environment, conceptualize self in relation to the environment and, in so doing, compare and evaluate self and others. In social contexts of power struggle or cooperation, it was predicated that this process shapes moods and elicits emotions, positive or negative depending on the participant's history and the environmental context. Additionally, it was predicted that emotional arousal, positive or negative, would increase given personalization of the context. For example, the more a participant identified with the context, in this study, identifying with the metaphor as representing their family of origin dynamics, the greater mood would be affected and emotion would be primed. This was the first study of this type that attempted to demonstrate mood change and emotional priming using metaphor for purposes of contextual transformation consistent with Relational Frame Theory.

There was evidence to support the assumption that systematically processing relations within metaphors representative of social constructs primed emotion, though not always in the direction hypothesized. Thus, when participants relationally processed a peer-related social activity in the context of hierarchy achieved through domination it was an unpleasant experience and primed negative emotions as hypothesized. However, the other peer-related social activity that was designed by the researcher to be a socially comfortable context of equality and cooperation in the pursuit of a shared goal also was primed for negative emotion and subjects reported tense moods. While this finding was unexpected, it was noted that several participants at post-test made emotionally charged comments suggesting they processed the metaphor similarly to the King of the Mountain activity, by comparing and negatively evaluating the colored circles that represented children playing. For example, one male participant stated, "I was so mad at that purple one. He let everyone else do the work." In other words, the participant had reified the colored circles as encouraged in the mood induction, processed by comparative, deictic, and hierarchical frames, appraised according to his learned values, and as a result his emotional network was also triggered, though not in the direction hypothesized. The researcher, as part of the context, assumed the metaphor was representative of egalitarian ideals of cooperation that would be experienced as pleasant based on past research indicating that cooperative, goal oriented activities enhanced subjective well-being and group cohesion (Thye, Yoon, & Lawler, 2001). This was not the case, however, which leads to some speculation. It may be that, as previously suggested, culturally determined values that support attitudes of hegemony, for example, objectification by negative social evaluation, are significantly embedded and the threshold for expression when triggered is low. As previously speculated, these results may suggest that there is a negative feedback loop that feeds such systems, possibly as a result of

mutual entailment. If a participant espouses negative evaluations of others, bidirectionality would suggest that the evaluation be reflected in the self (self-other a deictic relational frame). In other words, the judgment is reflected back to the one doing the judging, creating an emotional event of self-judgment in addition to other-judgment.

There was evidence to support the thesis that personalizing the metaphor would affect emotion or mood. However, the results again were not in the direction proposed. For example, participants reported more tense moods in the peer-related group designed to replicate cooperative-egalitarian dynamics as compared to participants exposed to the same metaphor but contextually altered to represent participants' families; the opposite of the expected result. Whereas this evidence suggests contextual control of inner experience by exposure to metaphor; however, as stated, participants in the family group experienced the metaphor as more relaxing when it was personalized. This is consistent with literature suggesting that sheer repetition of experiences leads to familiarity and greater liking and preference for the familiar thing (Maslow, 1937; Montague, 2001; Zajonc, 2004). This would explain participants' lifting of affective experience following exposure to a metaphor that they must identify as representing their family, even though the actual dynamic remains the same as that representing peer dynamics. Considerable research has affirmed that mere repeated exposure to an experience can in and of itself manifest positive affect. Perhaps this result is also consistent with Jost, et al (2003) such that even though a family dynamic may be difficult, through repetition it not only becomes familiar but predictable. Predictability lessens uncertainty and anxiety.

Finally, it was predicted that identification with the family metaphors would mediate emotion and mood such that the more subjects endorsed the metaphors as representing their families, the greater would be their emotional reactivity depending on the context, whether

participants were in the group exposed to the metaphor representing a family power struggle or representing family cooperation in service of a shared goal. The evidence suggested that the more participants identified with the hierarchical-domination metaphor representing their family, the more they reported energetic moods. In essence, they were physically stirred and energized, suggesting a visceral preparatory response. In the metaphor suggesting family cooperation, participants reported lethargic moods, which suggest an automatic reluctance or avoidance response.

Limitations

Although there were several significant results in this study, there are also several limitations that should be noted prior to generalizing to the greater population or before drawing conclusions about the importance of the results. The sample was drawn from a population of college students located in the Southeast that is likely to exhibit age- and culture-related biases. For example, some of the students reside with their families, or at least are not independent of their family's financial support, returning home between semesters. This may make the family metaphors more poignant and therefore emotionally reactive to the exposures. The South is also recognized as a traditional and conservative part of the United States that may be reactive according to their cultural inculcation, and students in other parts of the country or in other cultures may not respond in like manner.

There were some methodological difficulties. In designing graphics, specifically the graphics that represented the children's games/metaphors (King of the Mountain and Clubhouse Building) the colored disks that were used to represent people, either children or adults, changed, although only slightly, in size and shape as they interacted on the screen. Although the sizes and shapes corresponded to the activity, and initially was designed to enhance mood induction, it

may have resulted in confusing relational variables. For example, the hierarchical domination peer activity/metaphor (King of the Mountain) presented several visual cues: a triangle, the aggressive nature of interaction, and the hierarchical display of colored balls. In addition, some of the balls expanded in size as they flattened when hitting or responded to being hit, and as they recovered from these actions. In this way size and shape became variables (big-small, flat-round), and although consistent with Relational Frame Theory, future studies may want to be aware of such variables in order to more finely tune the exposure. In addition, following the exposure, relational questions were asked (first-last, up-down, etc.), prior to asking evaluative questions (good-bad, succeed-fail, etc.). Future studies may benefit from including a measure of emotion prior to evaluative questions in order to monitor procedures and outcomes more closely.

An interesting result that is difficult to understand indicates that men in the Control group appeared to be primed for positive affect. Therefore, the Control group activity may have been too entertaining or in some way appealed to men more than women. As the Control was designed to represent a neutral event, this was an unexpected result and if this study were undertaken again, redesigning the Control activity may be beneficial.

Future Directions

Relational Frame Theory (RFT) and the psychotherapies that are associated with it, provides for a useful framework with which to examine the dynamics of aggression. This study was a first attempt to investigate attitudes of domination or control that are are related to aggression by measuring emotional responses using metaphors, or frames within frames. Relational Frame Theory offers rationale for this approach as emotion is connected to learned networks or cognitive frames, and is a powerful behavioral motivator. The psychotherapies associated with RFT offer a useful approach to address difficult emotions, maladaptive thinking,

and aggressive behaviors that appear to be easily translatable to areas such as staff and family education. It is hoped that the data obtained in this study will illuminate connections between aggressive cultural ideologies and individual differences in interpersonally intimate social structures.

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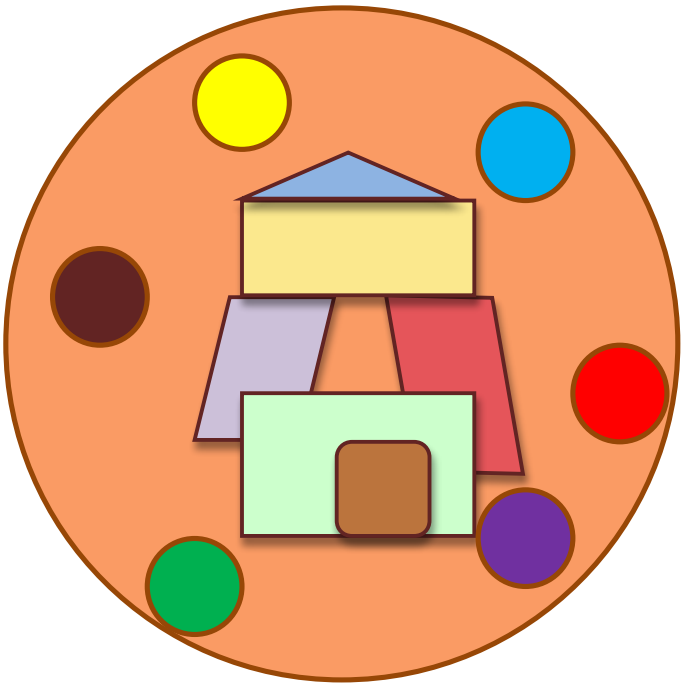
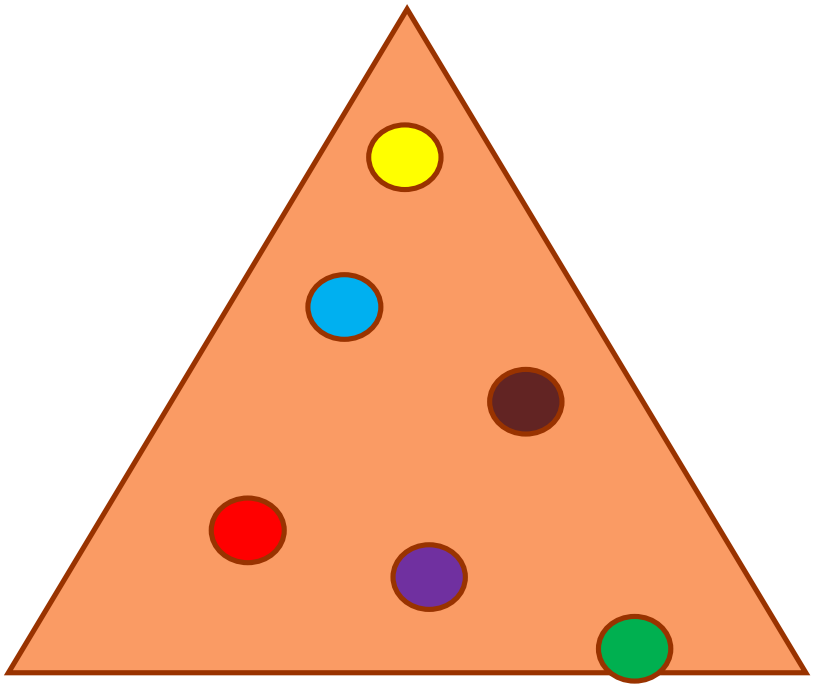
Appendix A

"Clubhouse Building"
Egalitarian Cooperation



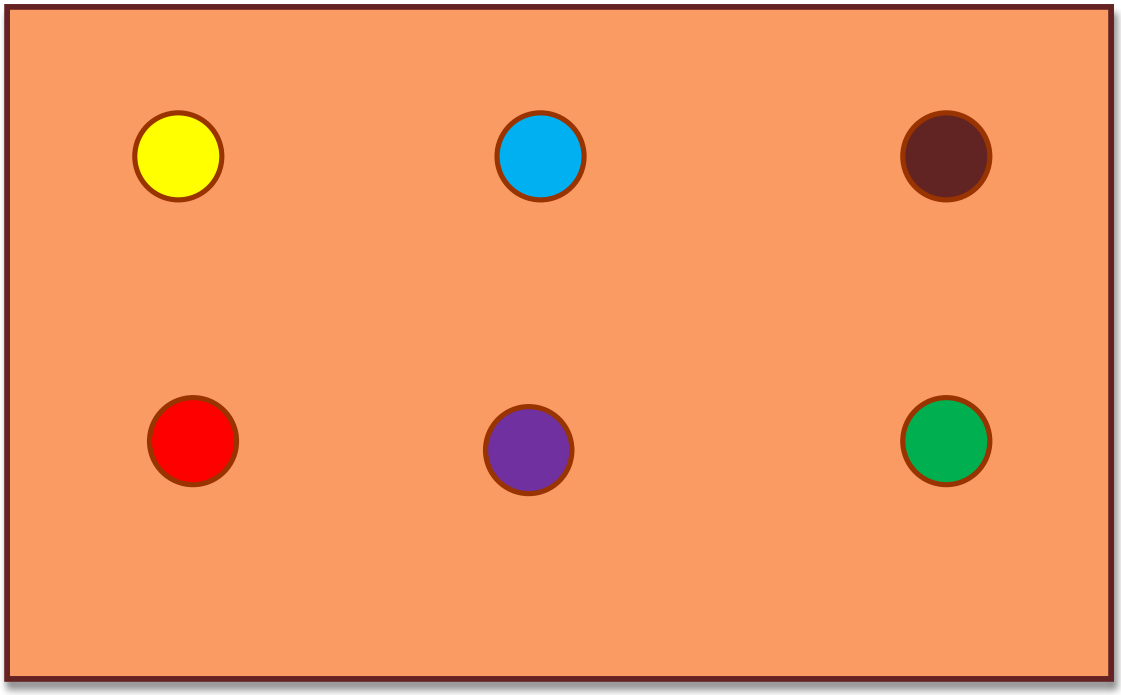
Appendix B

"King of the Mountain"
Hierarchical Domination



Appendix C

Control Group



Appendix D

Clubhouse Building Peer Play Questions

Directions: Once you understand the object of the game and the play action of the various participants, please respond to the following statements by clicking the box that most closely agrees with your observations or opinions. Click on the "replay" button at any time you wish to view the action again. Respond to every question as accurately as possible whether or not you find it too easy or too difficult. Please do not choose an answer because it seems like the "right thing to say." Even though there are no right or wrong answers, do not answer randomly. Remember that your answers are completely anonymous.

1. I have heard of this play activity before – yes/no
2. I have played this game as a child – yes/no
3. There are six participants in the game – yes/no
4. By the end of the game, purple is next to – red/green
5. By the end of the game, brown is closer to – blue/red
6. By the end of the game, blue is next to – red/yellow
7. During the play action, brown was more active than – red/yellow
8. During the play action, red's performance is most similar to – yellow/purple
9. During the play action, brown's performance was most similar to – purple/blue
10. During the play action, yellow's performance was the opposite of – brown/green
11. Blue worked with brown and therefore – succeeded/did not succeed
12. Red is helped by blue and is therefore – better/not better
13. Brown assisted yellow and compared to the others – failed/did not fail
14. Green received the most help and therefore – dominated/did not dominate
15. Yellow and green were – equal/not equal
16. Blue and brown were – deserving/not deserving
17. Blue received help from yellow and is therefore – equal/not equal
18. Yellow helped because others were – interdependent/not interdependent
19. Brown helped green and is therefore – failed/did not fail
20. Purple received help and is therefore – deserving/not deserving
21. Red was – helpful/not helpful
22. In general, green was deserving/not deserving
23. Compared to others, red – succeeded/did not succeed
24. Compared to others, purple was – interdependent/not interdependent

Appendix E

King of Mountain Peer Play Questions

Directions: Once you understand the object of the game and the play action of the various participants, please respond to the following statements by clicking the box that most closely agrees with your observations or opinions. Click on the "replay" button at any time you wish to view the action again. Respond to every question as accurately as possible whether or not you find it too easy or too difficult. Please do not choose an answer because it seems like the "right thing to say." Even though there are no right or wrong answers, do not answer randomly. Remember that your answers are completely anonymous.

1. I have heard of this play activity before – yes/no
2. I have played this game as a child – yes/no
3. There are six participants in the game – yes/no
4. By the end of the game, purple is lower than – red/green
5. By the end of the game, brown is higher than – blue/red
6. By the end of the game, blue is next to – red/yellow
7. During the play action, brown was more active than – red/yellow
8. During the play action, red's performance is most similar to – green/purple
9. During the play action, brown's performance was most similar to – red/blue
10. During the play action, yellow's performance was the opposite of – brown/green
11. Blue higher than brown and therefore – succeeded/did not succeed
12. Red is lower than blue and is therefore – better/not better
13. Brown is near blue and compared to the others – failed/did not fail
14. Green is the lowest because green was – dominated/did not dominate
15. Yellow and green are – equal/not equal
16. Blue and yellow were – interdependent/not interdependent
17. Blue is lower than yellow and is therefore – dominated/not dominated
18. Yellow is the highest because others were – deserving/not deserving
19. Brown is higher than green and is therefore – better/not better
20. Green is the lowest and is therefore – deserving/not deserving
21. Compared to others, purple was – equal/not equal
22. In general, red was -- independent/not independent
23. Compared to others, red – succeeded/did not succeed
24. Compared to others, purple – failed/did not fail

Appendix F

Control Questions (repeated twice)

Directions: Once you feel familiar with the actions of the colored circles, please respond to the following statements by checking the box that most closely agrees with your observations or opinions. You may also click the "replay" button at any time you wish to view the action again. Respond to every question or statement as accurately as possible whether or not you find it too easy or too difficult. Please do not choose an answer because it seems like the "right thing to say." Even though there are no right or wrong answers, do not answer randomly. Remember that your answers are completely anonymous.

1. There are six colored circles -- yes/no
2. By the end of the action, red is below – blue/yellow
3. By the end of the action, purple is adjacent to – red/brown
4. By the end of the action, brown is closer to – blue/red
5. By the end of the action, blue is adjacent to – red/yellow
6.. By the end of the action, green is to the right of – purple/brown
7. Most of the time, the circles moved – erratically/in unison
8. Sometimes the circles appeared to move at – different speeds/same speed
9. The color that moved onto the rectangle first was – green/blue
10. The color that moved into the rectangle last was – blue/red
11. The number of circles in each column is – 3/2
12. The number of circles in each row is – 2/3
13. The number of primary colors represented is – 3/2
14. The rectangle is – white/orange
15. Purple is most similar in color to – red/brown
16. Blue is brighter than – yellow/purple
17. Yellow is related by color to – purple/green
18. Red is brighter than – purple/yellow
19. Purple is brighter than – brown/yellow
20. Yellow and purple are – equal/not equal
21. Compared to the others, brown is – darker/not darker
22. Compared to blue, green is on the – left/right
23. Yellow is on the – bottom/top
24. Red is on the – bottom/top

Appendix G

Examples of Family Questions

Initial question:
Which of the circles illustrated above BEST represents your FATHER or father figure (subsequent question substitutions: mother, sibling closest in age, participant) when this dynamic was occurring in your family? – Yellow/Blue/Brown/Red/Purple/Green/Not Applicable Because I don't Have a Father Figure/Not Applicable Because This Metaphor Does Not Represent My Family

King of the Mountain Family Questions:
1. During these family situations, my Father or father figure – Dominated/Did Not Dominate/Not Applicable (NA)
2. During these family situations, my father – Failed/Did not fail/NA
3. Compared to others in my family, my father or father figure was – Equal/Not Equal/NA
4. Compared to others in my family, my father or father figure was – Independent/Not Independent/NA
5. The outcome of this family dynamic for my father was – Deserved/Not Deserved/NA

Clubhouse Building Family Questions:
1. During these family situations, my father was – Valued/Not Valued/NA
2. During these family situations, my father – Failed/Did not fail/NA
3. Compared to others in my family, my father was – Equal/Not Equal/NA
4. Compared to others in my family, my father's performance was – Interdependent/Not Interdependent/NA
5. The outcome of this family dynamic for my father was – Deserved/Not Deserved/NA

Appendix H

Lexical Decision Task Words/Nonwords

PRACTICE	ITEMS	Nonwords
bottle		sottle
strainer		straiver
cans		cafs
thermos		therkos
grater		frater

Anger	Nonwords	Sad	Nonwords	Anxious	Nonwords
contempt	cortempt	ashamed	ashared	afraid	afraik
anger	unger	depressed	deplessed	alarmed	alarped
bitter	bittex	glum	glur	anxious	anbious
envy	onvy	grief	glief	dread	kread
fed up	ked ut	heartbroken	heastbroken	embarrassed	embaggassed
frustration	brustration	hurt	hust	fear	feaz
furious	forious	lonely	ponely	guilt	wuilt
hate	jate	miserable	miverable	nervous	nerkous
hostile	tostile	remorse	retorse	overwhelmed	overchelmed
irritated	illitated	sad	yad	panic	pinic
jealous	pealous	sadness	savness	scared	scazed
mad	mak	self-pity	salf-gity	terrified	teggified
pissed off	rissed uff	sorrow	soppow	threatened	whreatened
rage	vage	suffering	suggering	uneasy	upeasy
resentment	regentment	unhappy	untappy	worried	jorried

Happy	Nonwords	Happy	Nonwords	Neutral	Nonwords
affection	affoction	cheered	cheeded	engine	endine
amused	amised	cheerful	wheerful	fork	forb
ecstasy	ecstaky	comfortable	comtortable	format	furmat
elation	enation	compassion	comhassion	wire	wime
enjoyment	entoiment	compassionate	comparrionate	import	imtort
fond	gond	content	cortent	lighter	kighter
happiness	harriness	delighted	deloghted	mammal	mammar
happy	huppy	enthusiasm	enthosiasm	membrane	menbrane
intimate	intomate	euphoria	eushoria	microwave	mecrowave
joy	noy	gleeful	bleeful	outline	autline
joyful	doyful	hope	hobe	panel	wanel
loving	lobing	jubilant	cubilant	planet	pranet
merry	serry	lighthearted	lightheanted	pocket	pocken
optimistic	ortimistic	love	loce	poster	pocter
pleased	preased	pleasure	fleasure	yard	yart

Appendix I

UMACL Words

Measurement of Mood – UMACL

Factor	Positively-Loaded Adjective	Negative –Loaded Adjective
Hedonic Tone (HT)	Cheerful	Dissatisfied
	Contented	Depressed
	Satisfied	Sad
	Happy	Sorry
Tense Arousal (TA)	Anxious	Calm
	Jittery	Relaxed
	Tense	Composed
	Nervous	Restful
Energetic Arousal (EA)	Active	Unenterprising
	Energetic	Sluggish
	Alert	Tired
	Vigorous	Passive
Anger Factor (AF)		Impatient
		Annoyed
		Angry
		Irritated
		Grouchy