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Forgiving Warriors: Does Outgroup Threat Reduce Ingroup Aggression Among Males?

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FORGIVING WARRIORS: DOES OUTGROUP THREAT REDUCE INGROUP AGGRESSION AMONG MALES?

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
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By

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ABSTRACT OF THESIS

FORGIVING WARRIORS: DOES OUTGROUP THREAT REDUCE INGROUP AGGRESSION AMONG MALES?

In order to defend against outgroups, males and females respond to outgroup threat with different strategies. Specifically, males have been shown to respond to outgroup threat with increased ingroup solidarity and cooperation which is likely reflective of their ancestral role as warriors. What remains unknown is whether this cooperative warrior mindset among males not only increases ingroup prosociality, but also decreases ingroup aggression. Aggression against ingroup members under outgroup threat would likely disadvantage the ingroup by reducing the ingroup's collective formidability. Further, prosocial motivations inhibit aggression. As such, I hypothesized that sex and outgroup threat would interact such that males, but not females, would respond to outgroup threat with reduced aggression towards ingroup members. To test this hypothesis, 41 male and 60 female participants were induced to either feel outgroup threat or no threat. All participants were then provoked by an ingroup member and then given a chance to aggress against that individual. Failing to support my hypothesis, outgroup threat did not interact with sex to predict aggression against ingroup members. This interactive effect was not further moderated by personality factors relevant to aggression. I discuss my findings in context of statistical power and the punishment of deviant ingroup members.

KEYWORDS: Aggression, Outgroup Threat, Sex Differences, Evolution, Males

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Chapter One: Introduction

We few, we happy few, we band of brothers;

For he to-day that sheds blood with me

Shall be my brother; be he ne'er so vile

-*Henry V*, William Shakespeare

Competition between groups is part of human nature. Indeed, intergroup conflict has been a pervasive aspect of human life across my evolutionary history. To adaptively respond to the threats posed by outgroups humans have evolved a complex suite of psychological and behavioral responses to fend off my rivals. A growing body of literature has demonstrated that these responses to outgroup threat differ among males and females (e.g., Yuki & Yokota, 2008; Bugental & Beaulieu, 2009). Most germane to the proposed research, outgroup threat disposes males (but not females) prosocially towards the ingroup (Van Vugt, De Cremer, & Janssen, 2007). However, it remains unclear how outgroup threat influences a related construct to group conflict, aggression towards ingroup members. The present study aimed to fill this gap by proposing that outgroup threat would reduce aggression against ingroup members, though only among males, given their prosocial orientation under conditions of intergroup competition.

I expected that the same motivation behind males' increased prosociality after outgroup threat was responsible for the hypothesized decreases in aggression. Previous research has demonstrated that the effect of outgroup threat on increased male prosociality is fully mediated by increases in ingroup identification (Van Vugt et al., 2007). As such, I predicted that these same increases in ingroup identification would mediate the effect of outgroup threat on reducing aggression towards ingroup members.

Outgroup Threat

Human history has been characterized by intergroup conflict. Competition, often violent, between groups over access to resources has been found across the globe in almost every single culture, including hunter-gatherers (e.g., Chagnon, 2003; Tooby & Cosmides, 1988) and one of mankind's closest primate relatives, the chimpanzee (see Wrangham & Peterson, 1996). Such universality of intergroup conflict suggests that it is not a side-effect of cultural influence or of modern-day practices, but instead, is a stable, seemingly-innate aspect of human social behavior that is likely rooted in biology (Kurzban & Neuberg, 2005). The ubiquitous expression of human intergroup conflict proximally stems from an automatic psychological process in which individuals readily construct 'us versus them' mindsets regarding groups they do and do not belong to (Sherif, Harvey, White, Hood, & Sherif, 1961). This discriminatory perception occurs even when group membership is assigned based on arbitrary selection, such as a coin toss (Ostrom & Sedikides, 1992). Once groups have been formed through these processes it is only a matter of time until they find themselves in competition for limited resources, such as food, territory and mates. While many groups have met these competitive situations by establishing cooperative practices, the vast history of human warfare suggests this was often not the case. It is the awareness to this imminent competition between one's ingroup and a rival outgroup that I refer to as outgroup threat. However, the awareness of outgroup threat is responded to differentially based upon sex.

Sex Differences in Response to Outgroup Threat

Given the substantial threat intergroup conflict posed to our human ancestors, it is likely that evolution has provided us with psychological adaptations to

respond effectively to outgroup threat. However, psychological scientists are repeatedly demonstrating that these coping strategies diverge greatly between males and females.

A substantial amount of empirical evidence now supports *the Male Warrior Hypothesis* (Van Vugt et al., 2007), which posits that males are psychologically and behaviorally more intergroup oriented than females given their history as combatants in intergroup conflicts. Human evolution has granted males more size and strength than their female counterparts, predisposing them to be the physical perpetrators of intergroup violence. According to the Male Warrior Hypothesis, this role as the combatant led not only to natural and sexual selection for physiological size and strength, but for psychological mechanisms that led to victory in intergroup conflicts. In support of their hypothesis, the authors found that under outgroup threat, males contributed more money to their ingroup than females, that males' ingroup identification increased and that males' increase in ingroup identification fully mediated the interactive effect of outgroup threat and sex on prosociality towards the ingroup. Additionally, Yuki & Yokota (2008) found that priming individuals with threats from an outgroup enhanced males' ability to discriminate between ingroup and outgroup members, though not females. Such a finding indicates that males' responses to outgroup threat are so robust that they are activated by even subtle cues.

Extending the Male Warrior Hypothesis, Bugental and Beaulieu (2009) demonstrated that outgroup threat primes facilitated cognitions relating to coalition formation among males, but not females. Additionally, the same outgroup threat primes facilitated dyadic and protective cognitions among females, but not males. This study replicated the supposition that males respond to outgroup threat with a willingness to

form defensive coalitions. Interestingly, it also suggests that females respond to the same threat with a 'tend-and-befriend' strategy whereby they prefer to engage in protective care for close relations. I did not anticipate that this effect among females would lead to reduced aggression against an ingroup member, as the 'tend-and-befriend' effect is specific to the self and genetically-related offspring (Taylor et al., 2000).

The Male Warrior Hypothesis and the empirical extensions of it stand in staunch opposition to the classically held view of males as aloof and independent (Cross & Madson, 1997). As Baumeister & Sommer (1997) stated in their disagreement with this conventional view of males, "the view of men as less social than are women may derive from the mistaking of the nonintimate sociality of men for a nonsocial orientation" (p. 43). Males are indeed social creatures, their social orientation is simply geared towards broader (as opposed to dyadic) social entities such as sports teams, a likely byproduct of males' evolutionary history of defending the ingroup from outgroup threat. How might this group-orientation of males translate to other important social behaviors, such as aggression?

Outgroup Threat and Aggression

As part of the general trend among mammals, human males are far more prone to direct, physical aggression than females (see Archer, 2009). Following provocation, males are far more aggressive than their female counterparts, even when the targets of their aggression are perceived as a member of their ingroup (e.g., a fellow university student; Bushman & Baumeister, 1998). However, I argue that this powerful tendency to aggress among males is sensitive to social ecology and group dynamics. Specifically, when males are motivated to defend their ingroup under conditions of outgroup threat,

their aggressive tendencies towards individuals who provoke them (as long as they are ingroup members) will be inhibited for two reasons. First, aggression towards ingroup members, infighting, results in the dissolution of ingroup cohesion and subsequently, collective formidability. Indeed, a group at war with itself cannot present a unified, formidable front to the enemy. Second, prosocial motivations and behaviors are inhibitory of aggressive tendencies. Grounding this point in neuroanatomy, prosocial motivations and subsequently, behavior are associated with activation of the brain's septal area (Morelli, Rameson, & Lieberman, in press). Crucially, stimulation of the septal area strongly reduces aggressive behavior (Potegal, Blau, & Gusman, 1981). For the above reasons, I expected that males' prosocial orientation under outgroup threat would translate to reduced ingroup aggression. But what psychological mechanism is the impetus behind this reduction in aggression?

Ingroup Identification as a Mediator

Outgroup threat increases self-reported ingroup identification among males, which is the tendency to view the self as integrated into the larger ingroup entity (Tajfel & Turner, 1979; Van Vugt et al., 2007). Specifically, males under outgroup threat were more likely to endorse items such as 'I identify myself as a student of Kent University.' These increases in ingroup identification reflect the group-oriented mindset that males adopt under outgroup threat. Increases in ingroup identification then explained subsequent increases in prosocial behavior towards the ingroup among males via mediation analysis (Van Vugt et al., 2007). For two reasons I expected that ingroup identification would also explain males' reduced ingroup aggression under outgroup threat. First, because the motivation behind males' increased prosociality and decreased

antisociality towards the ingroup under outgroup threat is supposedly the same, the psychological mechanism should be as well. Second, ingroup identification entails a greater overlap between an individual's self-concept and that of the group and its members (Tajfel & Turner, 1979). Such a self-other overlap leads to perspective-taking and empathy (Batson et al., 1997), both of which are negatively associated with aggression (Richardson, Hammock, Smith, Gardner, & Signo, 1994). By inhibiting aggression through prosocial motivations and empathy and facilitating a formidable group, ingroup identification is a likely mechanism through which outgroup threat reduces aggression against the ingroup.

Overview of Current Research

The present experiment tested my hypothesis that sex and outgroup threat would interact such that males (but not females) would respond to outgroup threat with reduced aggression towards ingroup members who provoked them. This experiment also sought to test the hypothesis that ingroup identification would mediate the interactive effect of sex and outgroup threat on aggression towards ingroup members. An initial pilot study sought to validate the outgroup threat manipulation utilized in the main experiment.

Chapter Two: Pilot Study

Because ingroups and outgroups are specific to each institution and region, I constructed an outgroup threat manipulation based on my sample population's perception of the University of Kentucky as their ingroup and the University of Louisville as an outgroup given the long-standing rivalry between the two universities across several domains (e.g., sports, academics). I fabricated fictitious articles that were ostensibly from a credible source to induce either outgroup threat or no threat. To assess the efficacy of these articles, they were presented to students in an online study and participants rated them on several key criteria, as well as their own perceptions of the University of Louisville as a threat to the University of Kentucky.

Method

Participants

Fifty-one undergraduate students (38 females, Age: $M = 19.01$, $SD = 1.26$) at the University of Kentucky were recruited from the Introductory Psychology Subject Pool. For their participation in the pilot study, participants received one half-credit towards their course's research requirement of six credits.

Design

The pilot study utilized a single-factor, two-level, between-subjects design such that participants were randomly assigned to read an article that either induced (a) outgroup threat or (b) no threat. I hypothesized that participants assigned to the outgroup threat condition would rate the University of Louisville as a greater threat to the University of Kentucky than participants assigned to read the control article.

Materials

Threat article. Participants assigned to the threat article condition read a fictitious one-page article that was ostensibly, recently published in the *Chronicle of Higher Education* (see Appendix A). The article was written in a formal tone without utilizing overly-complicated vocabulary and was entitled "University of Louisville to Compete with University of Kentucky as Top Kentucky School, Study Shows." The content of the article details various concrete and fictitious statistics that extol the University of Louisville's rising prowess in athletics, academics, and research as indicated by increases in funding, facilities, grades, scientific publications and patents. The article also included a graphic depicting the logos of both universities, juxtaposed against one another.

Control article. The control article (see Appendix B) was nearly identical to the threat article in authority, length, formality, word count, statistics and vocabulary. However, it was entirely different in content such that it neutrally described the layout and central buildings of the University of Kentucky's campus and was entitled "University of Kentucky's Campus, an Overview." An image of Memorial Hall, an iconic campus building was included as a graphic. Neutral articles describing campus layouts have been used as neutral, control articles effectively in previous research on aggression (e.g., Bremner, Koole, & Bushman, 2011).

Article credibility questionnaire. To assess how closely my fictitious article resembled an actual news article, participants indicated their agreement with six items that stated how 'believable,' 'credible,' 'not realistic,' 'factual,' 'justified,' and 'wrong' the article was(see Appendix C). Items three and six were reverse-scored. Participants responded to each item on a seven-point scale from -3 (*strongly disagree*) to 3 (*strongly agree*).

Outgroup threat questionnaire. I adapted a six-item questionnaire from Klein, Harris, Ferrer, & Zajac (2011) that assessed perceptions of outgroup threat (see Appendix D). Participants indicated their agreement with all six statements describing the University of Louisville as 'a rival of' 'a threat to' 'a close competitor with' 'an ally of' 'an enemy of' and 'a foe of' the University of Kentucky. Item four was reverse-scored. Participants responded to each item on a seven-point scale from -3 (*strongly disagree*) to 3 (*strongly agree*).

Relative standing task. To assess the possible effect of the outgroup threat manipulation on participants' perceptions of the relative standing between the University of Kentucky and the University of Louisville, participants completed a four item task (see Appendix E). Each item asked participants to use a seven-point scale from -3 (*worse*) to 3 (*better*) to assess the University of Kentucky's relative standing to the University of Louisville in athletics, academics, research and overall.

PANAS. To assess any effects of my outgroup threat manipulation on mood, participants completed the twenty item Positive Affect Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988; see Appendix F). The PANAS contains ten items that assess positive affect and ten items that assess negative affect.

Procedure

Participants completed the pilot study online through the Qualtrics survey system. After providing informed consent, participants were told that the purpose of the study was to assess reading and writing skills. Then, participants were randomly assigned to read either the outgroup threat article or the control article. To ensure that participants actually read and paid attention to the article, they were told they would be asked to

remember details from the article later in the experiment, as would be done in a study on reading skills. After participants read the article they completed the outgroup threat questionnaire, the relative standing questionnaire, the article credibility questionnaire and the PANAS, in that order. Afterwards, participants read a debriefing form that fully explained the actual topic of the study and the specific instances of deception that had been used on them. All research procedures did not exceed thirty minutes.

Results

Reliability Analyses

Each self-report measure was scored by reversing the appropriate items for each scale and then averaging subject's responses on each measure to create a composite score. Cronbach's alphas were computed to assess the reliability of each self-report measure. The outgroup threat questionnaire was found to be unreliable, $\alpha = .41$. The measure was not made reliable by removing any of the individual items (highest $\alpha = .49$). Further, the mean correlation coefficient between each item was merely .08. Given the syntactic and conceptual similarity of each of the items to one another, it is unknown why reliability was so low. However, excellent reliability was found for the article credibility questionnaire, $\alpha = .88$, the relative standing task, $\alpha = .81$ and the PANAS, $\alpha = .92$.

Outgroup Threat

Given the low reliability of the outgroup threat measure, each of the 6 items were analyzed separately with an independent-samples t-test that compared the outgroup threat article condition ($n = 26$) to the control article condition ($n = 25$). No significant differences between the two conditions were found for five items of the outgroup threat questionnaire. However, the article conditions were significantly different on the key

item of the questionnaire which stated 'the University of Louisville is a threat to the University of Kentucky', $t(49) = -2.94$, $p = .005$, $d = .88$ (see Figure 1). Specifically, participants rated the University of Louisville as a greater threat to the University of Kentucky in the outgroup threat article condition ($M = 0.31$, $SD = 1.81$) than in the control condition ($M = -1.04$, $SD = 1.21$).

Credibility ratings of the two articles did not differ between them, $t(49) = 0.57$, $p = .57$, $d = .16$ (Figure 2). Participants perceived the University of Kentucky as superior to the University of Louisville as indicated by values from the relative standing task that were well above the centerpoint of 0 and close to the maximum value of 3, regardless of whether they were in the outgroup threat ($M = 2.01$, $SD = 0.96$) or control condition ($M = 2.18$, $SD = 0.83$), $t(49) = -0.70$, $p = .49$, $d = .19$. Further, article condition had no effect on positive affect, $t(49) = 0.57$, $p = .57$, $d = .16$, but did influence reports of negative affect, $t(49) = -2.52$, $p = .015$, $d = .90$. Indeed, participants in the outgroup threat condition reported greater levels of negative affect due to the article ($M = -1.77$, $SD = 1.26$) than their counterparts in the control condition ($M = -2.96$, $SD = 1.01$).

Discussion

The pilot study was conducted to ensure that my constructed outgroup threat manipulation did indeed induce outgroup threat and was not accompanied by any issues related to perceived credibility. I found that participants in the outgroup threat article condition reported greater levels of outgroup threat as compared to the control article. Importantly, the articles did not differ in credibility. Interestingly, negative affect was greater in the outgroup threat condition as well. While it can be argued that this increase in negative affectivity presents a confound for my design, previous research would

suggest that negative affect is an inextricable element of outgroup threat (e.g., Navarrete, Kurzban, Fessler, & Kirkpatrick, 2004). As such, the increase in negative affect further supports my manipulation's efficacy at inducing outgroup threat.

Figure 2.1. Means and Standard Errors of Reports of How Much the University of Louisville is a Threat to the University of Kentucky by Article Condition. Higher Values Indicate Greater Reported Threat.

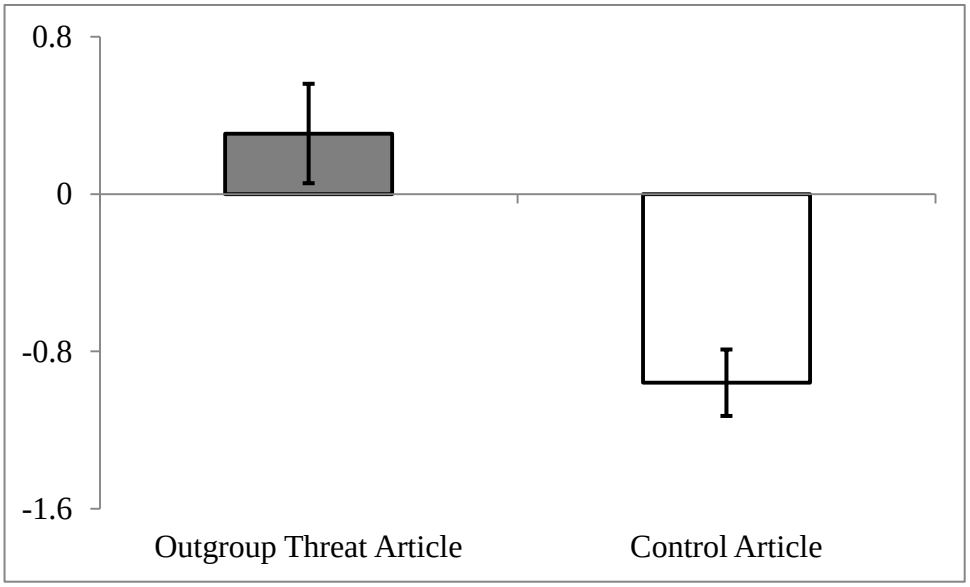
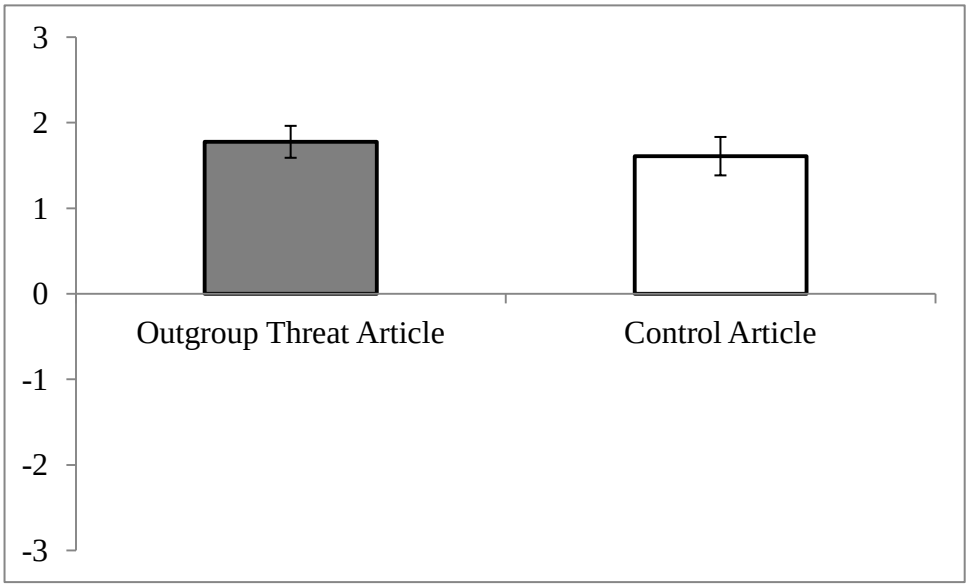


Figure 2.2. Means and Standard Errors of How Credible and Believable Each Article was Perceived by Participants. Higher Values Indicate Greater Credibility and Believability.



Chapter Three: Present Experiment

Having validated my outgroup threat manipulation, I sought to test my central hypothesis with the following experiment.

Method

Participants

An *a priori* power analysis utilizing the program G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) for a medium effect size ($f^2 = .15$), power of .80, and an α-level of .05 yielded a desired total sample size of 119. One participant was added to this desired sample size to ensure that participants were equally distributed across genders and both article conditions. 101 participants (60 females; Age: $M = 19.49$; $SD = 2.21$) completed my experiment in exchange for one hour of credit towards their six hour research requirement. Participants were 80% Caucasian, 12% African-American, 3% Asian-American, and 5% were a race other than the options listed on my questionnaire. Additionally, participants were 4% Hispanic. I was only able to recruit 41 males because of three issues with the Introductory Psychology Subject Pool. First, recruitment occurred during the Spring semester which has a substantially smaller subject pool. Second, due to clerical error, subject pool members were allowed to complete as many online studies as they chose, which prevented many of them from participating in studies where they actually had to appear in the laboratory, such as mine. Third, many other studies that semester utilized the aggression measure I utilized, which required the exclusion of any participants who had completed those studies. Of the participants that were recruited, thirty females were randomly assigned to each article condition, 19 males

were randomly assigned to the outgroup threat condition and 22 males were randomly assigned to the control condition.

Design

This study utilized a 2 (threat: outgroup vs. none) by 2 (sex: male vs. females) between-subjects factorial design. Aggression towards participants' ingroup members served as my dependent measure while ingroup identification was intended to be measured as my mediator.

Materials

Threat and control articles. To manipulate feelings of outgroup threat, participants read a fictitious article that was validated to either induce feelings of outgroup threat or no threat. See the corresponding section of the pilot study described above for details as to how these were pilot tested.

Demographics. Participants reported their age, sex, race and ethnicity in an electronic task.

Ingroup identification measure. The degree to which participants identify with as a member of the UK community (their ingroup) was measured using a four-item questionnaire (adapted from Rabinovich & Morton, 2012; see Appendix G). Participants responded to items such as "I identify with other University of Kentucky students" and "I feel strong ties with other University of Kentucky students" on a seven-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Responses on all four items were averaged to produce an aggregate score of ingroup identification. Reliability statistics are unavailable for this measure due to data corruption (see Results).

Aggression paradigm. To measure participants' aggressiveness towards their ingroup members, participants completed the Taylor Aggression Paradigm (TAP; Taylor, 1967). The TAP paradigm is a well-validated measure of behavioral aggression (Anderson & Bushman, 1997; Giancola & Chermack, 1998). The task was framed to participants as a competitive reaction time game that was played over the internet with an opponent. In reality, however, it was a computer simulation designed to measure aggressive behavior and there was no opponent. In this game, participants have to be the "first" to click a mouse button when a box changes to red on the screen. Before each trial, participants set the volume and duration of an unpleasant noise for their opponent to listen to if they won that trial. The volume settings ranged from 60 decibels to 105 decibels in 5 decibel increments, and the duration settings ranged from 0 seconds to 5 seconds in 0.5 second increments. A non-aggression option was also provided if participants wanted to refrain from blasting their opponent with noise at all. If participants lost the trial, they were blasted with noise that their opponent ostensibly determined ahead of time. Whether participants won or lost, they saw the volume and duration settings their opponent had ostensibly set for them and were told that likewise, their opponent would see the participant's settings for them. In reality, it was pre-determined which trials the participants won or lost and the intensity and duration of white noise their opponent blasted them with. Participants repeated this process for a total of 25 trials. To ensure that participants remained provoked by their fictitious opponent, participants always lost the first trial and received the uncomfortable noise at its highest volume and duration. Wins and losses occurred in semi-random fashion for the remaining trials with participants winning thirteen of the 25 trials. The fictitious opponent's volume

and duration settings randomly fluctuated for the remaining trials but were held constant across participants. To ensure believability, participants always lost who refrained from clicking the box at all. Further, the square would not change to red if participants were repeatedly clicking the mouse repeatedly prior to the square changing color.

Manipulation check. The outgroup threat questionnaire, article credibility questionnaire and relative standing task were administered to assess the ability of the outgroup threat manipulation to induce outgroup threat and shift perceptions of the groups relative standing to one another while being perceived as credible and believable.

PANAS. The PANAS (Watson, Clark, & Tellegen, 1988) was administered to detect mood effects due to my manipulation.

Formidability Index. Formidability, in the context of the present experiment, refers to the capability an individual or a group has to inflict costs on a competitor. It is important to assess the perceived formidability of participants as this may moderate the degree to which they feel threatened by the outgroup. For instance, a formidable participant may feel less threatened by the outgroup than a less formidable participant, as the ability of the outgroup to inflict costs on them is lessened by their personal combative prowess. I was unable to find a validated measure of formidability, as such I constructed a 7-item measure of formidability (see Appendix H) that included various items comparing participants to the 'average individual of your age and sex, sample item: "How likely are you to win in a physical fight?"

Personality questionnaires. Participants completed a battery of relevant personality questionnaires in the following order (see Appendices I-Q): Angry Rumination Scale (ARS; Sukhodolsky, Golub, & Cromwell, 2001), Brief Self-Control

Scale (BSCS; Tangney, Baumeister, & Boone, 2004), Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992), Displaced Aggression Questionnaire (DAQ; Denson, Pedersen, & Miller, 2006), Interpersonal Reactivity Index (IRI; Davis, 1980), Narcissistic Personality Index (NPI; Raskin & Hall, 1979), UPPS-P Impulsivity Scale (UPPS-P; Lynam, Smith, Whiteside, & Cyders, 2006), Center for Epidemiological Studies – Depression Scale (CES-D; Radloff, 1977), and the Self-Reported Psychopathy Scale (SRPS; Levenson, Kiehl, & Fitzpatrick, 1995).

Procedure

Participants arrived to the laboratory for a study ostensibly about 'reading, writing and reaction-time.' Participants who were more than ten minutes late to their appointment or had a prior relationship with the experimenter were not allowed to participate in the experiment. After informed consent was obtained, participants were instructed to read 'a short article' that was developed and validated to induce feelings of either outgroup threat or no-threat via random assignment. Participants were told that the article was 'reprinted from the Chronicle of Higher Education, a publication that writes for an undergraduate reading-level.' Further, the purpose of reading the article was ostensibly to assess their reading comprehension abilities and that they would be asked to recall information from the article at a later time in the experiment. This was done to ensure that participants would actually read the article. Participants were then given three, undisturbed minutes to read the article and told to re-read the article if they finished before the time was up.

To elicit aggression from participants, I utilized a validated provocation paradigm (Bushman & Baumeister, 1998; DeWall, Lambert, Pond, Kashdan, & Fincham, 2011). Participants were told that their writing skills would be assessed through an essay writing

and evaluation task in which they would write an essay, have it evaluated by a same-sex University of Kentucky student while they evaluated their partner's essay and then see feedback on their essay from their partner. Participants were told that they could not meet their partner as their appearance might influence the way they evaluated their article. Additionally, participants were encouraged to be candid and that the experimenter would not read what they wrote. After this explanation was given, participants hand-wrote a short essay about a time in which they were 'very angry' for 5 minutes. Participants were then handed an envelope, instructed to put the essay in it and seal it and hand it back to the experimenter. The experimenter then left the room with the essay, waited 30 seconds, and then returned to the participant with a new, sealed envelope which contained a hand-written essay that mimicked their sex's stereotypic hand-writing style, which was ostensibly from the same-sex partner who was currently evaluating their essay (see Appendix R,S). Participants then read and critiqued their partner's essay for 3 minutes using an essay evaluation form they were given. This form contained instructions to provide ratings for various writing-relevant criteria such as 'clarity of expression' along a scale from 1 (*poor*) to 7 (*excellent*). The ratings sheet also had space for additional comments to be provided about the paper. After 3 minutes, the critique was placed back in the envelope, sealed and handed back to the experimenter who left, supposedly to return the envelope to the participant's partner. The experimenter returned after 30 seconds with their essay and its original, sealed envelope but it additionally included a completed essay evaluation form that mimicked their sex's stereotypic hand-writing style (see Appendix T,U). Participants always received insulting feedback, receiving a total score of 6 out of the possible 35 points along with the following comment: "This is one

of the worst essays I've ever read." The experimenter left the participant to review their feedback for 1 minute and then returned and collected the forms sealed in the envelope.

Participants then completed the TAP, ostensibly against the individual they just performed the essay-evaluation task with. To ensure the believability of the task, after the experimenter verbally reviewed the instructions as to how to use the task, they left to ensure that participants' partner was connected. Experimenters returned after 30 seconds and informed the participant that their partner was still not connected and they would need to wait a little longer. The experimenter then left for 1 minute and finally returned, telling the participant that their partner was now connected and they could begin the task. After the TAP was completed, a thorough debriefing was then conducted which included a suspiciousness interview to assess whether participants believed the experiment's cover story and that there was a real partner throughout the study. All research procedures did not exceed one hour.

Results

Debriefing interviews revealed that no participants were suspicious of the study procedures or doubted the existence of their partner. As such, analyses were performed on all participants.

Reliability Analyses

Each self-report measure was scored by reversing the appropriate items for each scale and then averaging subjects' responses on each measure to create a composite score and, if relevant, subscale scores. Cronbach's alphas were computed for each self-report measure's overall composite score to ensure reliability. Contrary to the findings of the pilot study, the outgroup threat questionnaire was found to be sufficiently reliable, α =

.68, whereas the article credibility questionnaire, α = .47, and relative standing task, α = .46, were not. The formidability index constructed for this study was sufficiently reliable, α = .86.

Validating each of the previously published self-report scales utilized in this study, sufficient reliability was found for the ARS, α = .94, BPAQ, α = .77, BSCS, α = .83, CESD, α = .82, DAQ, α = .97, IRI, α = .80, NPI, α = .76, SRPS, α = .85, UPPSP-P, α = .94, and the PANAS, α = .82.

Manipulation Check

To ensure my outgroup threat manipulation was effective in inducing outgroup threat while not being perceived as non-credible, I compared scores on my outgroup threat questionnaire between the two article conditions with independent-samples t-tests. Participants in the outgroup threat condition reported the University of Louisville as more of a threat (M = 0.96, SD = 1.12) than participants in the control condition (M = 0.63, SD = 1.16), though this difference was not significant, $t(100) = -1.48$, $p = .14$, $d = .29$. As in the pilot study, I compared these groups on the key item 'the University of Louisville is a threat to the University of Kentucky' using an independent-samples t-test. Replicating the findings of the pilot study, participants in the outgroup threat condition reported the University of Louisville as significantly more of a threat (M = 0.08, SD = 2.11) than participants in the control condition (M = -1.94, SD = 2.00), $t(100) = -2.78$, $p = .006$, d = .98. Scores from the article credibility questionnaire were not analyzed as they were deemed statistically unreliable. The pilot study's finding that the article conditions did not differ on credibility is sufficient to assume the articles were perceived as equally credible and believable. Unlike the pilot study, participants in the outgroup threat

condition reported that the University of Kentucky's relative standing to the University of Louisville was much lower (M = 0.52, SD = 0.67) than participants in the control condition (M = 1.03, SD = 0.75), $t(100) = 3.63$, $p < .001$, $d = .72$. I speculate that the reason for this disparity between the pilot study and the present experiment is that the present experiment utilized a larger sample size, providing increased statistical power to detect the ability of the article manipulation to influence perceptions of the ingroup's relative standing to the outgroup.

Aggression Score Computation

To compute an aggression score for each participant, volume intensity and duration settings from the TAP were combined. A bivariate correlation analysis revealed that intensity and duration settings were highly correlated, $r(99) = .97$, $p < .001$. Thus, I standardized and summed intensity and duration levels across all 25 trials to create a more reliable aggression score. This process was also used on the first trial of the TAP to create an aggression score that occurred prior to receiving the fictitious opponent's noise blasts. In the first trial, participants have yet to be blasted with noise which means that their aggression scores will be unaffected by the behavior of their opponent.

Group Comparisons on Aggression

A 2 (article-type: outgroup threat vs. no-threat) x 2 (sex: male vs. female) between-subjects analysis of variance was conducted on total aggression scores from the TAP. Failing to support my central hypothesis, there was no interaction between outgroup threat and sex, $F(2,99) = 0.17$, $p = .68$, $\eta^2 = .01$ (Figure 3). There was no main effect of article condition, $F(2,99) = 1.20$, $p = .28$, $\eta^2 = .01$ and a marginal main effect of sex, $F(2,99) = 3.91$, $p = .05$, $\eta^2 = .04$ such that males (M = 0.47, SD = 1.85) were more

aggressive than females (M = -0.31, SD = 2.03) across the article conditions. A follow-up independent-samples t-test between outgroup threat and control conditions among males revealed that there was no difference between the article conditions among males alone, $t(100) = -0.47$, $p = .64$, $d = .15$. An identical test among females showed that there was no difference between the article conditions among females either, $t(100) = -1.15$, $p = .26$, $d = .30$.

To assess the presence of my expected interactive effect in another domain, unprovoked aggression, I performed another 2 (article-type: outgroup threat vs. no-threat) x 2 (sex: male vs. female) between-subjects analysis of variance on the first trial's aggression scores from the TAP. Mirroring the results from the total aggression scores, there was no interaction between outgroup threat and sex, $F(2,99) = 0.51$, $p = .82$, $\eta^2 = .01$ (Figure 4). There was no main effect of article condition, $F(2,99) = 0.52$, $p = .47$, $\eta^2 = .01$ and a marginal main effect of sex, $F(2,99) = 3.84$, $p = .05$, $\eta^2 = .04$ such that males (M = 0.46, SD = 1.99) were more aggressive than females (M = -0.28, SD = 1.86) across the article conditions. A follow-up independent-samples t-test between outgroup threat and control conditions among males revealed that there was no difference between the article conditions among males alone, $t(100) = -0.59$, $p = .56$, $d = .18$. An identical test among females showed that there was no difference between the article conditions among females either, $t(100) = -0.40$, $p = .69$, $d = .10$.

Ingroup Identification as Mediator

I was unable to test the potential role of ingroup identification as the mediator between the interaction of outgroup threat and sex and ingroup aggression because the data from this measure were corrupted by the experimental software for all but two

participants. Regardless, the lack of a significant interaction between outgroup threat and sex precluded the testing of my mediational hypothesis in the first place.

Moderation via Personality

To assess the role of each of the measured personality variables, I ran 2 (article-type: outgroup threat vs. no-threat) x 2 (sex: male vs. female) between-subjects analysis of variance tests with each personality measure included separately as a covariate. Additionally, custom univariate general linear models were conducted to assess potential 3-way interactions between outgroup threat, sex and each of the measured personality variables. These analyses were performed for each subscale and composite score from each personality measure using the total aggression scores from all 25 trials of the TAP as the dependent measure. All personality scales and subscales failed to interact significantly with outgroup threat and sex and additionally failed to create a significant interaction between outgroup threat and sex when being controlled for as a covariate (see Table 1).

Discussion

Intergroup competition has been a constant danger across human evolutionary history. To effectively respond to outgroup threat, males and females employ divergent strategies to defend the ingroup. Specifically, males react to outgroup threat by altruistically sacrificing for and cooperating with their ingroup members (Van Vugt et al., 2007). This effect can be explained by the increase in males' ingroup identification that then predicts increased prosociality. However, it remains unknown whether this prosocial disposition relates to decreased aggression towards ingroup members. Given the ability of ingroup identification to reduce aggression via inhibitory pathways and increased

empathy (Richardson et al., 1994), I predicted that outgroup threat would decrease males' aggression towards ingroup members who provoked them.

My results did not support this hypothesis. Specifically, I did not observe a significant interaction between outgroup threat and sex on ingroup aggression. This interaction did not occur despite a pre-validated outgroup threat measure that passed a manipulation check as well. I utilized a well-validated and reliable measure of aggression and no participants indicated any suspicion in a thorough debriefing interview. As such, it is unlikely that I failed to reject the null hypothesis due to methodological or measurement issues. It is possible however, that the lack of support for my hypothesis is due to my diminished statistical power among males. The study's *a priori* power analyses suggested I recruit 60 males, split evenly into the two article conditions. I was only able to recruit 41 of these individuals. As such, it is possible that my hypothesis would be supported with additional male participants and subsequently, greater statistical power.

What is more likely is that my hypothesis was incorrect. A cursory view of the mean aggression scores divided by group shows what looks to be a trend in the opposite direction of my predictions, with males behaving *more* aggressively after outgroup threat. This finding can be easily reconciled within the literature on outgroup threat. Under outgroup threat, individuals demonstrate an attentional bias towards ingroup homogeneity (Rothgerber, 1997). Put simply, the group must become a single, cohesive unit under outgroup threat and humans show cognitive biases towards attaining that goal. Indeed, under conditions of outgroup threat individuals show more ingroup solidarity (Spears, Doosje, & Ellemers, 1997; Van Vugt et al., 2007) and individuals who deviate from this norm are punished (Marques, Abrams, & Serodio, 2001). Such punishment of ingroup

deviants facilitates the super-ordinate goal of ingroup cohesion that facilitates successful outgroup competition. As such, my findings may be in line with the literature by demonstrating that ingroup members who deviate from ingroup solidarity (e.g., in-fighting) are punished in order to bring them back into line with the group.

An interesting possibility is that ingroup members who aggress against other ingroup members are subsequently perceived as members of an outgroup, or at least not members of the ingroup. As such, once participants were provoked, they no longer treated the individual as an ingroup member. Future research should explore the effect of infighting on an ingroup member's perceived group status.

Despite the potential of this study to inform theories of ingroup behavior under outgroup threat, it was limited in several ways. First, participants reported their perceived outgroup threat which is prone to the myriad biases that all self-reports are prone to. Specifically, people have poor understandings of their higher order cognitions (Nisbett & Wilson, 1977) and this may have marred my ability to construct an effective outgroup threat manipulation. Second, my sample consisted of undergraduate students who possess various peculiarities such as heightened socio-economic status (Henrich, Heine, & Norenzayan, 2010). Third, because the targets of aggression were all ingroup members, I cannot be sure that this same pattern of heightened aggression among males under outgroup threat is specific to ingroup members. Indeed, my findings may merely show shifts in general aggressive tendencies. Fourth, my outgroup threat manipulation may not have been effective as it was only validated on a single, self-report item because of the unreliability of the outgroup threat questionnaire. In the main experiment, when the measure was found to be reliable, the groups did not significantly differ on the overall

scores of the outgroup threat questionnaire. As such, I cannot be sure that my outgroup threat manipulation was successful. Fifth, the main experiment included a great deal of provocation with the initial essay evaluation paradigm and then the continued provocation on the computerized aggression paradigm. It is possible that the great degree of provocation eliminated the effects of outgroup threat on males, leaving only aggressive responses, thus our main effect of sex that did not interact with outgroup threat. This experiment should be conducted again without the essay evaluation paradigm to assess whether the hypothesized interaction between outgroup threat and sex would occur at lower levels of provocation. Sixth, the targets of participants' aggression were framed as competitors which may have implicitly altered the perception of such targets as cooperative ingroup members.

In the future, this study must be expanded with additional male participants to assess whether a lack of statistical power is the underlying issue. Additionally, this experiment should be conducted with outgroup targets of aggression as well as ingroup targets to assess differences in aggressive responding based on group membership of the target. Additional forms of an outgroup threat manipulation should also be utilized to ensure that the null results are not paradigm-specific or due to faults in my particular experimental manipulation.

Despite the inability of my initial venture to demonstrate clear sex differences in aggressive responses to ingroup members under outgroup threat, my mean aggression scores suggest that males might indeed respond *more* aggressively to outgroup threat. Such a finding would inform a wealth of theories on group dynamics and aggression and would have implications for a variety of real-world settings such as the military and

corporations. It is my hope that the future directions of this line of investigation will yield such benefits.

Table 3.1. Summary of GLM results incorporating personality variables as covariates and moderators of the interaction between outgroup threat and sex to predict total aggression scores from the TAP.

Scale (construct)	Subscale	Outgroup Threat x Sex w/ Covariate	3-way Interaction
ARS (angry rumination)		$F = 0.04$, $p = .84$	$F = 0.44$, $p = .72$
	Angry Afterthoughts	$F = 0.03$, $p = .86$	$F = 0.99$, $p = .40$
	Revenge Thoughts	$F = 1.01$, $p = .31$	$F = 0.61$, $p = .61$
	Angry Memories	$F = 0.00$, $p = .98$	$F = 2.19$, $p = .14$
	Understanding of Causes	$F = 0.00$, $p = .99$	$F = 0.26$, $p = .86$
BPAQ (direct aggression)		$F = 0.85$, $p = .36$	$F = 0.89$, $p = .45$
	Physical Aggression	$F = 0.34$, $p = .56$	$F = 0.81$, $p = .49$
	Verbal Aggression	$F = 0.94$, $p = .33$	$F = 1.11$, $p = .35$
	Anger	$F = 0.05$, $p = .82$	$F = 0.96$, $p = .42$
	Hostility	$F = 1.79$, $p = .19$	$F = 0.60$, $p = .62$
BSCS (self-control)		$F = 0.27$, $p = .60$	$F = 1.43$, $p = .23$
CESD (depression)		$F = 0.27$, $p = .61$	$F = 2.04$, $p = .13$
DAQ (displaced aggression)		$F = 0.02$, $p = .90$	$F = 0.78$, $p = .51$
	Angry Rumination	$F = 0.28$, $p = .60$	$F = 0.70$, $p = .56$
	Behavioral	$F = 1.53$, $p = .22$	$F = 1.43$, $p = .24$
	Revenge Planning	$F = 0.14$, $p = .71$	$F = 0.64$, $p = .59$
Formidability		$F = 0.12$, $p = .74$	$F = 0.65$, $p = .59$
IRI (empathy)		$F = 0.11$, $p = .74$	$F = 1.95$, $p = .13$
	Perspective-Taking	$F =0.55$, $p = .46$	$F = 0.49$, $p = .69$
	Fantasy	$F = 0.87$, $p = .35$	$F = 0.36$, $p = .78$
	Empathic Concern	$F = 0.07$, $p = .79$	$F = 2.57$, $p = .06$
	Personal Distress	$F = 1.25$, $p = .27$	$F = 1.99$, $p = .12$
NPI (narcissism)		$F = 0.24$, $p = .62$	$F = 1.87$, $p = .14$
SRPS (psychopathy	Primary Symptoms	$F = 0.55$, $p = .46$	$F = 2.53$, $p = .08$
	Secondary Symptoms	$F = 2.06$, $p = .16$	$F = 1.12$, $p = .36$
UPPS-P (impulsivity)	Negative Urgency	$F = 0.14$, $p = .72$	$F = 0.34$, $p = .80$
	Lack of Premeditation	$F = 0.12$, $p = .73$	$F = 0.53$, $p = .66$
	Lack of Perserverance	$F = 0.44$, $p = .51$	$F = 1.21$, $p = .32$
	Sensation Seeking	$F = 0.02$, $p = .88$	$F = 0.56$, $p = .64$
	Positive Urgency	$F = 0.06$, $p = .80$	$F = 0.19$, $p = .91$

Figure 3.1. Means and Standard Errors of Total Aggression Scores from All 25 Trials of the TAP, Separated by Article Condition and Sex.

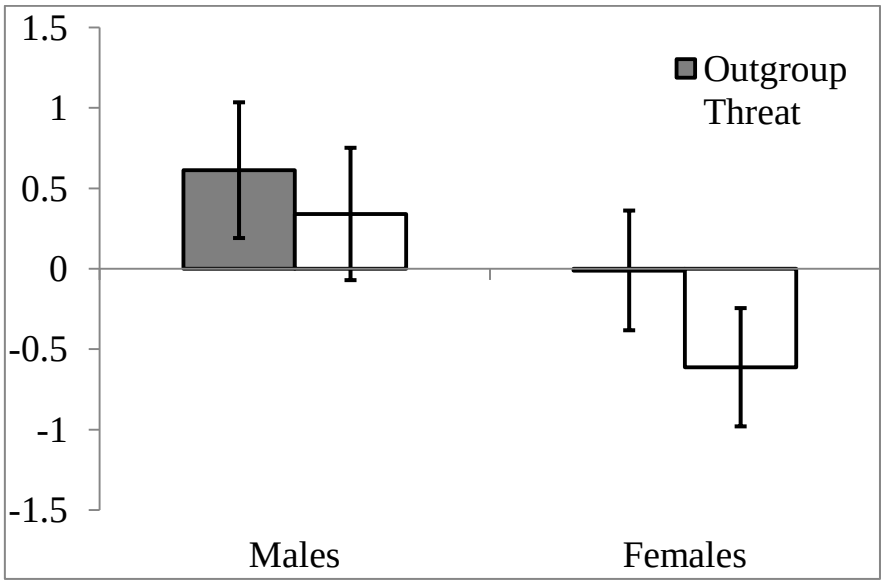
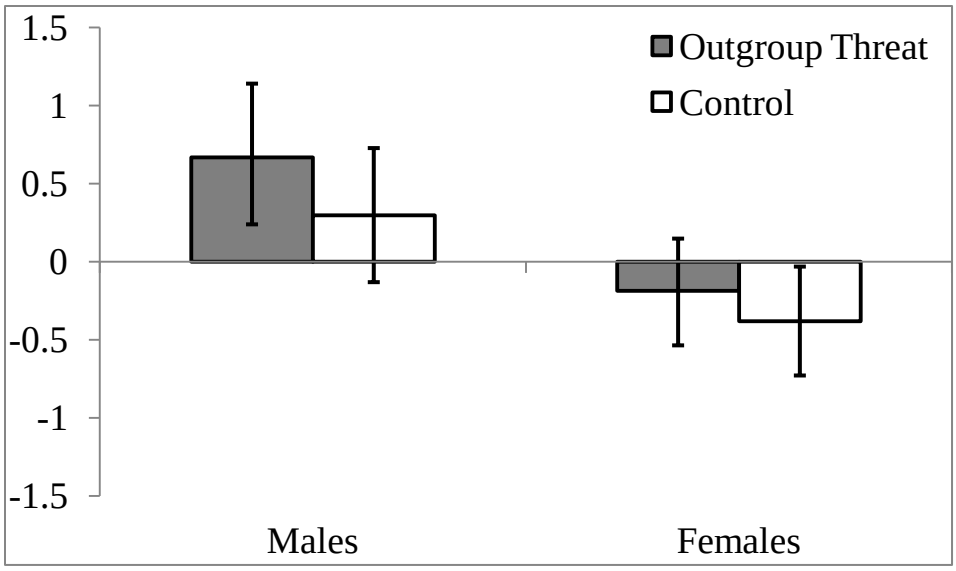


Figure 3.2. Means and Standard Errors of Unprovoked Aggression Scores from the First Trial of the TAP, Separated by Article Condition and Sex.



Appendix A: Outgroup Threat Article

UNIVERSITY OF LOUISVILLE TO COMPETE WITH UNIVERSITY OF KENTUCKY AS TOP KENTUCKY SCHOOL, STUDY SHOWS

Chronicle of Higher Education

A recent analysis performed by the Federal Commission on Higher Education shows that the University of Louisville may soon be equally competitive with the University of Kentucky as the state's best university in academics, research and athletics. The rivalry between the two universities has recently reached a tipping point, as evidenced by the big match-up between Louisville and UK in the Final Four series of the NCAA basketball tournament. While UK won the game, they may not enjoy this advantage for long.

As stated in the Federal Commission on Higher Education's report, the University of Louisville's academic performance has been below that of UK for almost a decade but has shown a clear increase every year, while UK's academic performance has remained stable. For instance, last year UK accepted 79% of applicants while Louisville accepted 80%, indicating that Louisville is becoming as exclusive as UK. Additionally, 8% of UK's incoming freshman had SAT math scores above 700 while 7% of Louisville freshman did. In almost every other relevant category of academic achievement (for example, GPA of graduates, GRE/LSAT scores) Louisville is within striking distance of UK.

Louisville has also been closing the gap in research as well. In 2010, UK received $139 million in research grant funding last year while Louisville obtained $130 million, an $18 million increase from the year before (a national record). According to the projections of the Federal Commission, Louisville will obtain nearly equal grant funding to UK in just 2 years. For the first time, Louisville reported over 312 scientific publications and patents, compared to UK's 389 . Louisville's number of patents and publications, specifically in biomedical engineering, is expected to rise next year.

A recent, record-breaking donation from a group of wealthy Louisville alumni, reported as $65 million will allow for the construction of a new sports complex and the recruitment of star athletes from across the country. As such, the already tense competition between UK and Louisville athletics could heighten.

Appendix B: Control Article

UNIVERSITY OF KENTUCKY'S CAMPUS, AN OVERVIEW

Chronicle of Higher Education

The University of Kentucky is located in central Kentucky in the city of Lexington. The school, founded in 1865 as a Land Grant school, has a campus of 784 acres. This massive campus is divided into North, South, Central and Medical campuses.
The University is comprised of 19 colleges which inhabit 84 buildings. Most notable of these is Memorial Hall (pictured below), which was built in 1929 to memorialize the names of students who had served in the First World War. The building is now used as a lecture and performance hall and its steeple is pictured on the UK logo.

Another noticeable landmark on the central portion of campus is the Main Building. The Main Building, built in 1882, is currently used as an administrative building. The building itself has had quite an exciting history. In 2001, a fire gutted the building, prompting a $17 million repair.
Adjacent to this building is the Patterson Office Tower, often referred to as POT. This 18 story monolith, completed in 1968 houses academic and administrative offices and stands as one of the highest points on campus. Nearly as tall as POT are the two towers that form the Kirwan-Blanding Dorm Complex in South Campus. As the tallest buildings on campus, these 23-story skyscrapers house over 1,200 students.
UK's campus also hosts an array of athletics buildings, most importantly, the massive football field called Commonwealth Stadium, which can house over 67,000 spectators. The UK basketball team often plays in a private arena in downtown Lexington named Rupp Arena.
Not all of UK's campus is man-made. The UK Arboretum, opened in 1991, spans over 100 acres and houses gardens, sculptures, a forest trail and myriad native plants and trees. While no longer present, a lake used to exist where the Alumni Gym now sits on Central campus.
UK plans to construct additional dorms in the very near future next to the William T. Young library, constructed in 1998 for $58 million. This building houses texts from the social sciences, humanities and life sciences and sits at the epicenter of campus. UK's campus is a broad and diverse entity.

Appendix C: Article Credibility Questionnaire

Please rate your level of agreement with each of the following items using the scale below.

-3	-2	-1	0	1	2	3
strongly disagree						strongly agree

The article was...

1. believable
2. credible
3. not realistic*
4. factual
5. justified
6. wrong*

*Reverse-scored

Appendix D: Outgroup Threat Questionnaire

Please rate your level of agreement with each of the following items using the scale below.

-3	-2	-1	0	1	2	3
strongly disagree						strongly agree

1. The University of Louisville is a rival of the University of Kentucky.
2. The University of Louisville is a threat to the University of Kentucky.
3. The University of Louisville and the University of Kentucky are close competitors.
4. The University of Louisville is an ally of the University of Kentucky.*
5. The University of Louisville is an enemy of the University of Kentucky.
6. The University of Louisville is a foe of the University of Kentucky.

*Reverse-scored

Appendix E: Relative Standing Task

Please fill in the blank space with a number indicating the relative position of the University of Kentucky to the University of Louisville in the areas described below.

-3	-2	-1	0	1	2	3
worse						better

1. The University of Kentucky has a _____ academic program than the University of Louisville.
2. The University of Kentucky has a _____ athletic program than the University of Louisville.
3. The University of Kentucky has a _____ research program than the University of Louisville.
4. The University of Kentucky has a _____ overall program than the University of Louisville.

Appendix F: Positive Affect Negative Affect Schedule (PANAS)

Please rate your level of agreement with each of the following items using the scale below.

-3	-2	-1	0	1	2	3
strongly disagree						strongly agree

The article made me feel...

1. interested
2. distressed
3. excited
4. upset
5. strong
6. guilty
7. scared
8. hostile
9. enthusiastic
10. proud
11. irritable
12. alert
13. ashamed
14. inspired
15. nervous
16. determined
17. attentive
18. jittery
19. active
20. afraid

Appendix G: Ingroup Identification Measure

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items.

1	2	3	4	5	6	7
strongly disagree						strongly agree

1) I identify with other University of Kentucky students.
2) I see myself as a University of Kentucky student.
3) I am glad to be a University of Kentucky student.
4) I feel strong ties with University of Kentucky students.

Appendix H: Formidability Questionnaire

Please use the scale below to answer each question as compared to an average person of your age and gender...

1	2	3	4	5	6	7
Less			The Same			More

1. How likely are you to win in a physical fight?
2. How much fighting skill do you possess?
3. How much larger are you?
4. How much stronger are you?
5. How likely are you to back down from a physical fight?*
6. How confident are you that you would win a physical fight?
7. How afraid are you to be in a physical fight?*

*Reverse-scored

Appendix I: Angry Rumination Scale

(ARS; Sukhodolsky, Golub, & Cromwell, 2001)

Everyone gets angry and frustrated occasionally, but people differ in the ways that they think about their episodes of anger. Statements below describe ways that people may recall or think about their anger experiences. Please read each statement. Using the scale provided, write the number in each blank that shows how typical each statement is of you. There are no right or wrong answers. Please respond honestly to all items.

1	2	3	4
almost never	sometimes	often	almost always

_____1. I ruminate about my past anger experiences.
_____2. I ponder about the injustices that have been done to me.
_____3. I keep thinking about events that angered me for a long time.
_____4. I have long-living fantasies of revenge after a conflict is over.
_____5. I think about certain events from a long time ago and they still make me angry.
_____6. I have difficulty forgiving people who have hurt me.
_____7. After an argument is over I keep fighting with this person in my imagination.
_____8. Memories of being aggravated pop up into my mind before I fall asleep.
_____9. Whenever I experience anger, I keep thinking about it for a while.
_____10. I have had times when I could not stop being preoccupied with a particular conflict.
_____11. I analyze events that make me angry.
_____12. I think about the reasons people treat me badly.
_____13. I have daydreams and fantasies of a violent nature.
_____14. I feel angry about certain things in my life.
_____15. When someone makes me angry I can't stop thinking about how to get back at this person.
_____16. When someone provokes me, I keep wondering why this should have happened to me.
_____17. Memories of even minor annoyances bother me for a while.
_____18. When something makes me angry, I turn this matter over and over again in my mind.
_____19. I re-enact the anger episode in my mind after it has happened.

Appendix J: Brief Self-Control Scale

(BSCS; Tangney, Baumeister, & Boone, 2004)

Using the scale provided, please indicate how much each of the following statements reflects how you typically are.

1	2	3	4	5
Not At All				Very Much

1. I refuse things that are bad for me.
2. I am lazy.*
3. I say inappropriate things.*
4. I do certain things that are bad for me, if they are fun.*
5. I have trouble concentrating.*
6. I often act without thinking through all the alternatives.*
7. I am good at resisting temptation.
8. People would say that I have iron self-discipline.
9. Pleasure and fun sometimes keep me from getting work done.*
10. I have a hard time breaking bad habits.*
11. I am able to work effectively toward long-term goals.
12. Sometimes I can't stop myself from doing something, even if I know it is wrong.*
13. I wish I had more self-discipline.*

*Reverse-scored

Appendix K : Buss-Perry Aggression Questionnaire

(BPAQ; Buss & Perry, 1992)

Please rate each of the following items in terms of how characteristic they are of you. Use the following scale for answering these items. *Reverse-scored.

1	2	3	4	5	6	7
extremely uncharacteristic of me						extremely characteristic of me

_____ 1. Once in a while I can't control the urge to strike another person.
_____ 2. Given enough provocation, I may hit another person.
_____ 3. If somebody hits me, I hit back.
_____ 4. I get into fights a little more than the average person.
_____ 5. If I have to resort to violence to protect my rights, I will.
_____ 6. There are people who pushed me so far that we came to blows.
_____ 7. I can think of no good reason for ever hitting a person.*
_____ 8. I have threatened people I know.
_____ 9. I have become so mad that I have broken things.
_____ 10. I tell my friends openly when I disagree with them.
_____ 11. I often find myself disagreeing with people.
_____ 12. When people annoy me, I may tell them what I think of them.
_____ 13. I can't help getting into arguments when people disagree with me.
_____ 14. My friends say that I'm somewhat argumentative.
_____ 15. I flare up quickly but get over it quickly.
_____ 16. When frustrated, I let my irritation show.
_____ 17. I sometimes feel like a powder keg ready to explode.
_____ 18. I am an even-tempered person.*
_____ 19. Some of my friends think I'm a hothead.
_____ 20. Sometimes I fly off the handle for no good reason.
_____ 21. I have trouble controlling my temper.
_____ 22. I am sometimes eaten up with jealousy.
_____ 23. At times I feel I have gotten a raw deal out of life.
_____ 24. Other people always seem to get the breaks.
_____ 25. I wonder why sometimes I feel so bitter about things.
_____ 26. I know that "friends" talk about me behind my back.
_____ 27. I am suspicious of overly friendly strangers.
_____ 28. I sometimes feel that people are laughing at me behind me back.
_____ 29. When people are especially nice, I wonder what they want.

*Reverse-scored

Appendix L: Displaced Aggression Questionnaire

(DAQ; Denson, Pedersen, & Miller, 2006)

Directions: Fill out the following questionnaire to the best of your ability. Please be completely honest. Your responses will remain strictly confidential.

> Rate each of the items below using the scale below. Write the number corresponding to your rating on the blank line in front of each statement.
>
> 1----------2----------3----------4----------5----------6----------7
> Extremely Uncharacteristic of Me — Extremely Characteristic of Me

Take your time and pay attention to the wording. Sometimes the items are worded differently.

(1) _____ I keep thinking about events that angered me for a long time.
(2) _____ I get "worked up" just thinking about things that have upset me in the past.
(3) _____ I often find myself thinking over and over about things that have made me angry.
(4) _____ Sometimes I can't help thinking about times when someone made me mad.
(5) _____ Whenever I experience anger, I keep thinking about it for a while.
(6) _____ After an argument is over, I keep fighting with this person in my imagination.
(7) _____ I re-enact the anger episode in my mind after it has happened.
(8) _____ I feel angry about certain things in my life.
(9) _____ I think about certain events from a long time ago and they still make me angry.
(10) _____ When angry, I tend to focus on my thoughts and feelings for a long period of time.
(11) _____ When someone or something makes me angry I am likely to take it out on another person.
(12) _____ When feeling bad, I take it out on others.
(13) _____When angry, I have taken it out on people close to me.
(14) _____ Sometimes I get upset with a friend or family member even though that person is not the cause of my anger or frustration.
(15) _____ I take my anger out on innocent others.
(16) _____When things don't go the way I plan, I take my frustration out at the first person I see.
(17) _____ If someone made me angry I would likely vent my anger on another person.
(18) _____ Sometimes I get so upset by work or school that I become hostile toward family or friends.
(19) _____When I am angry, I don't care who I lash out at.
(20) _____ If I have had a hard day at work or school, I'm likely to make sure everyone knows about it.

(21) _____ When someone makes me angry I can’t stop thinking about how to get back at this person.
(22) _____ If somebody harms me, I am not at peace until I can retaliate.
(23) _____ I often daydream about situations where I’m getting my own back at people.
(24) _____ I would get frustrated if I could not think of a way to get even with someone who deserves it.
(25) _____ I think about ways of getting back at people who have made me angry long after the event has happened.
(26) _____ If another person hurts you, it's alright to get back at him or her.
(27) _____ The more time that passes, the more satisfaction I get from revenge.
(28) _____ I have long living fantasies of revenge after the conflict is over.
(29) _____ When somebody offends me, sooner or later I retaliate.
(30) _____ If a person hurts you on purpose, you deserve to get whatever revenge you can.
(31) _____ I never help those who do me wrong.

Appendix M: Interpersonal Reactivity Index

(IRI; Davis, 1980)

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL				DESCRIBES ME VERY WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me.
2. I often have tender, concerned feelings for people less fortunate than me.
3. I sometimes find it difficult to see things from the "other guy's" point of view.*
4. Sometimes I don't feel very sorry for other people when they are having problems.*
5. I really get involved with the feelings of the characters in a novel.
6. In emergency situations, I feel apprehensive and ill-at-ease.
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.*
8. I try to look at everybody's side of a disagreement before I make a decision.
9. When I see someone being taken advantage of, I feel kind of protective towards them.
10. I sometimes feel helpless when I am in the middle of a very emotional situation.
11. I sometimes try to understand my friends better by imagining how things look from their perspective.
12. Becoming extremely involved in a good book or movie is somewhat rare for me.*
13. When I see someone get hurt, I tend to remain calm.*
14. Other people's misfortunes do not usually disturb me a great deal.*
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.*
16. After seeing a play or movie, I have felt as though I were one of the characters.
17. Being in a tense emotional situation scares me.
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.*
19. I am usually pretty effective in dealing with emergencies.
20. I am often quite touched by things that I see happen.
21. I believe that there are two sides to every question and try to look at them both.
22. I would describe myself as a pretty soft-hearted person.

23. When I watch a good movie, I can very easily put myself in the place of a leading character.
24. I tend to lose control during emergencies.
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
27. When I see someone who badly needs help in an emergency, I go to pieces.
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

*Reverse-scored

Appendix N: Narcissistic Personality Index

(NPI; Raskin & Hall, 1979)

Instructions: Read each pair of statements and then choose the one that is closer to your own feelings and beliefs. Indicate your answer by circling the letter "A" or "B" to the left of each item. Please do not skip any items.

1. A When people compliment me I sometimes get embarrassed.
   B I know that I am good because everyone keeps telling me so.
2. A I prefer to blend in with the crowd.
   B I like to be the center of attention.
3. A I am no better or worse than most people.
   B I think I am a special person.
4. A I like having authority over people.
   B I don't mind following orders.
5. A I find it easy to manipulate people.
   B I don't like it when I find myself manipulating people.
6. A I insist upon getting the respect that is due me.
   B I usually get the respect that I deserve.
7. A I try not to be a show off.
   B I am apt to show off if I get a chance.
8. A I always know what I am doing.
   B Sometimes I am not sure of what I am doing.
9. A Sometimes I tell good stories.
   B Everybody likes to hear my stories.
10. A I expect a great deal from other people.
    B I like to do things for other people.
11. A I really like to be the center of attention.
    B It makes me uncomfortable to be the center of attention.
12. A Being an authority doesn't mean than much to me.
    B People always seem to recognize my authority.
13. A I am going to be a great person.
    B I hope I am going to be successful.
14. A People sometimes believe what I tell them.
    B I can make anybody believe anything I want them to.
15. A I am more capable than other people.
    B There is a lot that I can learn from other people.
16. A I am much like everybody else.
    B I am an extraordinary person.

Appendix O: UPPS-P Impulsivity Scale

(UPPS-P; Lynam, Smith, Whiteside, & Cyders, 2006)

Please rate your level of agreement with each of the following items using the scale below.

1	2	3	4
strongly disagree			strongly agree

1. I have a reserved and cautious attitude toward life.*
2. I have trouble controlling my impulses.
3. I generally seek new and exciting experiences and sensations.
4. I generally like to see things through to the end.*
5. When I am very happy, I can't seem to stop myself from doing things that can have bad consequences.
6. My thinking is usually careful and purposeful.*
7. I have trouble resisting my cravings (for food, cigarettes, etc.).
8. I'll try anything once.
9. I tend to give up easily.
10. When I am in great mood, I tend to get into situations that could cause me problems.
11. I am not one of those people who blurt out things without thinking.
12. I often get involved in things I later wish I could get out of.
13. I like sports and games in which you have to choose your next move very quickly.
14. Unfinished tasks really bother me.*
15. When I am very happy, I tend to do things that may cause problems in my life.
16. I like to stop and think things over before I do them.*
17. When I feel bad, I will often do things I later regret in order to make myself feel better now.
18. I would enjoy water skiing.
19. Once I get going on something I hate to stop.*
20. I tend to lose control when I am in a great mood.
21. I don't like to start a project until I know exactly how to proceed.*
22. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.
23. I quite enjoy taking risks.
24. I concentrate easily.*
25. When I am really ecstatic, I tend to get out of control.
26. I would enjoy parachute jumping.
27. I finish what I start.*
28. I tend to value and follow a rational, "sensible" approach to things.*
29. When I am upset I often act without thinking.
30. Others would say I make bad choices when I am extremely happy about something.

31. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.
32. I am able to pace myself so as to get things done on time.*
33. I usually make up my mind through careful reasoning.*
34. When I feel rejected, I will often say things that I later regret.
35. Others are shocked or worried about the things I do when I am feeling very excited.
36. I would like to learn to fly an airplane.
37. I am a person who always gets the job done.*
38. I am a cautious person.
39. It is hard for me to resist acting on my feelings.
40. When I get really happy about something, I tend to do things that can have bad consequences.
41. I sometimes like doing things that are a bit frightening.
42. I almost always finish projects that I start.*
43. Before I get into a new situation I like to find out what to expect from it.*
44. I often make matters worse because I act without thinking when I am upset.
45. When overjoyed, I feel like I can't stop myself from going overboard.
46. I would enjoy the sensation of skiing very fast down a high mountain slope.
47. Sometimes there are so many little things to be done that I just ignore them all.
48. I usually think carefully before doing anything.*
49. Before making up my mind, I consider all the advantages and disadvantages.*
50. When I am really excited, I tend not to think of the consequences of my actions.
51. In the heat of an argument, I will often say things that I later regret.
52. I would like to go scuba diving.
53. I tend to act without thinking when I am really excited.
54. I always keep my feelings under control.*
55. When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with.
56. I would enjoy fast driving.
57. When I am very happy, I feel like it is ok to give in to cravings or overindulge.
58. Sometimes I do impulsive things that I later regret.
59. I am surprised at the things I do while in a great mood.

*Reverse-scored

Appendix P: Center for Epidemiological Studies – Depression Scale

(CES-D; Radloff, 1977)

Using the scale below please indicate how often you have felt the way described below during THE PAST WEEK.

1	2	3	4
Rarely/None	Some/A Little	Occasionally	Most/All

1. I was bothered by things that don't usually bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.*
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I was hopeful about the future.*
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.*
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.*
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not "get going".

*Reverse-scored

Appendix Q: Self-Reported Psychopathy Scale

(SRPS; Levenson, Kiehl, & Fitzpatrick, 1995)

Listed below are a number of statements. Each represents a commonly held opinion and there are no right or wrong answers. You will probably disagree with some items and agree with others. Please read each statement carefully and circle the number which best describes the extent to which you agree or disagree with each statement, or the extent to which each statement applies to you.

1 = Disagree strongly	3 = Agree somewhat
2 = Disagree somewhat	4 = Agree strongly

1. I am often bored.
2. In today's world, I feel justified in doing anything I can get away with to succeed.
3. Before I do anything, I carefully consider the possible consequences.*
4. My main purpose in life is getting as many goodies as I can.
5. I quickly lose interest in tasks I start.
6. I have been in a lot of shouting matches with other people.
7. Even if I were trying very hard to sell something, I wouldn't lie about it.*
8. I find myself in the same kinds of trouble, time after time.
9. I enjoy manipulating other people's feelings.
10. I find that I am able to pursue one goal for a long time.*
11. Looking out for myself is my top priority.
12. I tell other people what they want to hear so that they will do what I want them to do.
13. Cheating is not justifiable because it is unfair to others.*
14. Love is overrated.
15. I would be upset if my success came at someone else's expense.*
16. When I get frustrated, I often "let off steam" by blowing my top.
17. For me, what's right is whatever I can get away with.
18. Most of my problems are due to the fact that other people just don't understand me.
19. Success is based on survival of the fittest; I am not concerned about the losers.
20. I don't plan anything very far in advance.
21. I feel bad if my words or actions cause someone else to feel emotional pain.*
22. Making a lot of money is my most important goal.
23. I let others worry about higher values; my main concern is with the bottom line.
24. I often admire a really clever scam.
25. People who are stupid enough to get ripped off usually deserve it.
26. I make a point of trying not to hurt others in pursuit of my goals.*

*Reverse-scored

Appendix R: Female Essay

Instructions: Please use the provided space to write a brief essay regarding a time in your life when something angered you. Your essay should be at least one paragraph long and should not exceed three paragraphs.

Last week I went to a party with two of my good friends. They both know that I am not really a talkative person and that parties aren't always where I am at my best. Anyways, my friends and I got to the party and they immediately started talking to some people and left me there all by myself. I hung around in a corner, not talking to anyone, waiting for them to remember me. I even approached one of them and tried to join his conversation but he just kept on telling his stories and completely ignored the fact that I was right there. I ended up leaving the party early without them and walked home by myself. That was unfair of them to have left me high and dry.

Appendix S: Male Essay

Instructions: Please use the provided space to write a brief essay regarding a time in your life when something angered you. Your essay should be at least one paragraph long and should not exceed three paragraphs.

Last week I went out to a party with my two good friends. They both know that I am not really a talkative person and that parties aren't always where I am at my best. Anyways, my friends and I got to the party and they immediately started talking to some people there and left me all by myself. I hung around in a corner, not talking to anyone, waiting for them to remember me. I even approached one of them and tried to join his conversation but he just kept on telling his stories and completely ignored the fact that I was right there. I ended up leaving the party early and without them and walked home by myself. That was unfair of them to have left me high and dry.

Appendix T: Female Essay Evaluation

Instructions: Please use the following scale to evaluate each different aspect of the essay:

1	2	3	4	5	6	7
poor			neither poor nor excellent			excellent

1. 2 The organizational structure of the essay.
2. 3 The content of the essay.
3. 1 Writing style.
4. 2 Clarity of expression.
5. 2 Overall quality

total score 10 /35

Additional comments about the essay:

One of the worst essays I have EVER read!

Appendix U: Male Essay Evaluation

Instructions: Please use the following scale to evaluate each different aspect of the essay:

1	2	3	4	5	6	7
poor			neither poor nor excellent			excellent

1. 2 The organizational structure of the essay.
2. 3 The content of the essay.
3. 1 Writing style.
4. 2 Clarity of expression.
5. 2 Overall quality

total score 10 /35

Additional comments about the essay:

one of the worst essays I have EVER read!

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Signature