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# Differential Mating Motives' Influence on Preferences for Facially Communicated Extraversion

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# DIFFERENTIAL MATING MOTIVES' INFLUENCE ON PREFERENCES FOR FACIALLY COMMUNICATED EXTRAVERSION

by

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ABSTRACT

Human facial structures communicate personality from which one can infer another's behavioral intentions, forming a basis for mate selection. One particularly detectable trait through facial structures is extraversion. Extraversion is a trait associated with heightened interest in promiscuous mating strategies and preferred among individuals similarly interested in short-term mating, implicating extraverted mates as ideal trait for short-term mating. Nonetheless, behavioral repertoires associated with extraversion may also pose risks, particularly in long-term mating, as their increased promiscuity may undermine their fidelity to a specific partner, thereby potentially reducing biparental investment in any offspring produced. Thus, a preference for introversion (i.e., low extraversion) may be desirable in long-term mating. This dissertation sought to determine the extent to which differential mating contexts, as elicited through activating context-specific motives, influence preferences for facially communicated extraversion versus introversion. Men and women were experimentally primed with mating motives, either long- or short-term, or a control state before indicating the extent to which various mating-related motivational states were activated (i.e., arousal, intrasexual competition, infidelity concerns, sociosexually unrestricted attitudes). Finally, I tasked them with indicating their preferences among male and female face pairs manipulated to communicate high and low levels of extraversion. Consistent with previous research, participants reported a preference for extraverted female faces and aversion to extraverted male faces. However, and contrary to hypotheses, differential mating contexts influenced neither men's nor women's preferences for extraversion. Furthermore, no motivational states provided the predicted mediation pathways. I frame

these results based on various methodological limitations that could inform future research and posit future directions.

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# DEDICATION

I dedicate not only this dissertation, but my entire body of work, to my parents. Bob and Sue, you are the primary impetus behind every success I have had in my life. I remain indebted to your support as I try to return a favor that can never be fully reciprocated. This all being said, I refuse to stop wearing jorts…

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# CHAPTER I BACKGROUND

Selecting a mate capable of satisfying various goals related to specific mating contexts is paramount to reproductive success, necessitating sensitivity to those possessing psychological and physical characteristics that would facilitate salient mating goals. Human reproduction is aided through the identification of individuals who can optimally facilitate production of healthy offspring capable of successful reproduction themselves and partners willing and capable of investing in offspring (Trivers, 1972), because human offspring are born vulnerable and require significant resource contributions from both parents. Accordingly, humans focus on both short-term relationships, emphasizing partner traits that facilitate the production of healthy offspring, and long-term relationships, emphasizing considerable resource investment in any offspring produced (Gangestad & Simpson, 2000).

Salient mating goals predict preferences for facial structures connoting various personality traits, with structures connoting extraversion being particularly important in weighing mate selection decisions (Brown & Sacco, 2017a). Given extraverted individuals' interest in promiscuous mating strategies (Schmitt & Shackelford, 2008) and heightened physical attractiveness (Lukaszewski & Roney, 2011), extraverted prospective mates may satisfy important selection criteria in short-term mating contexts. Conversely, introverted individuals' reduced proclivity toward promiscuity may connote greater relationship fidelity, thereby implicating facially communicated introversion as ideal in long-term mating contexts.

## Context-Dependency in Mate Preferences

Although procuring an individual mate who equally and effectively solves all

reproductive problems is ideal, any given partner will likely only satisfy certain reproductive goals better than others. According to sexual strategies theory, context-dependent mating goals should influence partner preferences, whereby certain traits become prioritized based on given contexts (Buss & Schmitt, 1993; Kenrick, Groth, Trost, & Sadalla, 1993). Men and women can both benefit from either a short-term (STM) or long-term mating (LTM) focus. Men focusing on STM can increase their overall number of offspring produced, whereas women's STM focus facilitates the identification of partners with traits indicating heightened capacity to produce healthy and fertile offspring. Conversely, men and women's LTM focus could facilitate their ability to identify partners motivated to invest parentally, thereby increasing the chances of offspring survival to reproductive age. Thus, both men and women should demonstrate differential sensitivity to prospective mates' social cues connoting mate qualities when selecting partners to facilitate mating success.

Men and women contextually value, and select, different constellations of traits, to ensure both STM and LTM success (Buss & Schmitt, 1993; Li et al., 2013; Li & Kenrick, 2006). STM emphasizes strategic pluralism, or the acquisition of mates for brief, uncommitted sexual encounters (Gangestad & Simpson, 2000). This emphasis necessitates the acquisition of mates exhibiting good genes, particularly cues associated with physical attractiveness. Such cues indicate a potential mate's ability to produce healthy offspring subsequently capable of successful reproduction themselves (Thornhill & Gangestad, 2006). For example, women emphasizing STM strategies prioritize men's muscularity and facial masculinity (i.e., square jawline and wide forehead), which communicate greater immune system functioning and fertility (Frederick & Haselton,

2007; Little, Burt, Penton-Voak, & Perrett, 2001; Penton-Voak & Chen, 2004; Sacco, Jones, DeBruine, & Hugenberg, 2012). Men emphasizing such strategies prioritize fertility cues in women's bodies (e.g., 0.7 waist-to-hip ratio; Confer, Perilloux, & Buss, 2010; Singh, 1993) and feminized facial features (i.e., round face, full lips; Smith et al., 2006), which collectively communicate sexual availability, increased likelihood of impregnation following a single act of intercourse, and heightened capacity for successfully birthing offspring without complications. Women prioritizing STM also prefer men with agentic, dominant personalities who adopt promiscuous mating strategies (Aitkens, Lyons, & Jonason, 2013; Brown & Sacco, 2017a; Durante, Griskevicius, Simpson, Cantú, & Li, 2012; Jonason & Buss, 2012; Kruger, Fisher, & Jobling, 2003; Marcinkowska, Helle, & Lyons, 2015). This preference affords access to good genes associated with such personalities without having to incur interpersonal costs following a single act of intercourse (e.g., infidelity; Jonason, Li, & Buss, 2010; Nettle, 2005).

LTM refers to committed pair-bonding, which necessitates that men and women prioritize different traits in potential partners. Although physical attractiveness remains desirable in LTM, most notably for men, women additionally emphasize traits indicating men's access to resources and willingness to invest such resources in offspring (Buss, 1989; Guéguen, 2014; Jonason, Li, & Madson, 2012; Kenrick et al., 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002). Nonetheless, across cultures, both men and women recognize benevolence and relationship fidelity as the most desirable traits in evaluating long-term mates, particularly for those with heightened LTM interest (Barclay, 2010; Brown & Sacco, 2019; Brown, Sacco, & Medlin, 2019a; Buss, 1989; Li et al., 2002). For men, preferring fidelity in a female partner reduces concerns of unknowingly rearing

genetically unrelated offspring, thereby ensuring investment in offspring that would facilitate their own inclusive fitness (Platek & Shackelford, 2006). Women's preference for faithful men reduces concerns of resource diversion to other women and offspring not their own. Importantly, because extraversion is associated with gregariousness and promiscuity (Nettle, 2005; Schmitt & Shackelford, 2008), men and women motivated by LTM may emphasize introversion to avoid potential infidelity costs associated with extraverted individuals. Women's large reproductive costs further position them to have a particularly strong introversion preference for LTM selection (Trivers, 1972).

**Extraversion and Mating**

Various personality traits correlate with differing levels of LTM and STM interest, implicating certain personalities as ideal for different mating contexts (Schmitt & Shackelford, 2008). Identifying prospective mates' personality would be adaptive in inferring the extent to which a given person could satisfy relevant mating goals. For example, marital satisfaction is highest among agreeable partners, suggesting agreeable mates are ideal for LTM (Botwin, Buss, & Shackelford, 1997). Conversely, agreeable individuals are averse to promiscuity, undermining their STM attractiveness (Schmitt & Shackelford, 2008). Extraverts utilize pluralistic mating strategies more than introverts, implicating extraversion as attractive in STM (Nettle, 2005; Schmitt, 2004; Schmitt & Shackelford, 2008). Identifying and selecting extraverted mates would benefit those motivated by STM, whereas such decisions may be costly for those prioritizing LTM.

Associating with extraverted conspecifics has numerous social benefits. Their gregariousness affords extensive affiliative opportunities (Pollet, Roberts, & Dunbar, 2011). Selection may have favored gregariousness to ensure availability of sociable

conspecifics, thus leading to specific genes implicated in extraversion becoming pervasive (Buss, 2009; Penke, Dennisen, & Miller, 2007). Extraversion's interpersonal agency and gregariousness in affiliative domains may translate to STM desirability, as evidenced by extraverted individuals' proficiency in initiating relationships (Ashton & Lee, 2007; Nettle, 2005). Genes implicated in STM desirability may have thus emerged from social selection of gregariousness. Extraversion is associated with short Cytosine-Adenine-Guanine codon repeats, a gene expression for heightened androgenic receptor activity associated with heightened physical strength and dominance in men that is attractive in STM (Lukaszewski & Roney, 2011; Simmons & Roney, 2011; Westberg et al., 2009). Extraverted men and women are also more physically attractive, with extraverted men possessing considerably greater physical strength relative to introverted men (Cheng, Tracy, & Henrich, 2010; Fink, Weege, Pham, & Shackelford, 2016; Lukaszewski & Roney, 2011; Pound, Penton-Voak, & Brown, 2007).

Desirable traits afforded by genes associated with extraversion may subsequently provide extraverted individuals increased STM opportunities, which could heighten their proclivity toward promiscuous mating strategies, given their likelihood of success in such pursuits (Lukaszewski & Roney, 2011; Provenzano, Dane, Farrell, Marini, & Volk, 2018). Extraverted women also strongly prefer facial masculinity, a preference akin to sociosexually unrestricted women's good genes preference (Sacco, Hugenberg, & Sefcek, 2009; Welling, DeBruine, Little, & Jones, 2009). Extraversion may therefore facilitate optimum STM experiences between individuals with good genes and similar STM interests. Men's proclivity toward promiscuity would further position them as especially interested in extraverted women when STM is salient due to the increased sexual

availability associated with female extraversion (Schmitt, 2003).

Although extraversion is ostensibly ideal in STM, certain aspects of the trait undermines its LTM desirability. For example, preferring extraverted men in STM affords women access to good genes (i.e., extraverted men's physical dominance), without incurring costs from continued association following a single act of intercourse. Thus, benefits of mating with dominant men in STM outweigh the costs (Gangestad & Simpson, 2000). Nonetheless, continued association with extraverted partners may leave women vulnerable to the costs of antagonistic partners, specifically a partner prone to aggressive mate guarding tactics and possessiveness (Holden, Zeigler-Hill, Pham, & Shackelford, 2014). Additionally, extraverted long-term mates could be costly when considering their proclivity toward infidelity (Nettle, 2005; Schmitt, 2004). This proclivity further suggests extraverted women would increase men's concerns of paternal uncertainty. Women may also perceive extraverted men as unreliable in providing resources for mates and offspring. Thus, *introversion* may ultimately be preferable in LTM. Introverted individuals' disinterest in promiscuous mating strategies should augment their long-term desirability, as interest in promiscuity is typically a dealbreaker in long-term contexts (Jonason, Garcia, Webster, Li, & Fisher, 2015). Because of the greater reproductive costs women face compared to men, resulting in especially judicious mate selection (Haselton & Buss, 2000), it would follow that women's preferences for introverted men in LTM contexts would be greater relative men's preference for introverted women in such contexts.

## Facial Personality and Mate Selection

The importance of identifying mates whose personalities would optimize mating goals, it becomes incumbent upon perceivers to detect prospective mates' personalities. Although personality is typically assessed through self- and other-reports, the Realistic Accuracy Model posits detection also occurs through a multimodality of interpersonal cues (Funder, 1995, 2012). In fact, only brief exposure is frequently necessary for such inferences (e.g., Ambady & Rosenthal, 1992). Perceivers demonstrate perceptual acuity when assessing others' personalities based on interpersonal behavior, with the interpersonal components of extraversion being the most easily detected of all Big Five traits (Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004). Personality inferences may be rooted in inferences of targets' behavioral intentions connoting certain personalities. If one can infer the associated behavioral intentions through such cues, then one can more effectively identify another's affordance in facilitating the perceiver's goals (Zebrowitz & Collins, 1997; Sacco & Brown, 2018a), including those related to mating.

Human facial structures are robust channels through which personality is adaptively inferred. Much of human history involved direct, physical face-to-face interactions, necessitating specific capacities to infer valuable social information through faces (Argyle & Cook, 1976). To facilitate such communication, humans have evolved strategies for extracting information from target faces (e.g., mutual eye gaze, emotion recognition). Beyond facilitating general social interactions, faces communicate specific information pertinent to mating. Facial structures can cue mate value, particularly related to a target's overall health and mating intentions (Parkinson, 2005; Rhodes, 2006). Within these inferences, perceivers are capable of detecting personality through facial

structures, particularly those connoting Big Five Personality traits (Little & Perrett, 2007). Such perceptual acuity occurs at minimal exposure, with raters accurately identifying the exemplification of a given trait following 50-150ms of exposure (Borkenau, Brecke, Möttig, & Paelecke, 2009). Importantly, inferences were most apparent in detecting extraversion (Penton-Voak, Little, Pound, & Perrett, 2006; Kramer, & Ward, 2010; Little & Perrett, 2007). Inferring social targets' level of extraversion would be adaptive for subsequent affiliative decisions based on perceptions of extraverts' ability to satisfy certain goals. Accurately identifying a target as extraverted through facial structures would implicate that person as able to satisfy STM goals, whereas these inferences should subsequently elicit perceptions of inability to satisfy LTM goals.

**Preferences for Facial Extraversion**

Salient goals influence interpersonal preferences based on the extent to which targets' faces communicate extraversion (Sacco & Brown, 2018a). These affiliative decisions are contingent upon an assessment of the benefits and costs associated with such personalities and which is prioritized by these goals. For example, extraverts have considerable interest in affiliation and increasing extraversion predicts increased social network size (Pollet et al., 2011); this implicates extraverts as offering extensive affiliative opportunities resulting in greater preferences for facially communicated extraversion by those with activated affiliation needs. Indeed, those with a heightened need to belong, both dispositionally and following an exclusionary experience, prefer extraversion (Brown & Sacco, 2017b; Brown, Sacco, & Medlin, 2019b). Conversely, extensive interpersonal contact facilitates disease transmission, implicating extraversion as a pathogenic threat (Nettle, 2005; Schaller & Murray, 2008). Heightened perceived

vulnerability to disease elicits *aversion* to facially communicated extraversion, particularly among opposite-sex faces (Brown & Sacco, 2016). People can identify extraverted behavioral repertoires by facial structure and subsequently decide whether such behaviors are costly or advantageous (Sacco, Young, & Hugenberg, 2014).

Germane to this conversation is the relative sensitivity toward facial extraversion among those dispositionally interested in STM. Sociosexually unrestricted women, women particularly interested in STM, are sensitive to facial structures connoting extraversion in male faces, such that they more preferred male facially communicated extraversion relative to restricted women (Brown & Sacco, 2017a). Interestingly, sociosexually unrestricted men also indicated similar preferences. Whereas women's preferences would be in the service of identifying high-quality short-term partners, men's preferences may represent vigilance toward intrasexual competition and subsequent willingness to confront rivals with similar mating goals (Maner, Gailliott, Rouby, & Miller, 2007; Maner, Miller, Coyle, & Kaschak, 2014). Independent of STM motives, however, the costs associated with extraverted men appeared salient through a downregulated preference for extraverted male faces, which would seem sensible given perceptions of dominance and masculinity in extraverted male faces (Kramer, Ward, & King, 2011). Unrestricted women nonetheless prioritize the short-term benefits of such associations in their decisions over long-term costs. These preferences suggest women, when shifting their mating priorities to STM and traits most desirable for such relations, will upregulate their preference for male facial extraversion.

Although men dispositionally interested in STM were vigilant of extraverted male faces (Brown & Sacco, 2017a), which may translate to aggression, such responses may

not be unilateral. Indeed, men can demonstrate interest for both LTM and STM, but those without chronic prioritization of such strategies may also not perceive confronting rivals as an ideal strategy, given links between men's physical formidability and successfully enacting promiscuous mating strategies (Boothroyd, Jones, DeBruine, & Perrett, 2008; Frederick & Haselton, 2007). Thus, temporal activation of STM motives should generally downregulate preferences for extraverted male faces among men. Furthermore, activation of such motives should downregulate women's preference for extraverted female faces in the service of avoiding their own intrasexual rivals.

**Current Research**

This dissertation sought to determine the causal link between facially communicated extraversion and its desirability as a function of mating context. I experimentally tested how activated mating motives elicit preferences for facial extraversion or introversion in opposite- and same-sex targets. Given both extraverted individuals' interest in STM and heightened physical attractiveness (Lukaszewski & Roney, 2011; Schmitt & Shackelford, 2008), activating STM motives should heighten preferences for those who could best facilitate those salient mating goals. Conversely, such consonant mating goals would likely pose extraverted same-sex individuals as intrasexual threats, suggesting STM motives would elicit preferences for introverted same-sex faces (Nettle, 2005). Further, because of the potential for infidelity and antagonism associated with extraversion (Holden et al., 2014; Nettle, 2005), there should be an overall preference for introversion when LTM motives are salient. Specifically, I predict women with activated STM motives will prefer extraverted male faces and introverted female faces (**$H_1$**), whereas men with such STM motives will prefer

extraverted female faces and introverted male faces (**$H_2$**). I also predict both men and women with activated LTM motives will further prefer introverted male and female faces more than those primed with STM motives (**$H_3$**).

Sex differences in preferences should further emerge based on both men's greater interest in STM relative to women (Schmitt, 2003) and women's judiciousness in mate selection (Haselton & Buss, 2000; Kenrick et al., 1993; Trivers, 1972). Specifically, STM-primed men's preference for extraverted female faces will be larger than STM-primed women's preference for extraverted male faces (**$H_4$**). Conversely, LTM-primed women's preference for introverted male faces will be larger than men's preference for introverted female faces (**$H_5$**).

**Proposed Mediators**

I also sought to identify the bases of these preferences. Upon the activation of a motivational state, individuals subsequently could experience a litany of mentalities to facilitate goal acquisition, specifically pertaining to mate acquisition and vigilance of relationship threats. In the acquisition of mates, mating-motivated individuals may experience sexual arousal to facilitate identification of facial cues connoting sexual receptivity for a desired relationship (e.g., Maner et al., 2005; Maner et al., 2007). This posits arousal as potentially facilitating an approach toward mates who would facilitate their salient mating goals. In fact, previous research indicates that a heightened sex drive upregulates preferences for sex-typical faces, potentially in the service of motivating engagement with prospective mates (Lippa, 2006; Welling, Jones, & DeBruine, 2008). Thus, I predicted LTM-primed individuals' preference for opposite-sex faces connoting introversion will be mediated by heightened sexual arousal (**$H_{6a}$**), whereas STM-primed

individuals' preference for opposite-sex faces connoting extraversion would be similarly mediated by arousal (**$H_{6b}$**). Relatedly, because individuals more oriented toward STM and LTM would differentially influence endorsement of promiscuous mating strategies (Buss & Schmitt, 1993; Gangestad & Simpson, 1991), it would logically follow situationally activating an LTM motivational state would restrict sociosexuality and activating an STM state would *unrestrict* sociosexuality. Indeed, previous research suggests variability in sociosexuality influences individuals' perceptual acuity toward facial features connoting sexual receptivity in the service of identifying prospective mates most suited to satisfying mating goals (e.g., Sacco et al., 2009; Sacco et al., 2012), and that sociosexuality can be adaptively calibrated for salient goal acquisition on a state level (Sacco, Young, Brown, Bernstein, & Hugenberg, 2012). Thus, I predicted the effects of STM motives on opposite-sex extraversion preferences will be mediated by an *unrestricted* sociosexuality (**$H_{7a}$**), whereas LTM-motivated preferences for opposite-sex introversion will be mediated by a *restricted* sociosexuality (**$H_{7b}$**).

Along with heightening interests in mate acquisition, contextual mating motives may heighten vigilance toward domain-specific threats to mating success. In the service of identifying and avoiding intrasexual rivals, activated STM motives may subsequently heighten motivation for intrasexual competition (e.g., Griskevicius et al., 2009; Sundie et al., 2011). Extraverted individuals' heightened attractiveness and interest in promiscuity would implicate them as particularly likely intrasexual rivals, making it adaptive to avoid them when STM motives are salient. Thus, I hypothesized STM-motivated individuals' aversion to same-sex extraverted faces would be mediated by heightened intrasexual competition (**$H_{8}$**). Finally, whereas STM-motivated individuals' vigilance toward

intrasexual rivals would manifest as competition, those in committed relationships may specifically espouse concern about threats to one's own pairbond vis-á-vis attractive rivals and alternatives (e.g., Maner, Gailliot, & Miller, 2009; Plant, Kunstman, & Maner, 2010). This vigilance could manifest as infidelity concerns, particularly from interlopers who would threaten one's pairbond. Given that extraverted individuals are particularly prone to infidelity and the dissolution of relationships in favor of attractive alternatives (Nettle, 2005), concerns about infidelity could elicit aversion to extraverted faces. Hence, I hypothesize the effect of LTM motives on a preference for introverted faces of both sexes would be mediated by infidelity (**H$_9$**).

# CHAPTER II - METHOD

This research was approved by the Institutional Review Board at The University of Southern Mississippi (Protocol #: 18062905).

## Participants

A small-medium effect-size power analysis using G*Power (Faul, Erdfelder, & Lang, 2007) indicated 200 participants would sufficiently detect effects using a 3 × 2 × 2 mixed-model ANOVA (Cohen's $f = 0.13$, $\beta = 0.80$). I intentionally oversampled and obtained 284 participants through Amazon's Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011) who were compensated $0.50 (US) for their participation. Given this study was interested in heterosexual mate preferences and that it is recommended for studies using mating primes to consider only those in a window of time in which mating motives are especially salient (see Brown & Sacco, 2018; Brown, Sacco, & Medlin, in press; Sundie, Beal, Neuberg, & Kenrick, in press), I limited participation to individuals between 18-40 years of age and reporting at least some heterosexual attraction. I excluded 29 participants for indicating having participated distracted (i.e., not immersing themselves as fully in the mating prime); inclusion of these participants did not influence results in a meaningful way. This resulted in a final sample of $n = 254$ ($M_{Age} = 30.69$ years, $SD = 4.74$; 119 men, 135 women; 72.5% White).

Following initial data collection, I thought it prudent to consider the distribution of participants' relationship status. This is based on differences between single and paired individuals' sensitivity toward facial features connoting heritable fitness in mating contexts (Lustgraaf & Sacco, 2015; Sacco et al., 2012). A chi-squared analysis considering men and women who are single and paired indicated that a considerable

asymmetry in these variables, $\chi^2(1, N = 254) = 11.96$, $p < 0.001$. Specifically, there was a substantially larger number of paired women ($n = 86$) relative to single women ($n = 49$). Although there was more symmetry between men, there were also more single men ($n = 69$) than paired men ($n = 50$). Because of this asymmetry, I proceeded with caution in the subsequent analysis.

## Materials

### Mating Prime

Mating motives were primed through immersive narratives designed to heighten domain-specific mating desires (Griskevicius et al., 2007). Primes described same-sex protagonists (matched to the participants' sex) from a first-person perspective meeting an attractive opposite-sex person. Narratives described either a romantic evening with implications of the encounter being the start of a relationship (LTM; see Appendix A for example) or a one-night stand (STM; Appendix B). A third control condition tasked participants with reading about going to a concert with a same-sex friend to elicit an equivocally positive affective state as the mating primes (Appendix C). Such primes have previously demonstrated efficacy in heightening sensitivity to discrete facial features connoting mate quality, particularly limbal rings (Brown & Sacco, 2018), suggesting that such primes could heighten sensitivity to configural features connoting similar properties.

### Manipulation Checks

Following the prime, participants responded to a series of manipulation checks to determine the extent to which mating-related motivations were activated to determine the potential basis for extraversion preferences. Aside from the arousal assessment, which

immediately followed the prime, the manipulation checks were presented in random order.

**Arousal**

Participants initially responded to four 7-point manipulation check questions assessing activation of mate acquisition motives (1 = *Not at All*; 7 = *Very Much;* $\alpha$ = 0.92). Further, participants also indicated their general affect using another 7-point item (-3 = *Very Negative*; 3 = *Very Positive*; Appendix D), to determine the extent to which positive affect would be driving the effects.

**Sociosexuality**

Participants indicated their endorsement to a state assessment of sociosexuality using the attitude subscale of the Sociosexual Orientation Inventory-Revised (Penke & Asendorpf, 2008; Appendix E). This subscale utilizes 3 items, operating along 9-point scales, assessing the extent to which one's sociosexual attitudes are unrestricted with higher scores indicating a more unrestricted attitude (1 = *Strongly Disagree*; 9 = *Strongly Agree*; 1 item reverse-scored; $\alpha$ = 0.82).

**Intrasexual Competition**

Participants indicated the extent to which they felt intrasexually competitive, at a state level, along five 7-point ad hoc items adapted from a dispositional measure of individual differences in intrasexual competition (Buunk & Fisher, 2009; Appendix F). Items assessed whether various aspects of competition were applicable to individuals with higher scores indicating greater feelings of intrasexual competition (1 = *Not at All Applicable*; 7 = *Completely Applicable*; $\alpha$ = 0.86).

### Infidelity Concerns

Participants indicated the extent to which they were concerned about infidelity along five ad hoc items to measure concerns on a state level (Appendix G). Items operated on 7-point scales (1 = Not at All; 7 = Very Much; $\alpha = 0.72$) with higher scores indicating greater concerns of infidelity.

### Extraversion/Introversion Faces

Participants indicated their preferences among male and female face pairs manipulated to communicate high and low levels of extraversion (Brown & Sacco, 2016; Appendix H for examples). Faces were 40 unique Caucasian identities including 20 male and 20 female faces between the ages of 18-40 years, which were morphed with extraverted and introverted composite face prototypes (Holtzman, 2011). The extraverted face composites were comprised of the 10 men and 10 women scoring highest in extraversion from self- and other-reports in personality inventories with introverted composites being comprised of the 10 men and 10 women who scored lowest in extraversion. The unique identities were blended with matched-sex composites for extraversion and introversion for a 50% appearance for both faces, using morphing software (Morpheus Animation Suite v3.10, 1999).

Participants were presented with each face pair, which were randomized on a between-participants basis with face position counterbalanced (i.e., left-, right-screen position). Participants selected the face in each pair they preferred by clicking a corresponding button under their options in a self-paced task with trials ending after participants indicate their decisions. Responses indicating preferences for extraversion were coded as “1” and responses indicating preferences for introversion “0.” Higher

values indicated preferences for extraversion relative to introversion. I calculated the relative extraverted face preference by summing the frequency of participants' selection of an extraverted target and dividing it by the total number of trials, separately for both male and female targets. Results from 20 trials per stimulus type can accurately reflect true probability of preference in ipsative scales (Pollet & Little, 2017).

**Procedure**

Consenting participants initially provided demographic information and were randomly assigned to one of three priming conditions describing the matched-sex scenario for that condition (STM, $n = 84$; LTM, $n = 89$; Control, $n = 82$). Participants then responded to the manipulation check items before completing the face preference task. Finally, participants were debriefed and receiving a 6-digit redemption code for compensation (see Appendices I-K for the demographics, informed consent, and debriefing form).

# CHAPTER III - RESULTS

## Manipulation Check

To determine the success of our manipulations, I conducted a 2 (Participant Sex: Male vs. Female) × 3 (Condition: LTM vs. STM vs. Control) factorial MANOVA with arousal, affect, sociosexuality, intrasexual competition, and infidelity concerns as dependent variables. Instances in which assumptions of homogeneity of variance were violated, as evidenced through Levene's tests of homogeneity, resulted in my use of Games-Howell tests for post hoc tests. Instances when homogeneity was assumed, I utilized LSD tests. See Table 1 for descriptive statistics.

### Arousal

A main effect of Condition emerged, $F(2, 249) = 81.39$, $p < 0.001$, $\eta^2 = 0.395$. A Games-Howell test indicated participants in both the LTM and STM conditions (*M*s > 5.25, *SD*s > 0.96) reported greater arousal than in the Control condition ($M = 2.75$, $SD = 1.83$), *p*s < 0.001, *d*s > 1.60. No difference emerged for the LTM and STM conditions, $p = 0.694$, $d = 0.12$. Men reported marginally more arousal (M = 4.72, SD = 1.89) than did women (M = 4.32, SD = 1.99), $F(1, 249) = 3.07$, $p = 0.081$, $\eta^2 = 0.012$. No interaction emerged, $F(2, 249) = 1.60$, $p = 0.203$, $\eta^2 = 0.013$.

### Affect

A marginally significant main effect of Condition emerged, $F(2, 249) = 3.00$, $p = 0.051$, $\eta^2 = 0.024$. Post hoc LSD tests indicated participants in the LTM condition reported marginally greater positive affect ($M = 2.25$, $SD = 0.92$) than in the Control condition ($M = 1.90$, $SD = 1.23$), $p = 0.068$, $d = 0.32$; there were no differences between LTM and STM ($M = 2.20$, $SD = 0.87$) or STM and Control, *p*s > 0.16, *d*s < 0.30. Neither

the main effect for Sex nor the interaction was significant, *F*s > 0.34, *p*s > 0.340, $\eta^2$s = 0.390.

**Sociosexual Orientation**

A main effect of sex emerged, such that men espoused more sociosexually unrestricted attitudes (*M* = 5.91, *SD* = 2.25) than women (*M* = 4.97, *SD* = 2.46), *F*(2, 249) = 10.48, *p* = 0.001, $\eta^2$ = 0.040. No effect of condition emerged, *F*(2, 249) = 0.55, *p* = 0.577, $\eta^2$ = 0.004. Unexpectedly, effects were qualified by a significant Condition × Sex interaction, *F*(2, 249) = 3.37, *p* = 0.036, $\eta^2$ = 0.026. Simple effects tests indicate no difference in sociosexually unrestricted attitudes in men based on Condition, *F*(2, 249) = 1.26, *p* = 0.286, $\eta^2$ = 0.021. For women, however, a marginally significant main effect emerged, *F*(2, 249) = 2.79, *p* = 0.065, $\eta^2$ = 0.041. A Games-Howell test indicated that women in the LTM condition (*M* = 5.61, *SD* = 2.23) were marginally more sociosexually unrestricted compared to women in the Control condition (*M* = 4.47, *SD* = 2.74), *p* = 0.078, *d* = 0.46. No differences emerged for STM (M = 4.77, SD = 2.28) with either LTM or Control, *p*s > 0.189, *d*s < 0.12. These results suggest that the experimental manipulation marginally elicited an effect in women that in opposition to the predictions.

**Intrasexual Competition**

A main effect of Condition emerged, *F*(2, 249) = 6.14, *p* = 0.002, $\eta^2$ = 0.047. A Games-Howell test indicated participants in the LTM condition reported greater intrasexual competition (*M* = 4.66, *SD* = 1.43) than in the Control condition (*M* = 3.91, *SD* = 1.48), *p* = 0.003, *d* = 0.52, and marginally greater competition than STM (*M* = 4.15, *SD* = 1.57), *p* = 0.069, *d* = 0.34. The main effect for Sex and the interaction were not significant, *F*s < 1.80, *p*s > 0. 160, $\eta^2$s < 0.013.

### Infidelity Concerns

A main effect of Sex indicated women were significantly more concerned about infidelity ($M$ = 5.60, $SD$ = 1.12) than were men ($M$ = 5.01, $SD$ = 1.05), $F(2, 249) = 19.02$, $p < 0.001$, $\eta^2 = 0.071$. The main effect of Condition and the interaction were not significant, $F$s < 2.00, $p$s > 0.140, $\eta^2$s < 0.017.

## Primary Analysis

For my primary analysis, I conducted a 2 (Participant Sex: Male vs. Female) × 3 (Condition: LTM vs. STM vs. Control) × 2 (Target Sex: Male vs. Female) mixed-model ANOVA with repeated factors over the latter factor. Consistent with previous findings (Brown & Sacco, 2016; 2017a, 2017b; Brown et al., 2019b), a main effect of Target Sex indicated that participants preferred extraverted female faces ($M$ = 0.57, $SD$ = 0.13) more than extraverted male faces ($M$ = 0.47, $SD$ = 0.13), $F(1, 249) = 68.83$, $p < 0.001$, $\eta^2 = 0.071$. Furthermore, one-sample t-tests indicated that participants categorically preferred extraverted female faces and introverted male faces, $|t$s$| > 2.70$, $p$s < 0.01, $d$s > 0.33. No other main effects or interactions emerged in the data, therefore precluding me from analyzing this model further, $F$s < 1.81, $p$s > 0.180, $\eta^2$s < 0.006.

Table 1. Descriptive statistics for men and women's responses to each outcome measure as a function of prime.

| Prime | Outcome | Men | Women | Total |
|---|---|---|---|---|
| | Arousal | 2.73 (1.82) | 2.74 (1.86) | 2.74 (1.83) |
| | Affect | 1.81 (1.17) | 1.98 (1.29) | 1.90 (1.23) |
| | SOI-A | 5.94 (2.43) | 4.47 (2.74) | 5.14 (2.69) |
| | Int. Comp. | 3.71 (1.49) | 4.08 (1.47) | 3.91 (1.48) |
| Control | Infidelity | 4.77 (0.93) | 5.47 (1.40) | 5.15 (1.25) |
| | Male Faces | 0.45 (0.14) | 0.50 (0.12) | 0.48 (0.13) |

Table 1 (continued)

| | | | | |
|---|---|---|---|---|
| | Female Faces | 0.58 (0.13) | 0.60 (0.13) | 0.59 (0.13) |
| | Arousal | 5.83 (1.16) | 5.02 (1.76) | 5.43 (1.54) |
| | Affect | 2.33 (0.90) | 2.07 (0.85) | 2.20 (0.88) |
| | SOI-A | 6.28 (2.41) | 4.77 (2.28) | 5.54 (2.45) |
| | Int. Comp. | 4.36 (1.30) | 3.93 (1.81) | 4.15 (1.57) |
| STM | Infidelity | 5.02 (1.30) | 5.68 (0.96) | 5.34 (1.19) |
| | Male Faces | 0.47 (0.12) | 0.48 (0.13) | 0.47 (0.12) |
| | Female Faces | 0.56 (0.14) | 0.54 (0.13) | 0.55 (0.13) |
| | Arousal | 5.38 (0.96) | 5.17 (1.35) | 5.26 (1.18) |
| | Affect | 2.33 (0.73) | 2.20 (1.05) | 2.25 (0.92) |
| | SOI-A | 5.49 (1.84) | 5.61 (2.23) | 5.56 (2.05) |
| | Int. Comp. | 4.86 (1.10) | 4.50 (1.64) | 4.66 (1.43) |
| LTM | Infidelity | 5.23 (0.82) | 5.67 (0.97) | 5.47 (0.92) |
| | Male Faces | 0.48 (0.12) | 0.47 (0.13) | 0.47 (0.12) |
| | Female Faces | 0.55 (0.15) | 0.60 (0.14) | 0.58 (0.14) |

**Mediation Analyses**

To determine potential mediation pathways between our study variables and preferences for extraverted faces determined by indirect effects (Rucker, Preacher, Tormala, & Petty, 2011), I conducted 8 separate moderated mediation analyses, 4 for both target faces, with condition and target sex as moderators using the Lavaan Package in R with 5,000 bootstraps (Rosseel, 2012). Specifically, I utilized arousal, sociosexuality, intrasexual competition, and infidelity concerns as mediators. Contrary to hypotheses, none of my proposed mediators significantly mediated the link for preferences of either male or female faces, as evidenced by the confidence intervals in each analysis including zero. Thus, I consider indirect effects no further. See Table 2 for bivariate correlations between outcome measures.

Table 2. Bivariate correlations between outcome measures.

| | Arousal | Int. Comp. | Infidelity | Male Faces | Female Faces |
|---|---|---|---|---|---|
| SOI-A | 0.14* | 0.04 | -0.10 | -0.02 | 0.01 |
| Arousal | | 0.48** | 0.21** | -0.03 | -0.15* |
| Int. Comp. | | | 0.35** | 0.05 | -0.03 |
| Infidelity | | | | 0.00 | 0.01 |
| Male Faces | | | | | 0.01 |

* $p < 0.05$, ** $p < 0.01$

# CHAPTER IV – DISCUSSION

The current experiment provided no support for any of the proposed hypotheses. That is, the activation of specific mating motives did not influence men and women's subsequent preferences for extraverted same- and opposite-sex faces. Despite not providing support the hypotheses in the primary analysis, analyses of the various manipulation checks suggest the experimental manipulations may not have sufficiently activated their intended motivational states. This could have subsequently undermined the manipulations in further eliciting the specific mentalities that would have facilitated face preferences (e.g., sociosexuality, intrasexual competition, infidelity concerns).

Despite the various concerns pertaining to the experimental manipulations and assessments of activated motivational states, the stimuli utilized in this study yielded the consistent preference demonstrated elsewhere (e.g., Brown & Sacco, 2016, 2017a, 2017b; Brown, Sacco, & Medlin, 2019b; Sacco & Brown, 2018b). That is, participants preferred extraverted female faces and downregulated their preference for extraverted male faces, suggesting that individuals ultimately recognize the signal value connoted through the stimuli's facial features. Specifically, whereas extraverted individuals appear sociable and gregarious, traits that could upregulate general preferences for individuals to engage affiliative others, the added cue to physical strength and interpersonal dominance connoted in extraverted male faces could undermine interest in generally affiliating with them in the service of avoiding potential interpersonal costs of dominant and formidable conspecifics (Kramer et al., 2011). Specifically, extraverted individuals are especially interpersonally competitive (Anderson, John, Keltner, & Kring, 2001), which positions them to engage others confrontationally more than introverted individuals. Because

extraverted men are physically strong (Lukaszewski & Roney, 2011), individuals may view the costs of associating with extraverted men to outweigh the benefits, whereas such concerns may not be as salient for women, given physical size asymmetries between men and women (Lassek & Gaulin, 2009).

**Manipulation and Manipulation Checks**

Although participants were sufficiently sexually aroused by the mating primes, an effect consistently found for both LTM and STM primes in previous research (e.g., Brown & Sacco, 2018; DiDonato & Jakubiak, 2016; Griskevicius et al., 2007; Sundie et al., 2011), no differences emerged in sociosexuality for men as a function of condition. Further, women in the LTM condition reported a marginally more unrestricted sociosexuality than the STM and control conditions; this effect was in direct opposition to both the study hypotheses and previous research. This contradictory finding could have occurred for several reasons. One such reason could have been rooted in that LTM-primed women could have been strategically endorsing unrestricted sociosexual strategies momentarily in the service of appearing receptive to men willing to provide access to resources. That is, STM-primed men are more willing to engage in costly resource signaling (i.e., conspicuous consumption), which would connote access to resources desire to women in LTM (Kenrick et al., 1993; Sundie et al., 2011). LTM-primed women could have reported more unrestricted sociosexual attitudes in the service of resource acquisition. Although, these women could have been more interested in LTM, assessing sociosexuality could have been a limiting factor if it were to serve as an interpersonal signal. Future research could benefit in assessing contextual mate preferences more directly by asking whether participants' actual interest in LTM and

STM in a capacity that would ameliorate concerns about espoused sexual interest serving as an interpersonal signal (e.g., DiDonato & Jakubiak, 2016). Nonetheless, caution is necessary in future research using these primes to ensure the intended motives are activated.

Interestingly, and contrary to predictions, intrasexual competition concerns were highest among LTM-primed participants. Although a necessary component of intrasexual competition considers pre-emptive confrontation with rivals who could impede mate acquisition, competition does not necessarily end following acquisition, as evidenced by a litany of mate retention behaviors to address relationship interlopers (e.g., vigilance of intrasexual threats; Buss & Shackelford, 1997). The activation of LTM motives could have elicited such concerns, which would have been indexed by their heightened concerns about competition. When considering the activation of intrasexual competition concerns in future research, it could prove advantageous to discern between competition on the level of acquisition and retention to determine what aspect of competition may ultimately be driving the effects found in this study.

Along with the manipulation checks yielding a series of unexpected results, the findings in the main analysis could have reflected the experimental primes themselves. Although both mating primes provided unique mating situations that explicitly described different mating contexts (i.e., meeting a stranger vs. start of a relationship), which have previously demonstrated an ability to differentially elicit behaviors conducive to LTM and STM success (e.g., conspicuous consumption; Sundie et al., 2011), certain mating-related behaviors had previously yielded equivocal outcomes that were greater than a control condition (e.g., blatant benevolence; Griskevicius et al., 2007). At least

concerning the differences emerging in the manipulation checks, this inconsistency in teasing apart LTM motives from STM could have been a result of the primes not explicitly stating participants to think about a specific context. Future research could benefit from more explicit mating primes. For example, on a basic level, individuals could simply think about having an STM experience or LTM experience (DiDonato & Jakubiak, 2016), which would subsequently elicit prioritization of traits conducive to either pairbond. In using a more comprehensive motivational prime that could specifically elicit contextual motivation, subsequent studies could utilize a mate search paradigm (e.g., Maner et al., 2007), whereby participants would describe what types of traits they would find ideal in a partner. To create the necessary nuance for mating contexts, researchers could then specify the nature of the hypothetical partner as either long- or short-term.

Nonetheless, the motivational primes did not elicit differences in preferences for extraverted faces nor were there differences between these primes and the control condition. Previous research assessing mating-motivated face perception indicates that mating motives are capable of heightening sensitivity to facial features connoting mate value and subsequent desires to approach/avoid targets exhibiting such features (e.g., Brown & Sacco, 2018). However, previous research typically concerns sensitivity to these facial cues along scalar measures, whereas the current experiment specifically utilized an ipsative measure of preference. Despite being able to create proportion scores in this task, thus creating a continuous outcome, dichotomous choices may not necessarily possess the psychometric granularity to capture the interest in extraverted targets. Although sociosexually unrestricted individuals espoused heightened preferences

toward extraverted male faces using ipsative scales (Brown & Sacco, 2017a), it could be possible sociosexually unrestricted individuals' chronically heightened interest in STM could position them as more sensitive to facial features connoting extraversion than those whose STM interests are activated acutely. Indeed, strategic pluralism positions humans to utilize both STM and LTM strategies simultaneously to reap an optimum amount of benefits associated with each strategy (Gangestad & Simpson, 2000), but sociosexually restricted individuals whose STM motives are activated, for example, may not necessarily become as sensitive to the presence of cues connoting STM value as are unrestricted individuals.

Another possibility for the failure of the experimental manipulation could have been an asymmetry in relationship status among participants. Having continuous access to a relationship partner would afford individuals mating opportunities and potentially downregulating interest in promiscuous mating strategies from within the confines of a committed pairbond (Little, Jones, Penton-Voak, Burt, & Perrett, 2002). Indeed, sociosexually unrestricted individuals have reduced preferences toward facial features connoting good genes (e.g., sexual dimorphism, symmetry), but only among those not currently partnered and particularly among women (e.g., Lustgraaf & Sacco, 2015; Sacco et al., 2012). The relatively large number of partnered women in the current study could have had their salient mating goals satisfied prior to the priming of a motivational state, prime insufficient to motivate a given contextual motive. Given both single women's particular sensitivity toward facial features connoting mate value (Sacco et al., 2012) and an interest in male facial features in STM (Perilloux et al., 2010), it would thus seem sensible to predict that single women would be especially sensitive to extraverted facial

structures in a given mating context. However, based on sample size recommendations informed by power analyses (Simmons, Nelson, & Simonsohn, 2011), the current study did not have sufficient statistical power for a defensible exploratory analysis. Future research would benefit from considering either participants whose mating motives are not currently satisfied (i.e., single participants) exclusively, or collecting a substantially larger sample to ensure equivocal representation of single and paired respondents, which could accommodate an analysis with relationship status as a moderator.

**Future Directions**

Because of the communicative properties of extraverted and introverted faces, future research would benefit in employing methodologies that focus on perceptions of the stimuli in capacities that would assess adaptive perceptions and preferences that would indicate consideration of mating motives without necessarily priming them. First, future studies could explicitly task participants with indicating which face in each pair would be more desirable for specific context (e.g., Lyons, Marcinkowska, Helle, & McGrath, 2015). Within these parameters, it would be sensible to predict that men (women) would find extraverted female (male) faces as more desirable for STM and introverted male (female) faces for LTM. However, this task would necessitate the use of a parallel task to assess perceptions of intrasexual threats. This assessment could occur by asking which of each face pair would appears more intrasexually threatening or likely to cheat on their romantic partner, with same-sex extraverted faces being likely to elicit such a perception. Such perceptions could potentially identify the basis of interpersonal decisions in a capacity the mating primes could not in the current study. For example, identifying extraverted faces as intrasexually threatening could assess intrasexual

competition concerns.

When considering scalar measures of extraverted faces, instead of ipsative, it could also be advantageous to assess the contextual desirability of targets separately. Specifically, a study could task participants with indicating the extent to which each version of the opposite-sex targets would seem desirable in both LTM and STM separately (Brown & Sacco, 2018, 2019; Medlin, Brown, & Sacco, 2018). Along with identifying preferences for faces, one could directly infer the specific contextual desirability of each target.

Despite the benefits of explicitly tasking participants with indicating which target would be more desirable for a given context, the task would nonetheless remain imbalanced, as participants could not utilize the same measure to assess preference and aversion for prospective mates and rivals. For the sake of developing an equivocal task across participants sex, it could be advantageous to consider tasking participants with indicating with which face they would prefer to interact to contextualize their preferences in a more ecologically valid capacity (Brown, Sacco, Lolley, & Block, 2017). To approximate participants' contextual mating motives, experiments could place participants in LTM- and STM-specific environments. For example, for STM, participants could be asked which version of the face would be preferable for an interaction if one were at a single's bar, with the implication being that it is a bar where people attempt to acquire short-term mates (see van Straaten, Engels, Finkenauer, & Holland, 2008). It would be sensible to predict a preference to interact with extraverted opposite-sex faces and introverted same-sex faces in such a setting. Conversely, participants could imagine themselves in a setting with a romantic partner to make LTM

motives salient and be tasked with selecting preferable interaction partners. Given the potential intrasexual threat posed by extraversion, it would be sensible to predict an LTM context would elicit preferences for both same- and opposite-sex introversion.

Given that mate preferences and mate choices ultimately remain distinct constructs (Eastwick & Finkel, 2008, but see Li et al., 2013), the proposed studies may ultimately be limited in their capacity to infer actual mate choices and rival aversion on a behavioral level (Montoya, Kershaw, & Prosser, 2018). Along with assessing contextual desirability and preferences toward mates, research could consider specific attraction-related behaviors toward prospective mates, including prolonged eye gaze, motivation to message targets through a dating site, or expressing interest to meet a person. When considering behaviors toward intrasexual rivals or prospective mates who could be prone to infidelity, researchers could also consider approach/avoidance tasks (e.g., joysticks, arm flexion/extension) to determine how such faces influence willingness to (dis)engage rivals and relational threats (e.g., Maner et al., 2014; Mortensen, Becker, Ackerman, Neuberg, & Kenrick, 2010).

**Conclusion**

Despite results not supporting any hypotheses, considering contextual preferences for facially communicated extraversion could nonetheless prove fruitful after refining various methodological considerations. Given the different signal value that extraverted faces continue to exhibit compared to introverted, it would seem sensible to consider acutely activated mating motives influence subsequent perceptions of such facial structures. However, it now becomes incumbent upon research identify the best possible way to identify how these processes occur.

## APPENDIX A- LONG-TERM MATING PRIME

Imagine that you're at home getting ready to go on a first date with a wonderful person whom you just recently met. Your roommate can sense that you're excited about the date and asks about how the two of you met. You think that the story about how you met is very sweet and romantic, so you decide to tell it to your roommate…

There you are, sitting around on campus after class. It's a pleasant early spring day, and you can smell the blooming flowers in the breeze. You have a book open, but you're not really reading it. You look around, relaxed and daydreaming. As you watch the people strolling by in front of you, you notice that everyone seems to be in a particularly good mood.

From behind you, you hear a voice say: "You don't look like you're studying very hard." When you turn around, you're surprised to see a particularly handsome guy whom you have seen before. In fact, you remember noticing him on the first day of class, when your eyes locked across the classroom. Since that time, you've seen him several times, but have never had a convenient opportunity to talk with him. Now he is standing right in front of you, and smiling warmly. "Mind if I join you for a few minutes?" he says.

At first you feel a bit awkward, but as you begin to talk, you realize you feel incredibly comfortable with him. The two of you discover that you have a lot in common, including that both of you are currently single. When he hears this, he lights up. Up close, he is even more attractive than you remember. And he is wonderful to talk to. You find everything he says somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly, at which point he notices that he's late for class. He suggests that maybe he'll just cut class today, if you still want company. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely. He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses are heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

You end up in a little restaurant near school, and the two of you sit in a dark romantic corner in the back. By the candlelight at your table, you notice the pleasant and soothing

aromas from the kitchen. As the evening goes on, you realize you are having an absolutely wonderful time with this person, and that he is feeling the same way. The two of you begin to talk a bit about your personal lives, and you realize that he is an especially kind and sensitive man who really cares about others. As he talks about his ambitions, you find yourself imagining what it would be like to be in a relationship with him. You haven't felt so comfortable with someone in a long time.

Several more hours go by and the waitress smiles when she mentions that the restaurant is closing. Apparently, she's noticed the romantic feelings between the two of you. As he walks you home, you're amazed at what has happened in the last few hours. It's as though you're falling in love at first sight. In front of your door, he stops and looks at you with an intense gaze. You wonder if it would be appropriate to kiss, but nothing happens. He tells you that he hopes to see you again and your heart just melts. Your hands brush together, and your heart races as you begin to feel lightheaded. You lean towards one another and hold each other in a warm and loving embrace. As the evening comes to a close, you don't want to let him go, and you are already thinking about the next time you'll see him…

After that first wonderful encounter, the two of you have gone out on several more spectacular dates. During that time, you've met his friends and have learned a lot more about him as a person. You are amazed at what a wonderful man he has turned out to be and you feel very fortunate that he approached you on that day at school. When your roommate met him last week, she was amazed at what a great guy he was. She was certain that you should go after him, which only confirmed your own feelings. At this point, you are sure that you would like to start a meaningful relationship with this loving and beautiful man, and you are confident that you can make him feel the same way.

In fact, you're going to be seeing him again tonight. Although you've been out with him several times, you still get butterflies in your stomach and your heart begins to race each time before you see him. There's just something about him that always makes you feel comfortable and excited. You can't wait to see him and you know you're going to have a great time like you always do when you're together. You hope that tonight will be the night when the two of you officially become a couple. As you head out the door, you are filled with excitement and anticipation…

## APPENDIX B- SHORT-TERM MATING PRIME

Imagine that you are on vacation with your friends on a tropical island. It's the last day of your trip and you are sitting on the beach on a pleasant summer afternoon, sipping an exotic drink. The air is warm and pleasant, and you watch the waves as the sun begins to set. You have a book open, but you're not really reading it. Instead, you look around, relaxed and daydreaming. As you watch the people strolling by on the soft sand, you notice that everyone seems to be in a particularly good mood.

From behind you, you hear a voice say: "Wow, isn't that the most beautiful sunset you have ever seen?" When you turn around, you are surprised to see that it's coming from a particularly handsome man whom you have seen before. You remember noticing him a few days earlier at the hotel, when your eyes locked across the lobby. Since that time, you've seen him several times, but you have never had a convenient opportunity to talk with him. Now he is standing right in front of you, and smiling warmly. "Mind if I join you for a few minutes?" he says.

At first you feel a bit awkward, but as you begin to talk, you realize that you feel incredibly comfortable with him. You share your thoughts about your week on the island, and you are both a little sad that your time in paradise hasn't been as exciting as you had hoped. And while you learn that he lives far away from you, it turns out that it's his last night on the island as well. Up close, he is even more attractive and charming than you remember. And he is wonderful to talk to. You find that everything he says is somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly and he notices that he's late for dinner with his friends. He suggests that maybe he'll just skip dinner with them and stay here with you, if you still want company. After all, he sees them all the time, but the two of you only have one evening together. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely.

He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses become heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away. You end up in a little restaurant near the beach, and the two of you sit in a dark romantic corner in the back. By the candlelight, you notice the pleasant and soothing aromas from the kitchen. As the evening goes on, you realize you are

having an absolutely wonderful time with this person, and that he is feeling the same way. The two of you order a dessert together and decide to share it. He suggests that after dinner, both of you should go for a walk on the beach in the moonlight. You have been dreaming about someone asking you that very question all week.

As you stroll out onto the sand, he reaches for your hand. You softly squeeze his hand in yours and your eyes meet once again. It's a little windy and you get closer to him. His body feels warm under the stars and you put your head on his bare arm. You can hear that your heart is beating faster, and you feel excited. The sand feels cool and soft against your feet. A wave comes crashing on the beach and you both lightly trip and fall as you try to run away. Sitting in the sand and still holding his hand, you feel the coldness of the water on your feet. Both of your eyes lock again and your heart feels like it's about to stop. As your look at his beautiful face in the moonlight, his hand moves up to caress the back of your neck. You can feel your hairs begin to tingle. He leans in and the tip of his nose slowly touches yours as you continue to wander in each other's gaze. Finally, you close your eyes and his soft lips slowly touch yours for the first time. Although you know that you might never see him again, the kiss is filled with passion. Your embrace is flowing with the kind of desire that you have never felt. You squeeze his body tighter, and you can feel yourself getting excited as you begin to think of how to make this night be one of the most memorable of your entire life.

## APPENDIX C- CONTROL PRIME

Imagine that it's Tuesday afternoon during the semester. You've been working hard all week and you've been looking forward to this weekend for quite a while. You and one of your friends have two tickets for a sold-out concert that's happening tonight. Both of you have been looking forward to this show for a long time. In fact, you had to bend over backwards to get the tickets. Your friend has been talking about the concert every day for weeks now, so you know she's excited. And although it's still several hours away, you can already feel your heart beating a little faster than usual.

As you're getting ready for the show at home, your friend calls to tell you that she's coming over in about an hour. Just so you don't forget later, you decide to get the tickets from your drawer. You open your top drawer where you remember leaving them, but they're not there. You search a little deeper in the drawer, but they're not there either.

You stop to take a breath and tell yourself to calm down. You know you put the tickets in a good place, but where? You start searching through your backpack. Books, folders, pens, but no tickets. You turn the bag upside down and shake it. Nothing but junk. Now you start getting worried. What if you lost the tickets? What's your friend going to think?

In a hurry, you look through the laundry. Maybe they're in a pocket somewhere? You find some pieces of paper, but no tickets. You go into your closet and start throwing things to the floor—no tickets. You're feeling upset at this point. Your hands start to shake a little. You think back to when you had the tickets and try to retrace your steps. You clearly remember putting them in your top drawer, so you search again. You inspect everything, but there are no tickets in this drawer. You look through your whole room, but they're nowhere to be found.

You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the tickets would be there, but you need to look somewhere. In fifteen minutes, your kitchen looks like a disaster area. But still no tickets! You run out into the driveway. Maybe the tickets fell out somewhere? You look in the grass, the bushes, underneath cars. But even if they did fall out, they probably wouldn't even be there by now. As you walk back inside in complete frustration, you feel as though you're ready to pull your hair out. You lost the tickets. And you obviously can't go to the show without them.

Suddenly, you hear a knock on the door. Your friend is early, probably because she's eager to get going. You can hear her humming outside. What are you going to tell her?

She'll be crushed. Is there anything you can do? Maybe you should lie? But that probably won't solve anything. As you walk toward the door, you get ready to fess up, take the blame, and hope that everything will be okay. You open the door, ready for the worst.

As you are about to start telling her what happened, she yells "Are you ready?" and pulls out the two tickets from her back pocket. Your eyes get wide. You grab the tickets from her hand and fall to your knees. Your friend has the tickets! She's had them the whole time. You think back and remember that she wanted to show the tickets to another person, so she took them the other week. You can't believe you forgot. You don't think you've ever felt so relieved in your life. You sit down, shake your head, and put your hand on your chest. You begin to laugh, wiping the sweat from your forehead. You and your friend will get to go to the show after all. Things are going to be just fine.

As you try to forget what happened, you're actually even more thrilled about the concert than before. Your relief turns into elation. You want to shout to everyone just how great you feel. It's as though you just found the winning lottery ticket. You can appreciate going to the concert even more now, knowing that you were very close to not going at all. Your friend is dying to get to the show, and her euphoria is contagious. Both of you run out the door, turn up the stereo, and head off to the most thrilling show of your lives.

## APPENDIX D- AROUSAL AND AFFECT MEASURE

At this moment, I am experiencing sexual arousal.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

At this moment, I am experiencing romantic arousal.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

At this moment, I am experiencing desire to have a romantic partner.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

At this moment, I am experiencing desire for others to be attracted to me.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

At this moment, how do you feel?

| Extremely Negative | | | Neither Positive nor Negative | | | Extremely Positive |
|---|---|---|---|---|---|---|
| -3 | -2 | -1 | 0 | 1 | 2 | 3 |

# APPENDIX E- SOCIOSEXUAL ORIENTATION INVENTORY-REVISED

1. With how many different partners have you had sex within the past 12 months?

| 0 | 1 | 2 | 3 | 4 | 5-6 | 7-9 | 10-19 | 20 or more |
|---|---|---|---|---|---|---|---|---|

2. With how many different partners have you had sexual intercourse on one and only one occasion?

| 0 | 1 | 2 | 3 | 4 | 5-6 | 7-9 | 10-19 | 20 or more |
|---|---|---|---|---|---|---|---|---|

3. With how many different partners have you had sexual intercourse without having interest in a long-term committed relationship with this person?

| 0 | 1 | 2 | 3 | 4 | 5-6 | 7-9 | 10-19 | 20 or more |
|---|---|---|---|---|---|---|---|---|

4. Sex without love is OK.

| Strongly Disagree | | | | | | | | Strongly Agree |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

5. I can easily imagine myself being comfortable and enjoying “casual” sex with different partners.

| Strongly Disagree | | | | | | | | Strongly Agree |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

6. I do not want to have sex with a person until I am sure that we will have a long-term serious relationship. (R)

| Strongly Disagree | | | | | | | | Strongly Agree |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

7. How often do you have fantasies about having sex with someone you are not in a committed romantic relationship with?

| Never | Very Seldom | About once every 2-3 months | About once a month | About once every two weeks | About once a week | Several times per week | Nearly every day | At least once a day |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

8. How often do you experience sexual arousal when you are in contact with someone you are not in a committed romantic relationship with?

| Never | Very Seldom | About once every 2-3 months | About once a month | About once every two weeks | About once a week | Several times per week | Nearly every day | At least once a day |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

9. In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?

| Never | Very Seldom | About once every 2-3 months | About once a month | About once every two weeks | About once a week | Several times per week | Nearly every day | At least once a day |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

## APPENDIX F- INTRASEXUAL COMPETITION SCALE

At this moment, I would want a highly attractive man/woman around me.

| Not at All Applicable | | | | | | Completely Applicable |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Right now, I would want to funnier and more quick-witted than other men/women.

| Not at All Applicable | | | | | | Completely Applicable |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I feel like I would look for negative characteristics in men/women who are very successful.

| Not at All Applicable | | | | | | Completely Applicable |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Right now, I want to be a little more attractive than other men/women.

| Not at All Applicable | | | | | | Completely Applicable |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I just want to be a little better than most men/women at this moment.

| Not at All Applicable | | | | | | Completely Applicable |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

## APPENDIX G- INFIDELITY CONCERNS SCALE

At this moment, it is very important to me to have a partner who would not cheat on me.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

At this moment, I would like to have a partner who would be interested in a committed relationship.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Right now, it would concern me if the person I was dating was less serious about our relationship than I am.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I would feel concerned right now if I saw an attractive man talking to my partner.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

I would be upset right now if the person I was dating talked about the attractiveness of a male/female friend.

| Not at All | | | | | | Very Much |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX H- EXAMPLE FACES

***Note.*** Faces on the left connote extraversion and faces on the right connote introversion.

APPENDIX I- DEMOGRAPHICS

**What is your sex?**
Male
Female
Other

**What is your age (in years)?**

_____

**What is your ethnicity?**
African-American/Black
Asian/Asian-American
Caucasian/White
Hispanic/Latino
Other

**What is your sexual orientation?**
Bisexual
Heterosexual
Homosexual

**What is your relationship status?**
Single
In a relationship

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## LONG FORM CONSENT

**LONG FORM CONSENT PROCEDURES**

This completed document must be signed by each consenting research participant.

- The Project Information and Research Description sections of this form should be completed by the Principal Investigator before submitting this form for IRB approval.
- Signed copies of the long form consent should be provided to all participants.

Last Edited August 28th, 2014

| Today's date: | | |
|---|---|---|
| **PROJECT INFORMATION** | | |
| Project Title: Narrative and Face Perception | | |
| Principal Investigator: Mitch Brown | Phone: 601-266-6747 | Email: mitchellbrown@usm.edu |
| College: College of Education and Psychology | Department: Psychology | |

**RESEARCH DESCRIPTION**

1. **Purpose**:

You are invited to take part in a research study conducted by Dr. Don Sacco in the Department of Psychology. Any questions or concerns regarding this research may be directed to Dr. Sacco (Owings-McQuagge Hall; Room 220F; donald.sacco@usm.edu). This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human participants follow federal regulations. Any questions or concerns about your rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406, (601) 266-6820.

2. **Description of Study:**

In this study, we will ask you to read a story before evaluating a series of faces. Then, we will have you respond to a personality inventory and some demographics questions.

3. **Benefits:**

Your participation in this study does not guarantee any beneficial results. However, it will aid in your understanding of how psychological research is conducted as well as contribute to the general knowledge in the field.

4. **Risks:**

The risks associated with participation in this study are not greater than those ordinarily encountered in daily life, although you may feel mild emotional discomfort in various stages of the experiment. If you feel that you are distressed at any time while participating in this research, you should notify the researcher immediately. Furthermore, for questions regarding topics of a sensitive nature, you can choose to skip those questions and it will not impact your compensation for participating in this study.

5. **Confidentiality:**

The responses that you provide today will be kept completely confidential. At no time will your name or any other identifying information be associated with any of the data that you generate today. It will never be possible to identify you personally in any report of this research. Within these restrictions, results of the study will be made available to you upon request.

6. **Alternative Procedures:**

You are free to discontinue your participation in this study at any time without penalty or loss of benefits. You may also freely decline to answer any of the questions asked of you.

7. **Participant's Assurance:**

This project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations.

Any questions or concerns about rights as a research participant should be directed to the Chair of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits.

Any questions about the research should be directed to the Principal Investigator using the contact information provided in Project Information Section above.

**CONSENT TO PARTICIPATE IN RESEARCH**

Participant's Name: _____

Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained to me. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator with the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

| Research Participant | Person Explaining the Study |
|---|---|
| Date | Date |

## APPENDIX K- DEBRIEFING

Thank you for participating in today's research. We hope you found this experience interesting and enjoyable.

In this study, we were interested in how different types of mating strategies may predict preferences for extraversion, as communicated by facial features. Previous research indicates that extraverts are more interested having multiple sexual partners at one time, which would suggest that they would be ideal in short-term mating contexts but undesirable in long-term contexts (Schmitt & Shackelford, 2008). In fact, women who are dispositionally interested in short-term mating prefer extraverted male faces (Brown & Sacco, 2017). Conversely, introverts are disinterested in such strategies and should therefore be attractive in a long-term mating context.

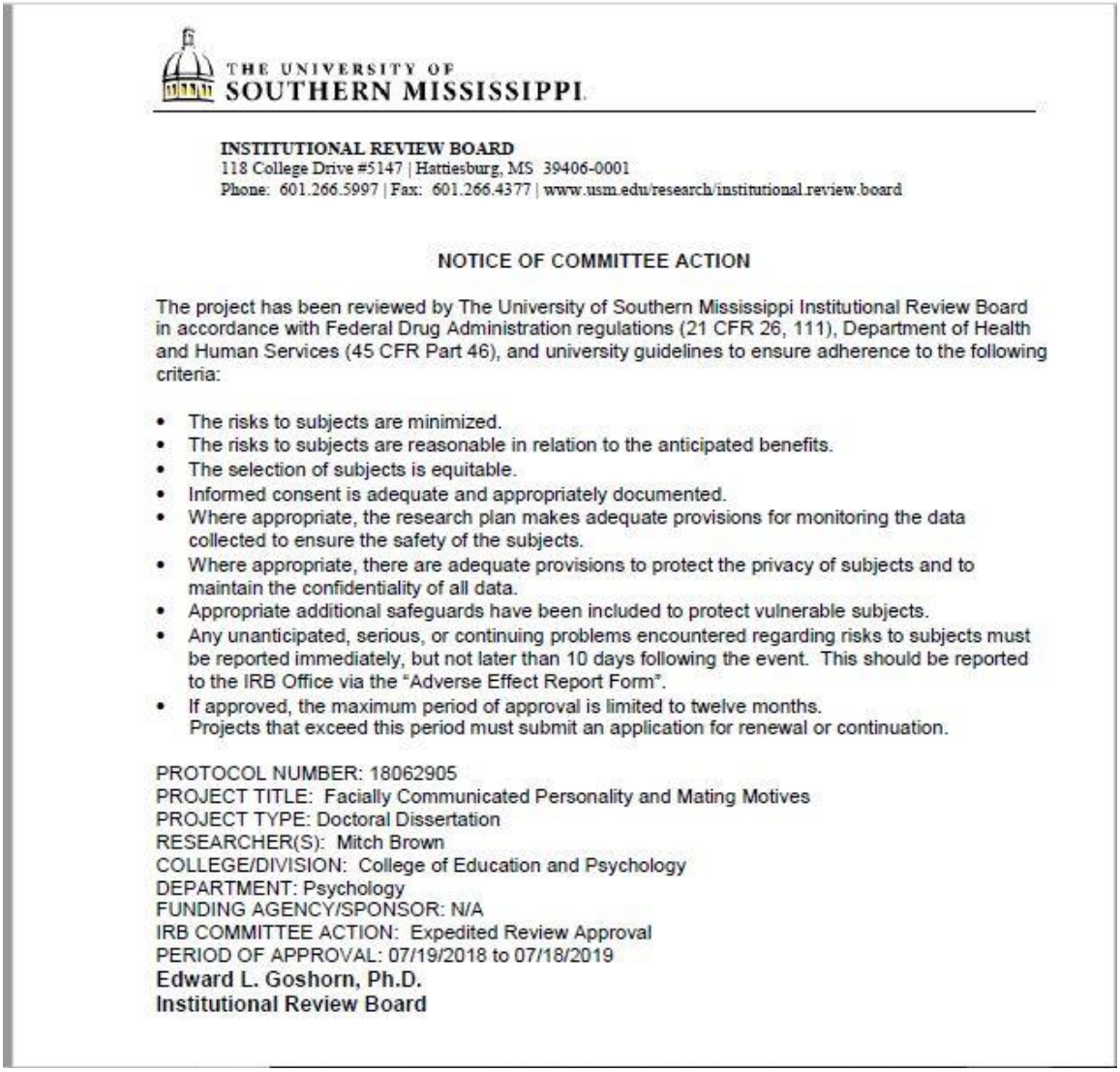
How do you know if a face is extraverted or introverted? Holtzman (2011) created a series of composite faces of individuals who scored high and low in the personality trait. We merged these faces with faces other individuals to create an extraverted and introverted of each face and asked you whether you preferred the extravert or the introverted in each face pair.

Due to the on-going nature of this research, we would like to ask for your cooperation in not revealing any details of this study to others (e.g. friends, classmates) who might eventually participate in this study. These details could affect the way they perform in this experiment, which would adversely affect the nature of our study. If someone does ask, you can just tell them that you were asked to participate in a study about social perception, rather than providing specific details about the study.

If you have further questions, please contact the experimenter listed on your consent form (Mitch Brown, mitchellbrown@usm.edu). Should you be interested in reading research related to this work, you can get more information from:

Brown, M., & Sacco, D. F. (2017). Unrestricted sociosexuality predicts preferences for extraverted male faces. *Personality and Individual Differences, 108,* 123-127.

Schmitt, D. P., & Shackelford, T. K. (2008). Big five traits related to short-term mating: From personality to promiscuity across 46 nations. *Evolutionary Psychology, 6,* 246-282.



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**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 18062905
PROJECT TITLE: Facially Communicated Personality and Mating Motives
PROJECT TYPE: Doctoral Dissertation
RESEARCHER(S): Mitch Brown
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 07/19/2018 to 07/18/2019
**Edward L. Goshorn, Ph.D.**
**Institutional Review Board**

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