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DOCTOR OF PHILOSOPHY

Women's Status and Trade-Offs in Mate-Preferences

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# Women's Status and Trade-Offs in Mate-Preferences

Jaime Benjamin

A thesis submitted in fulfilment of the requirements of the degree of  
Doctor of Philosophy in Psychology

University of Dundee

2021

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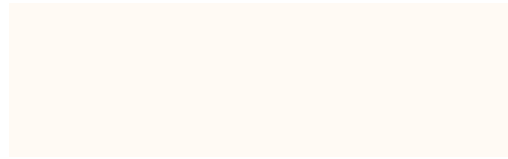
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**Declaration**

I, Jaime Benjamin, am the sole author of this thesis. Unless otherwise stated, I have consulted all cited references. The work presented in this thesis is my own, unless otherwise stated. The nature and extent to which parts of this thesis are based upon joint research are outlined clearly in-text. The work in this thesis has not previously been accepted for a higher degree



Signature \_\_\_\_\_

## **Abstract**

Sex differences provide the opportunity to investigate biological, cognitive, and social influences on human behaviour. For mate preferences and trade-offs, sex differences are explained via two main theoretical orientations: Evolutionary Psychology (EP) models and Biosocial models. In EP, the differences observed between the sexes are the result of divergent sexual strategies as each sex evolved under unique contexts and constraints. Alternatively, biosocial models argue biological differences resulted in complementary social roles; thus, men and women became psychologically different to adjust to these roles. SRT proposes that social factors in the form of gender roles that have restricted women's status, are the critical factor in predicting mate preferences. The two theories present different hypotheses in examining the relationship between women's status and their mate preference. EP suggest that women will exhibit preference for mates with more status and resources relative to herself, whereas SRT would suggest that as women gain status and engage in more "male-typical" social roles, they will express reduced preference for mate's resources. This thesis examines how different measures of women's status relate to trade-offs in mate preferences as they allow us to measure the sensitive shifts and variation in response to individual circumstances. Study 1 explored the ways in which age, gender role ideology, and status measures influence women's trade-offs. The results demonstrated preference for intelligence and status was predicted by education, whereas preference for fun versus loving differed across age groups. Study 2 attempted to manipulate women's sense of status by assigning them roles in society that were either high status or low status. Based on previous research, participants in this study then competed for resources in a rigged system so those with high status always won. The results demonstrated that the women with low status exhibited greater preference for physical attractiveness (i.e. good genes) which suggests flexibility in mating depending on context. Stud 3 introduced isoclines as a means of measuring equivalency trade-offs and explored how gender role engagement is related to status, for both male and female participants. The results suggested men and women hold similar equivalency values for income vs. attractiveness, with minimal influence of gender roles. Study 4 examined how women's preferences might change when their meta-stereotype awareness was increased as a reflection of women's societal status. The results suggested stereotype awareness did not impact status perceptions or mate preferences, potentially due to limitations of the methodology. Study 5 introduced conjoint analysis as a more ecologically valid method of measuring mate preference trade-offs, demonstrating its efficacy as a new method for



measuring trade-offs. Study 6 addressed the limitations of Study 4. Meta-stereotype awareness did not impact mate preference trade-off. The General Discussion summarises the thesis' main findings and discusses the implications of them on the meaning of status and its impact on mate preferences. Status is a complicated construct that is flexible depending on context. The ability to understand the impact of gender roles, gender role engagement, and objective vs subjective status are limited by the researcher's ability to effectively measure them. Overall, however, the results of the thesis generally provide support for the evolutionary models over biosocial models.

## Chapter 1. General Introduction

### 1.1. Introduction to Topic of Mate Preferences, Purpose, and Structure of Thesis

Prior to the 1980s, a scarce amount of research existed about human mating. Since then, mating preferences –particularly sex differences between them - has become a topic of extensive research.<sup>1</sup> These studies demonstrate considerable consistency and similarity. Both sexes want partners who are kind, understanding, and intellectually stimulating (Buss, et al., 1990; Buss & Barnes, 1986; Marlowe, 2000). These studies also highlight a key sex difference. Men prioritise physical attractiveness more than women, and women place a greater value on a mate’s status. Efforts to explain sex differences in mate preferences has sparked great debate and provides the opportunity to investigate biological, cognitive, and social influences on human behaviour.

Theories explaining sex differences have ranged from the strongly biological to purely socio-cultural. However, two key theories have been central in debate. The first is Evolutionary Psychology’s (EP) Sexual Strategies Theory (SST)—henceforth referred to as EP, used interchangeably with SST. The second is Social Role Theory (SRT), used interchangeably with the biosocial approach. The purpose of the present thesis is to contribute to the debate by testing the two theories. The two theories will be tested by examining how different aspects of women’s status and gender roles impacts mate-preferences. This issue is at the crux of providing support for SRT over EP. Previous studies that have examined this issue produced conflicting results, possibly due to different interpretations of ‘status’ at an individual and societal level. Trade-offs in mate preferences offer a unique opportunity to examine the two theories as they allow us to measure nuanced and sensitive shifts in response to individual circumstances.

To examine how examine how different aspects of women’s status and gender role impacts mate-preference trade-offs, the present thesis will first outline two theoretical

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<sup>1</sup> Throughout this thesis, the term ‘sex’ is used to denote and emphasize the biological differences between males and females. The term ‘gender’ refers to the meanings and roles that societies and individuals ascribe to the male and female categories. The gendered terms “man” and “woman” will be used, when possible, to discuss human males and females as the two constructs are highly correlated

accounts explaining sex differences and mate preferences. It will start with outlining the development of the evolutionary account, then the development of the biosocial explanation as an alternative. Key similarities and differences between the two perspectives and their hypotheses will be highlighted. Central to SRT are the social and economic factors missing from the evolutionary account. These factors include status, gender roles and gender role ideology. Thus, the links between different measures of status (e.g. income, education, financial independence, etc), gender roles and gender ideology mate preferences will be presented.

The studies presented in this thesis are reported in a chronological order of their development. For example, Study 2 was developed while Study 1 data was collected. Reflecting on the methodological issues of Study 1, Studies 3 and 4 were then simultaneously developed, making use of a novel procedure. The conjoint analysis methodology used in Study 5 and Study 6 was developed while studies 3 and 4 were in the data collection phase. The results of each study are then discussed in detail within its chapter, with the limitations of each study. The final chapter provides a general discussion of the studies presented, the limitations of the thesis and implications for future research.

## **1.2. Evolutionary Psychology**

The evolutionary approach is based on Darwin's theory of evolution through natural and sexual selection. Darwin (1859) proposed that no two individuals of a species are identical in physical make-up or behaviour (i.e. variation). Further, these variations are heritable from parent to offspring. Natural selection is when those who were better adapted to the environment were more likely to survive and would pass these adaptations to their offspring. Later, sexual selection was introduced to the theory (Darwin, 1875). Sexual selection suggests that members of the same sex will compete for access to members of the opposite sex (i.e. intrasexual selection), and members of one sex will have preference for certain attributes with the other sex (i.e. intersexual selection). Psychologists began to apply the general theory Darwin proposed to different areas of human behaviour, particularly focusing on mate preferences central to the theory.

### **1.2.1. Sexual Strategies Theory**

According to Evolutionary Psychology's (EP) Sexual Strategies Theory (SST), humans evolved complex and variable mating strategies. Differences observed between the

sexes are the result of divergent sexual strategies and mechanisms as men and women have evolved under unique contexts and constraints (Buss, 1995; Buss & Schmitt, 1993). A main component to SST is the minimal parental investment (Bateman, 1948; Trivers, 1972), with women investing more energy in reproduction than men. Not only do women produce large ova compared to sperm (Bateman, 1948), but then must undergo gestation, lactation and post-natal care (Trivers, 1972). As women must invest more time and energy into reproduction, they are more selective of their mating partners. Men, however, are limited in their reproductive success by their access to available and fertile women (Trivers, 1972). Symons (1979) hypothesized that based on the different restrictions placed on the sexes' reproductive success, men and women will express different preferences for desirable traits. In this view, men will desire partners who exhibit signals of high fertility levels and will desire a higher number of short-term sexual partners than women. Women, on the other hand, should exhibit a preference for fewer, long-term mates who are willing and able to invest the resources needed to raise offspring.

EP relies on "universal or near-universal sex differences" (Buss, 1998, p. 421) so that behaviours are the result of evolved cognitive mechanisms rather than cultural influences. Evidence for this near-universality in mating preferences was demonstrated in an analysis of 37 cultures (Buss, 1989) where there was a consistent trend of women placing significantly more importance on partners who had "good financial prospects" or "good earning potential," compared to men who prioritized women's physical attractiveness. Additionally, women expressed desire for older partners, while men expressed desire for younger partners. Kenrick & Keefe (1992) demonstrate similar trends in mate age preferences across generations and cultures. Many studies have since demonstrated these sex differences, for examples in studies examining real-life personal ads (Davis, 1990), nationally representative samples (Sprecher et al., 1994), cross-cultural samples (Buss et al., 1990; Shackelford, Schmitt, & Buss, 2005), and studies that experimentally cue different environmental contexts such as global prosperity or resource exhaustion (Marzoli et al., 2013; see Schmitt et al., 2012 for full review). These results provide evidence for the constraints placed on men's and women's reproductive success, with men demonstrating preference for younger partners with the highest reproduction capacity and women demonstrating preferences for older partners who have had time to accumulate resources which can be invested into her and her children.

A common criticism of EP's account has been its focus on sex differences in humans. Stewart-Williams & Thomas (2013) argued that sex differences in mate preferences have been exaggerated as substantial amount of variation in the magnitude of sex differences has been observed across cultures (see also Conley et al., 2011; Eagly & Wood, 1999; Pedersen, Putcha-Bhagavatula, & Miller, 2010; Zentner & Mitura, 2012). The focus on sex differences fails to explain the high levels of variation observed in intra-sexual mating behaviour (Gangestad & Simpson, 1990; Smuts, 1991a, 1991b; Waynforth & Dunbar, 1995). SST has also been criticized for not considering how women's resource control may influence the mating strategies used by both sexes (Gowaty, 1992; Gowaty & Alcock, 1992; Hrdy, 1997).

### **1.2.2. Conditional Strategies and Strategic Pluralism in Mate Preferences**

As a result of the criticism of SST, the idea of conditional or context-specific strategies was incorporated into the approach in an attempt to address the variation of reproduction behaviour exhibited. Gross (1996) proposed the selection pressures would not produce a singular optimal strategy, but instead result in flexible mechanisms that were sensitive to context-specific cues to allow for the expression of alternative mating tactics (Buss, 1998a; Gangestad & Simpson, 2000b). Thus, this expansion suggests that the evolution of sex differences resulted in a set of innate strategies, with the optimal solution based upon different factors. For example, mate value (i.e. how desirable a person is as a partner) is an individual factor that produces different mating strategies, where those with high mate value are more selective and demand higher quality mates (Buss & Shackelford, 2008; Edlund & Sagarin, 2010; Regan, 1998). Mate preferences are also flexible in response to ecological contexts, such as prosperity or resource exhaustion (Marzoli et al., 2013) or operational sex ratios (Marlowe, 1999).

An important result of these differing strategies is a shift in the desired qualities of a mate. Gangestad (1993) proposed that a variety of mating behaviours could be conceptualised as being trade-offs. Strategic Pluralism suggests women face a specific trade-off in selecting mates who present traits signalling "good parental investment" and those that signal "good genetics" (Gangestad & Simpson, 2000a, 2000c; Gangestad & Thornhill, 1997) Both "good parental investment" and "good genetics" in a partner are important as a means of increasing a woman's fitness (i.e. her ability to successfully pass on her genes to subsequent generations), however, there is evidence to suggest that women may struggle to obtain both from a single partner (Boothroyd et al., 2008;

Curran & Lippold, 1975; Schmitt & Buss, 2001; Wade et al., 2007). This suggest women may have to choose between mates with different level of each attribute. Women may balance this trade-off using different conditional strategies.

There are benefits to women in choosing a mate who signals “good parental investment”. These men signal the ability and willingness to invest in the relationship and any potential offspring which would increase a woman’s fitness. Evidence from foraging societies (Dwyer & Minnegal, 1993; Hill & Hurtado, 1996) as well as from preindustrial and industrializing Europe and the United States (Klindworth & Volland, 1995; Morrison, Kirshner, & Molho, 1977; Schultz, 1991) suggests that paternal investment increases survival rates of children.<sup>2</sup> A decrease in infant mortality is distinct benefit of paternal investment for women’s fitness. Another impact of paternal investment involves children’s social wellbeing. Fathers’ investment of time and income has been associated with the upward social mobility of children (Kaplan, Lancaster, Johnson, & Bock, 1995; Kaplan, Lancaster, & Anderson, 1998) which would provide greater access to resources for survival and status. Lastly, the additional support reduces the calorific workload cost associated with raising young children and may help women maintain ovarian functionality and shorten inter-birth intervals, thus increasing the woman’s fertility (Marlowe, 2001). As there are clear benefits associated with paternal investment, EP suggests women have evolved to prioritise willingness and ability to invest in children into consideration when choosing a mate. However, this is not the only factor involved in mate preference which may reduce the importance of “good parental investment”.

In many species, males provide little to no paternal investment, yet females prefer some over others. The good-gene selection model (Cronin, 1991; Zahavi, 1975, 1977) suggests that females look for traits that act as an ‘honest’ indicator of genes that will increase the survival or reproductive rates of offspring. ‘Honest’ traits tend to require high levels of energy as an organism cannot develop and maintain the trait without diverting the resources and energy needed to sustain other bodily functions - thus

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<sup>2</sup> Though a review by Sear & Mace (2008) demonstrates no consistent relation between fathers’ investment and mortality risks for infants and young children across a variety of cultures, all societies examined in the review were agricultural societies. This makes it difficult to determine if the result is representative of human evolution.

creating a ‘handicap’. Trivers (1972) suggested that intrasexual competition in males evolved as a cue for good genes as the traits required to win competitions (e.g. larger muscles and physical strength) are highly costly. This means that highly valuable and viable males should be considerably more capable of developing these traits while enduring the handicap.

Testosterone in men is linked to the development of secondary sexual traits. However, it may also act as an immunosuppressant (Folstad & Karter, 1992; Roberts, Buchanan, & Evans, 2004; Thornhill & Møller, 1997). As a result of these two effects of testosterone as honest signal, women may have then evolved to pay close attention to the outcomes of men’s competitions (Andersson, 1994) and show preference for the characteristics associated with testosterone and good immunity such as vocal pitch (Apicella & Feinberg, 2009), body odour (Grammer, 1993), and facial masculinity and symmetry (Rhodes et al., 2003).<sup>3</sup> This suggests that men’s physical attractiveness in terms of high levels of masculinity can provide a cue for genetic quality and health, thus increasing offspring survival rates and women’s fitness as a consequence.

Research has demonstrated that women exhibit preference for physically attractive mates, as well as preference for men who are able and willing to invest in the relationship and offspring. Women may have to trade-off between these attributes as it is unlikely, they will obtain a high level of each from a single individual. Men’s paternal investment is considered facultative, meaning that men invest in some circumstances as compared to others (Gangestad & Simpson, 2000b). For example, men are less likely to invest when they have a high mate value (Waynforth, 1999) or when sex ratios are skewed towards females in a local population (Marlowe, 1999). Women have been demonstrated to be sensitive and aware of men’s likelihood to invest. Physically attractive individuals have more opportunities for sex/better sex lives (Curran & Lippold, 1975), are perceived to be less trustworthy (Wade et al., 2007), are less suitable as a long term mate (Boothroyd et al., 2007) and are more likely to abandon a

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<sup>3</sup> Scott, Clark, Boothroyd, & Penton-Voak (2013) suggest immunocompetence hypothesis should be regarded speculatively as there is little evidence of a direct link between facial masculinity and immunocompetence in humans, and evidence from animal studies on the relationships between testosterone, and disease is complex and difficult to interpret. For a critique and alternative hypothesis, see Braude, Tang-Martinez, & Taylor (1999).

current relationship for a new one (Schmitt & Buss, 2001). Therefore, the optimal solution in women's trade-off between "genes vs investment" is dependent on a number of factors such as market dynamics, pathogen prevalence, and sociosexuality (Gangestad, 1993).

Sex differences in mate preferences for short- and long-term relationships provides evidence for the flexible solution to the trade-off women face. The good-gene selection model (Cronin, 1991) proposes that females evolved a preference for males who possess indicators of quality genes. Therefore, females' short-term mating efforts should be influenced by the males presenting indicators of viability and good condition (Gangestad and Simpson, 2000b). Though there are sex differences in willingness to engage in casual sex and short-term relationships, evidence suggests that sex differences in attribute preferences is minimal. Clear sex differences emerge for long-term mate attribute preferences. In short-term mating contexts, men and women express a comparable desire for partners who express high levels of sexual passion, sex drive, and physical attractiveness (Li, 2007; Li & Kenrick, 2006; Regan, Levin, Sprecher, Christopher, & Gate, 2000). These results support the Sexual Strategies Theory in that if men and women are to engage in short-term mating, they will see mates who possess indicators of quality genes. Individuals, however, are not all equally interested in short-term mating. For example, Li and Kenrick (2006) asked participants to allocate a budgeted number of points to potential mate attributes so that each point increases the percentile of that attribute. In essence, participants designed their own ideal mates by "buying" increasing levels of attributes, e.g. 5 points to create a mate who was in the 50<sup>th</sup> percentile for *Kindness*. Results from a cluster analysis demonstrated evidence to suggest that some men and women were less inclined to engage in short-term mating and more inclined to long-term mating. Furthermore, both sexes opted for well-rounded mates in both long and short-term mating. In summary, minimal sex differences were observed when prioritising physical attractiveness in mates for short-term mating; however, sex differences consistently emerge for attributes preferred in long-term mates. Overall, EP takes the view that sex is the most critical factor that predicts preference in long-term mating behaviour.

### **1.3. Biosocial Psychology's Social Role Theory Overview**

Social Role Theory (SRT) is a social psychological theory that was proposed as an alternative to evolutionary psychology. Though it is acknowledged that sexual selection



pressures have contributed to physical dimorphism between the sexes (Eagly & Wood, 1999), SRT does not assume sexual selection pressures were the driving force behind psychological differences (Wood & Eagly, 2002). The biosocial model argues that too much emphasis has been placed on male-male competition and sexual dimorphism. Instead, under the biosocial model biological sex differences are emphasised in that some activities can be more efficiently performed by one sex over the other and therefore contribute to the allocation of men and women into social roles. For example, SRT posits that men's greater upper body strength, size and speed lend themselves to performing high intensity activities such as hunting with greater efficiency compared to women, whose capacity to give birth and lactate limit their ability to travel far from home during certain periods of their lives (Eagly & Wood, 1999; Wood & Eagly, 2002). In this way, biological sex differences influence the structure of a society which in turn leads to psychological sex differences (Wood & Eagly, 2012).

Comparable to the evolutionary approach, SRT has demonstrated a "near-universality" in the division of labour. Murdock and Provost (1973) provided evidence from 185 non-industrial societies, demonstrating a universal division of labour where tasks are carried out by one sex but not the other. Across societies, the types of tasks allocated to each gender demonstrate considerable flexibility. Many tasks, such as planting and crop tending, are performed by men in one society and women in another. However, a certain task, such as cooking or preparing plant-based food, are always performed by women. Similarly, men are always allocated other tasks such as metalworking. The tasks assigned to men tend to be more physically demanding such as hunting or mining, whereas women tend to have tasks that can be carried out in or around the home that allows for close contact with children (Eagly et al., 2004; Wood & Eagly, 2002). Thus, some tasks are better allocated by physical differences, but others are allocated to gender roles not related to biology but still are highly divided.

SRT proposes that biological differences interact with socioeconomic factors and local ecology to allocate labour roles to those who can complete them most effectively. The mechanistic model for SRT is demonstrated in Figure 1. The division of labour is maintained through socialization and the formation of gender role beliefs, resulting in psychological sex differences. The interaction of biological differences and environmental factors may increase or decrease the magnitude of sex differences. For example, if environmental factors reduce the importance of strength in acquiring

resources and status or the limitations faced in child rearing are removed, the distinctions in the roles of men and women may be reduced, which could ultimately lead to reduced behavioural sex differences.

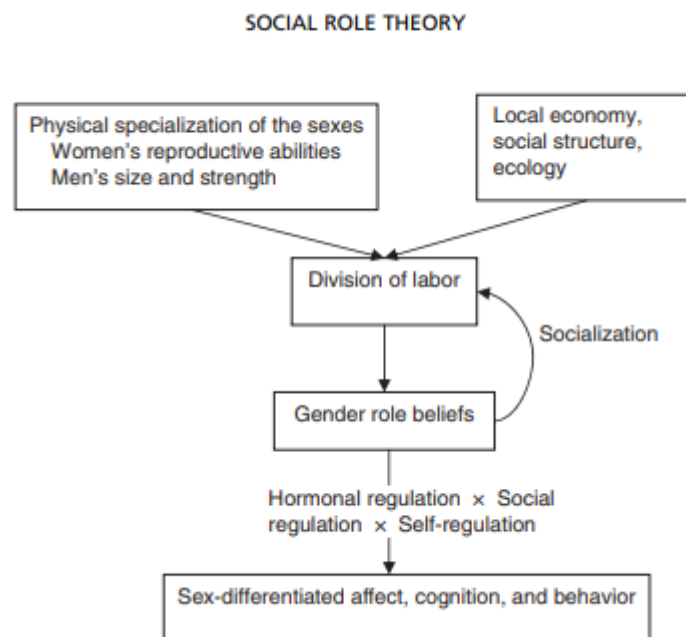


Figure 1.1. Gender roles guide sex differences and similarities through biosocial processes adapted from Eagly & Wood (2016). Social role theory of sex differences. *The Wiley Blackwell encyclopaedia of gender and sexuality studies*, 1-3., p. 465.

### 1.3.1. Mechanisms of Gender Role Development

Social Role Theory incorporates elements of the Social Cognitive Theory (SCT) as proximal mechanisms to explain individuals' expectations regarding gender roles, through the socialization component of the model shown in Figure 1. According to SCT, individual factors (such as cognitive or biological processes and behavioural expressions) and environmental factors (such as context and influences from others) interact with each other (Bandura, 1986; Bussey & Bandura, 1999; McAlister et al., 2008). SCT is founded on the perspective that humans are “agentic”—that people have personal agency, meaning they self-organize, self-reflect, and self-regulate while exerting influence over their behaviour and environment (Bandura, 1986, 2001, 2011). As gender role expectations are shared within a society, they influence the behaviour of individuals to conform to these beliefs. As children grow into adulthood, gender roles influence behaviour through proximate biosocial mechanisms to direct role-appropriate behaviour. There are three such key mechanisms.

The first mechanism involves differentiated behavioural confirmation. People learn that behaviour perceived as inconsistent with gender roles will often result in a negative reaction such as social or economic penalties (i.e. a backlash; Moss-Racusin, Phelan, & Rudman, 2010; Rudman, Fetterolf, & Sanchez, 2013; Rudman, 1998; Rudman & Glick, 2001). Parents may influence their children's gender congruity by providing younger children with gender-typical toys, clothing and bedroom decorations and assigning older children gender-stereotypical chores as well as dissuading children from playing with toys that are atypical for their sex (e.g. girls playing with tools; see Lytton & Romney, 1991 for a meta-analysis; see Ruble, Martin, & Berenbaum, 2006 for a full review of children's gender development). Furthermore, children will reinforce gender role normatives by negatively evaluating their peers' clothing and hair styles along with style of play (Blakemore, 2003). Failure to conform to normative gender roles has been associated with increased risk of physical and emotional abuse by both caregivers and peers (Roberts, Rosario, Slopen, Calzo, & Austin, 2013). Negative effects stemming from gender role incongruity are not experienced equally by both genders, however, especially in recent years. Over the past few decades, gender roles have undergone a 'quiet revolution' (Esping-Andersen, 2009; Gerson, 1993; Goldin, 2006). Women and girls have been able to breach gender roles more easily without suffering the same degree of societal reproach, condemnation, or ridicule. Meanwhile, in many cases men are still expected to live up to masculine ideals (Blakemore, 2003; Kane, 2006; Roberts et al., 2013; Rudman, Moss-Racusin, Phelan, & Nauts, 2012).

The second mechanism involves the personal adoption of gender norms. In addition to social pressure to conform as previously discussed, there are also personal pressures to conform due to the internalisation of gender roles as gender identity (Wood & Eagly, 2012). Gender norms are used as personal standards for judging oneself and regulating responses (Wood & Eagly, 2009). Previous research into gender identity has taken one of two approaches: the gender-stereotypic personality approach (e.g. Bem, 1974) or the self-categorisation approach based on group membership (Wood & Eagly, 2015). A component of the personal adoption of gender norms is the agentic attribute of self-efficacy which refers to a person's internalised belief in his or her ability to perform at designated levels that influence events that affect their lives. Self-efficacy can be created and strengthened through the observation of others' experiences who are similar to oneself (Bandura, 1994). This notion of self-efficacy may be important in explaining certain differences observed between the genders as it allows people to adjust and plan

what they believe they can accomplish in the future. For example, although girls perform equally as well as boys in mathematics, they express lower levels of mathematic self-efficacy (Else-Quest et al., 2010), which can impact their decisions to enter STEM fields (Hyde, 2014). Similarly, women express lower levels of self-efficacy relating to economic activities (Lee & Mortimer, 2009). As will be discussed later, the biosocial model proposes that mate preferences are the result of people seeking complementary mates that maximize benefits while minimizing potential costs, self-efficacy and the internalisation of gender role norms may be an important component in mate preferences in order to effectively achieve their future goals.

The third mechanism is the influence of hormonal changes such as testosterone, cortisol and oxytocin. These hormones mediate and facilitate sex differentiated behaviours that correspond to social roles (i.e. masculine and feminine behaviour; Van Anders, Goldey, & Kuo, 2011; Van Anders, 2013). Hormones and the associated neural structures are believed to have developed through evolutionary selection pressures (Cosmides & Tooby, 1987) and become activated to guide behaviour to fulfil social roles. For example, testosterone levels rise when engaging in competitive behaviour (Bateup et al., 2002; Kivlighan et al., 2005). Similarly, cortisol and oxytocin may rise in response to pregnancy (Brunton & Russell, 2008; Fleming et al., 1997).

### **1.3.2. Biosocial Model on Mate Preferences**

SRT is fundamentally a theory of gender (Eagly & Wood, 2016). In contrast to Evolutionary Psychology, though sexual selection is acknowledged in contributing to physical dimorphism, mate preferences under SRT are viewed as a reflection of people's efforts to "maximize their utilities with respect to mating choices in an environment in which these utilities are constrained by societal gender roles as well as by the more specific expectations associated with marital roles" (Eagly & Wood, 1999, p. 415). In other words, sex differences in mate preferences are the result of social pressures that restrict and direct how men and women carry out their lives. Variability in preferences, such as differences seen across generations, is explained as a reaction to perceived circumstances both in the present as well as in the future (e.g. economic environment). People will exhibit preferences for mates that align with their own self-interests and anticipated life outcomes by maximizing the benefits associated with a mate while minimizing potential costs (Eagly et al., 2004). Within the SRT framework, there appears to be two key social components: gender roles as they are related to

economic and status constraints and gender roles as they are related to stereotypical expectations.

### ***Economic and Status Constraints***

A central idea of SRT is that the division of labour has created a division in access to resources and status within societies. Men tend to have higher status due biological abilities that allocated them physically demanding tasks such as warfare and big game hunting. This gives them direct access to resources as well as placing them in a position of authority with decision-making power. Conversely, women's roles relating to reproduction and child care limit their ability to engage in activities that increase their status and power (Eagly et al., 2004; Wood & Eagly, 2012). For example, in industrialised societies, women are more likely to assume domestic duties such as cooking and cleaning and childcare whereas men are more likely to have paid employment and a provider role in a family (Shelton & John, 1996). When women engage in paid employment, they tend to earn lower wages compared to their male counterparts. They are also more likely to work part-time or leave work to focus on a childcare role (Warren et al., 2001).<sup>4</sup> This restricts women's access to activities that garner them status and influence outside the home as well as the resources needed for living that can be traded within the society.

The biosocial model further proposes that sex differences in behaviour and mate preferences are dependent on context such as social, ecological, economic and technological factors. These factors can either amplify or reduce the importance of biological differences (i.e. women's reproduction and men's strength, Wood & Eagly, 2002). That is to say, external context has a significant effect on the competencies that are sought to maximize utility. For example, reproduction has less of an impact on women in societies with low birth rates, reduced need for breastfeeding and the ability for children to be cared for by other members of the community (Eagly et al., 2004; Nerlove, 1974). These conditions are more common in post-industrial societies where labour and economies are more reliant on technology compared to foraging, horticultural or agricultural societies. The reliance on technology in post-industrial

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<sup>4</sup> The Pew Research Center (2013) demonstrates that the hourly earnings of women born between 1981-1993 were 93% those of men. This is closest income parity as the gap drops to 84% when including older generations and was as wide as 64% in 1980. Women are significantly more likely to have a bachelor's degree compared to their male counterparts- 38% versus 31% in 2013.

society has removed the importance of upper-body strength, uninterrupted periods of activity, specialised training, or long-distance travel away from home, which in turn reduces the need for sex-based labour divisions. This allows women to enter the local economy in order to obtain status and resources for themselves. Unexpectedly, evidence supporting this hypothesis comes from societies with minimal technology and simple economies based on foraging (Hayden et al., 1986; Salzman, 1999; Sanday, 1981). These societies are relatively egalitarian as they generally lack the specialised roles that give some groups (i.e. men) status and power over others (i.e. women). As women's mate preference may result from gender roles that restricted access to resources and status, it should follow that as women's reliance on men to provide status and resources decreases, their mate preferences should change.

### ***Gender roles and Stereotypical Expectations.***

SRT suggests that relation between sex-typed social roles and sex differentiated behaviour are mediated by the creation of gender roles. Gender roles refer to the shared expectations about the characteristics, behaviours and occupations each gender is expected to perform within a society (Eagly, 1987; Fischer & Anderson, 2012). These roles direct expectations for both the self and others (Eagly & Wood, 1999). Therefore, the behavioural differences of men and women are attributed to the tendency of them to conform with their gender role (Regan & Sprecher, 1995). The expectations around men and women's characteristics stem from the observation of activities that are optimally (and typically) performed by each sex.

The roles that men and women perform are expected to influence the value they place on specific attributes in mates. To the extent that people observe men and women engaging in different activities, different psychological traits are attributed to the groups that match the activities to the point of becoming stereotypic of the group (Koenig & Eagly, 2014). For example, women are typically responsible for child rearing and domestic work whereas men are typically responsible for acquiring resources, e.g. hunting or gainful employment (Mintz & Kellogg, 1988). Therefore, characteristics such as warm and nurturing (Eagly & Wood, 1999) will be associated with women's roles along with sub-ordination and incompetence due to the dependency on men (Fiske et al., 2002; Ridgeway & Diekema, 1989, 1992). Conversely, men's roles will be associated with agentic independence, assertiveness, and dominance (Hyde, 2014; Twenge, 1997; Wood & Eagly, 2012). Through this process, observations of men and

women engaging in their social roles become a set of stereotypes, beliefs and expectations about each sex. Gender-stereotypic expectations are communicated socially, encouraging men and women to conform to the expectations of their sex (Eagly & Wood, 1999). A reciprocal relationship then occurs where engaging in behaviours consistent with expectations increases future expectations of that behaviour occurring. Thus, societal norms influence men to be more agentic, dominant and sexually autonomous, and women to be passive, submissive and sexually restricted (Peplau et al., 1977). Gender roles influence mate preferences as each gender desires a partner who possesses stereotypical characteristics associated with complementary gender roles (Eagly et al., 2004; Eagly & Wood, 1999; Eastwick et al., 2006).

#### **1.4. Differing predictions of Evolutionary Psychology and Social Role Theory**

Buss & Barnes (1986 p. 570) suggested the hypotheses generated from Evolutionary Psychology and Social Role Theory “are not inherently incompatible.” Indeed, the two theories can make very similar predictions regarding mate preferences, such as women valuing men’s status and resources more than his physical attractiveness. They differ, though, in their origins of these explanations. EP sees psychological sex differences in mate preferences as selection for cues that facilitate reproductive success. Wood & Eagly (2002, p. 702) purports the biosocial model stresses the emphasis on differences in social roles and “does not assume that any sexual selection pressures that contributed to physical dimorphism between the sexes are major influences on sex-typed psychological attributes”. Therefore, according to EP, sex is the most critical factor in predicting mate preferences whereas SRT proposes that mate preferences are the product of social factors, and so should be qualified by specific cultural variables.

SRT allows for rich interpretation; within the framework it can be argued that to the extent that both a society and the individual engage in roles that restrict women’s status, people should differ on the extent they value gender-stereotypical attributes. From an evolutionary perspective, no such differences are expected. EP and SRT differ in their predictions on the impact of status on mate preferences, in that SRT would suggest that women will exhibit preference for mates with more status and resources relative to herself, whereas SRT would suggest that as women gain status and engage in more “male-typical” social roles, so too will their preferences shift to be more “male-typical” with reduced preference for mate’s resources. Several studies have tried to determine which of the two theories is more plausible, resulting in conflicting evidence for how women’s status impacts mate preferences.

## **1.5. Status and the impact on mate preferences**

Existing research testing the effects of women's status on mate preferences has been highly heterogeneous with regards to how status is conceptualized and measured. Studies have employed individual-level and society-level measures; they have used objective and subjective measures. Thus, studies that examine the impact of status on mate preferences have presented conflicting results. As status can be achieved through different pathways; the following section will review different interpretations of status along with how it impacts mate preferences, with focus on women.

### **1.5.1. Status as a Social Construct**

Status refers to the relative rank an individual or group holds within a hierarchy. Status organising processes occur whenever there are noticeable differences between individuals on a status characteristic that result in noticeable and predictable patterns of interactional behaviour (Berger et al., 1977; Berger, Cohen, & Zelditch Jr., 1972). The status characteristic is an attribute that differentiates people and merits esteem. Humans sort themselves into hierarchies along an innumerate amount of objective and subjective dimensions, such as physical traits (e.g. beauty or strength), social behaviours (e.g. humour or leadership), and personal traits (e.g. intelligence or temperament; Anderson, John, Keltner, & Kring, 2001; Anderson & Kilduff, 2009; Keltner, Kleef, Chen, & Kraus, 2008).

The amount of esteem for given an attribute is determined and shared within a culture (Ridgeway, 1993). The attributes can result in both specific and general expectations about a person, such as those based on race, gender, or educational level. In the example of gender, men and women are given different specific valued abilities, such as men's greater mathematical abilities and women's greater social abilities (Berger et al., 1977; Eagly, 1993). There are also more generalized assumptions about how a man or woman reacts in a certain situation (Foddy & Smithson, 1996; Webster Jr. & Foschi, 1988). As status is not inherently objective; traits that should not influence a person's expectations and behaviour become salient and relevant to the interaction. For example, a person's gender should not influence their position in a social or occupational hierarchy, yet a bias towards men has been firmly established (e.g. Ridgeway, 2001). Furthermore, as there is no universal status characteristic, researchers have repeatedly noted (e.g. Dixon, 1975, 1978, Masson, 1984, 1986) that the status of a person within society is fluid and context-dependent.



In discussing women's status, the term "status" is used to mean an individual's position on various dimensional measures (e.g. socioeconomic access to resources) as well as in specific instances in discussing esteem given to women by virtue of their gender. Limiting the definition of status as access to resources may not be effective in examining the biosocial approach versus evolutionary approaches. When a woman acquires same access to resources as a man, this does not, however, guarantee equal status. In fact, gender itself may be the dimension on which status is dependent. The comparison of status between the genders is a complicated matter, dealing with multiple facets of society and individuality. As it was suggested that mate preferences and trade-offs would be dependent on women's status (e.g. Eagly & Wood, 1999; Gangestad, 1993), some authors have examine women's collective participation in education, industry or government in comparison to men (Buss, 1989b; Eagly & Wood, 1999), while others argue it is the absolute level of a woman's education or employment that dictates her status and autonomy level (Caldwell, 1986). Both of these approaches, however, conceptualise status as the access to resources that educational/economic engagement gains, and do not fully explore the different routes to achieving status within a hierarchy, nor how as it relates to traditional gender role engagement explicitly.

Ranked status within a hierarchy can be implicit or explicit (Magee & Galinsky, 2008). Power and prestige are argued to be the two most important aspects of hierarchy (Blau, 1964; Thye, 2000) as they form two clear paths to achieving ranked status. Power is defined as the control over resources. Prestige is defined as the extent to which one has respect and social influence over others and is typically achieved through demonstrating competence (Magee & Galinsky, 2008). The two hierarchies differ in their legitimacy and time span. Prestige is consensually given by the collective group rather than being a product of a dyadic interaction (Ridgeway & Diekema, 1989), whereas power imbalances can exist between two people and may not be consensual (Mazur, 2005).

### ***Power***

A power hierarchy is the disproportionate relative control over valued resources (Blau, 1964; Dacher Keltner; Dépret & Fiske, 1993; Gruenfeld, & Anderson, 2003). Power may be the most consistently used measure of status (e.g. socioeconomics or financial control). Power hierarchies occurs when members of a group vary in their ability to gain access to resources over others (Hawley, 1999). Power hierarchies do not achieve legitimacy through polite consensus but are not likely to be challenged. Even when the

power hierarchies are perceived to be illegitimate, challenges are less likely to occur as those with high power control the requisite resources (Magee & Galinsky, 2008).

According to conflict-based accounts, power contests are the most fundamental way of establishing rank (Buss & Duntley, 2006; Griskevicius et al., 2009; Mazur, 1973), and rank is given to those who express dominant, coercive behaviour rather than to those who demonstrate competence.

A dependency exists between those with less power and those with more. Those with less power need those with high power to administer resource awards while avoiding punishment (Emerson, 1962). The value of the resource is subjective but must be important to at least one or both of the power-parties. Similarly, the value of a resource may be dependent upon the context of a situation (e.g. shop managers who control time and money with keys or create schedules). The value of resources can be either positive or negative; if a person seeks the resource and wishes to gain more (reward) it is valued positively. If a person seeks to avoid the resource (punishment) or wants less of it, the resource is negatively valued. High power individuals are not dependent upon those with lower power, but, if those with lower power are able to obtain access to resources from an alternative source, the higher power diminishes (Blau, 1964).

### ***Prestige***

By contrast to the power hierarchy, prestige hierarchies are a system in which people are ranked by the esteem that others bestow upon them (Ridgeway, 1993). Prestige hierarchies can be formed almost instantaneously based on demographic traits and a range of behaviours that act as signals for relative competence (Berger, Rosenholtz, & Zelditch, 1980). Over an extended period of time, these competencies can be assessed more thoroughly (Bunderson, 2003). This system can occur either within or between groups. Prestige hierarchies are subjective (Blau, 1964; Magee & Galinsky, 2008) and tend to be consistent and stable, with consensus occurring among individuals and groups (Anderson et al., 2006). These hierarchies are typically rigid, but can change when the overall esteem for an individual or a group changes (Magee & Galinsky, 2008). While hierarchies can be questioned (e.g. when an individual doubts the competence of another), those with lower rank may still defer to those higher up following the example of others. That deference is then interpreted as acceptance of the status quo (Hays, 2013; Miller & McFarland, 1987). However, when hierarchies are

continuously perceived as illegitimate, it becomes more likely to be challenged (Tyler, 2006).

### **1.5.2. Mate Preferences and Socioeconomic Resource Constraints**

Within the biosocial approach, it has been posited that sex differences in mate preferences may be attributed to societal sex specific socioeconomic constraints (Moore & Cassidy, 2007). These socioeconomic constraints have denied women access to the power route of obtaining status. Historically, men have been able to secure higher-paying and higher-status jobs and professions compared to women (Hamida et al., 1998). Cross-culturally, men have typically held greater positions of status and power in society (e.g., Wood & Eagly, 2002). This suggests that there exists a “structural powerlessness” in which women are unable to acquire status motivates their mate preferences. Within western societies, status is typically measures via socioeconomic status (SES) comprised of a person’s income, educational obtainment, and participation in social institutions (Oakes & Rossi, 2003). Several studies have examined elements of socioeconomics on mate preferences along with other measures of resource access/constraint.

In early evolutionary research (e.g. Buss & Barnes, 1986) there was a movement to test the “structural powerlessness” model. If these socioeconomic constraints were the origins of women’s mate preferences, then once women can acquire resources, a negative relationship emerges between women’s financial assets and their preference for men’s financial assets. Townsend (1989) used open- and closed-ended questions to investigate sex differences in the link between status and mate preferences in a group of postgraduate medical students and undergraduates. As medical degrees provide higher levels financial resources, occupational prestige, and education, it was argued that these women would are not constrained by structural powerlessness.” The results demonstrated that the women’s preference for men’s SES was determined by their own SES as well as their family’s. Increases in a woman’s SES increased their SES standards in mates. Furthermore, postgraduate medical students expressed a preference for partners who had a level of SES that was equal to or higher than their own and/or that of their families’. The medical students’ preferences were also found to be much stronger in comparison to undergraduate students. Similarly, Wierdeman & Allgeier (1992) asked a sample of 1,279 participants to report their expected personal income and rate the importance of potential mate attributes. Consistent with Buss (1989a),

significant gender differences were demonstrated where men placed higher priority on women's physical appearance and women placed higher priority on men's financial prospects. Additionally, Wiederman and Allgeier (1992) women's expected income was positively related to her preference for resource traits in the college sample and found no relationship between women's income and her preference for resource traits in the community sample. These results suggesting that while status is related to preferences, the relationship is the opposite of what is expected from the "structural powerlessness" model.

Despite the relationships illustrated above, critics have noted convolution of women's income and her status. The relationship between women's income and preference for partner's income can be explained through other mechanisms such as assortative mating. Assortative mating refers to the pattern that occurs when individuals pair and mate with others who are similar to them on one or more attributes. For example, Kalmijn (1991, 1994) provides evidence for assortative mating based on cultural, economic, educational attainment and socioeconomic origins. The mechanisms of assortative mating however should not be confused or confounded with the effects that women's financial circumstances have on mate preferences; one's socioeconomic position or income is not equivalent to power.

The broad work upon which EP's claim of universal effects rests, such as those of Townsend (1989), Wiederman and Allgeier (1992) and Buss (1989b), have tended to focus on only the economic factors. This body of research has also focused on women in the U.S. and other western countries. To address this issue, Kasser and Sharma (1999) re-analysed data from Buss et al. (1990) with objective indices of educational equality and reproductive freedom. It was hypothesised that sex differences in preference would decrease as educational equality and female reproductive freedom increased. The indices of educational equality and reproductive freedom were created using information from the United Nations Development Program (1991; 1995;1990). Educational equality refers to the percentage of women able to read, receiving primary and secondary education relative to men. Reproductive freedom measures the use of contraception by women, fertility rates, and the mortality rate among birthing mothers, the number of births attended by trained professionals, and the presence or absence of domestic violence laws. Kasser and Sharma (1999) found that reproductive freedom measures and educational equality were both negatively correlated with women's

preference for men's resource acquisition attributes. However, only educational equality was significant. The results remained consistent when controlling for gross national product per capita. These results were taken as evidence that as women's status within a society increases, their dependence on men diminished leading to less sex-differentiated mating preferences.

Another re-analysis of Buss's (1989a) 37-culture study by Eagly and Wood (1999) used the Gender Empowerment Measure, which measures the extent to which women are actively involved with economic, political and decision-making roles equally relative to men (UNDP, 1995). A country's score on the index increases as "(a) women's percentage share of administrative and managerial jobs and professional and technical jobs increases, (b) women's percentage share of parliamentary seats rises, and (c) women's proportional share of earned income approaches parity with men's" (Eagly & Wood, 1999, p 417). The results of this re-analysis matched Kasser and Sharma's (1999) in finding that women's preferences for men's earning potential decreases as the level of empowerment increases. However, the effects demonstrated by Kasser and Sharma (1999) and Eagly and Wood (1999) disappear when a country's latitude from the equator and nation's affluence were controlled for (Gangestad, Haselton, & Buss, 2006).

Regardless, several other studies have successfully demonstrated that improvements in women's economic positions are increasing their demands for physically attractive mates (Carmalt et al., 2008; Gangestad, 1993; Tovee, Furnham, & Swami, 2007). More recently, Zentner and Mitura (2012) re-examined the data from the 37-culture database as well as modern data collected across 10 nations. They analysed the relation in mate preferences and status using the Global Gender Gap Index, which is a new measure of gender equality that measures gender-based gaps in access to, rather than actual levels of, resources and opportunities in a country. Both data sets demonstrated that gender differences in mate preferences decrease as gender parity increases. These results can be interpreted as evidence for the biosocial model's postulate that gender differences in mate preferences are the result of gender roles, and that the two genders become more similar as gender equality increases.

### ***Socioeconomics and Gendered Power***

Over time, the gaps that once existed between genders in educational performance and income have decreased (Baker & Jones, 1993). Furthermore, although education has been associated positively with egalitarian and feministic attitudes, as well as increased income, there is also a strange phenomenon that is occurring. As previously mentioned, Else-Quest et al. (2010) found that although there is no longer the gender gap in maths performance that once existed, a greater gender difference in self-efficacy exists in countries that are more gender-equal on the GEM than those with less gender equality. While this research was solely focused on mathematical attitudes and performance, there is no reason to assume that the large gap in self-efficacy is specific to mathematical domain. Although the two genders may be near equal in education and/or income, this is not the same as saying the two genders are equal in social hierarchies and power.

The use of socioeconomics as a measure of status are not uncontested within the literature. Reviews investigating SES have pointed out a central issue in using objective indicators for the measurement of status; namely, it is unclear how the items used to measure SES (i.e. wealth and education) combine to create a single measurement of status. These critics also point out the virtual impossibility of determining status differences between those who have equivalent SES, and that objective SES measurements are often dependent on antiquated population estimates of objective SES indicators (Brown et al., 1996; Liu et al., 2004; Oakes & Rossi, 2003). This criticism may explain the conflicting impact that SES has on mate preferences in women.

Previous research has demonstrated socioeconomic status impacts people in a variety of ways. This includes influencing social activities along with behaviour, cognitions and motivations (Kraus, Piff, & Keltner, 2009; Piff, Kraus, Côté, Cheng, & Keltner, 2010). Those with low status tend to be more engaged with others in their community (Adler et al., 1994; Piff et al., 2010). This may be due to their dependency on others as they lack economic resources to live autonomously and accomplish their goals, thus needing to rely on others for instrumental support (Oakes & Rossi, 2003; Piff et al., 2010). Additionally, research into status has demonstrated those with high status attribute their relative success to internal characteristic traits and feel they deserve or have earned their position, whereas those with low status attribute their position to *societal constraints* (Kraus et al., 2009). Those with high status experience financial independence,

increased personal control and personal choice (Snibbe & Markus, 2005; Stephens et al., 2007) while those with low SES have less personal control, less financial independence and are dependent on others (Argyle, 1994; Domhoff, 1998).

This aligns with explanation of female mate-selection as Social Role Theory SRT views women's role in society as historically constrained in her access to engage in activities that would allow her to acquire resources, thus dependent on men's SES. Drawing a parallel between the behaviours of those with low SES and women more broadly: relative to men, women exhibit much of the same patterns of behaviour as those with low SES (e.g. communal attributes associated with engagement with others, Williams & Best, 1990, and express less control over life events with increased levels of stress and health problems, Matud, 2004). A link can be drawn between gender roles and status, which fits within the SRT model. As women were historically constrained in achieving high status, they exhibited patterns similar to those with low status. Through the socialisation mechanisms, these attributes became stereotypic of women's gender roles.

### **1.5.3. The Relation of Status, Gender Roles and Mate Preferences**

Status hierarchies can be self-reinforcing in a variety of ways such as through expectations stemming from group membership stereotypes (see Magee & Galinsky, 2009 for a review). For example, there are expectations about the emotions people of different status should express (Tiedens et al., 2000). Expectations and stereotypes exist for gender as well in the form of gender roles (Fischer & Anderson, 2012; Ridgeway & Diekema, 1989; Ridgeway, 2001). Gender roles are learned by children through direct and indirect learning from adults (Bussey & Bandura, 1999; Eagly, 1987), and the extent to which one endorses and conforms to gender roles in turn influences mate preferences (Eagly & Wood, 1999; Eastwick et al., 2006).

Within married couples, the traditional role of 'breadwinner' for a man granted him greater control and privilege. This included the doling out funds to other family members, authority over household decisions, and immunity from domestic chores (Bernard, 1981; Ferree, 1990; Tichenor, 2005). As women pursued education and careers in the 1960's and 1970's, the expectation was that as they were contributing more funds to the household, their power and privilege within the home would increase as well; however, the reality was that women gained only a small amount of control over familial decisions and finances and still did a disproportionate amount of domestic

chores (Coltrane, 2000; Pyke, 1994). It may be reasonable to assume that this is because husbands traditionally still earn more money than their employed wives, contributing a large proportion to the household funds (Raley et al., 2003).

Alternatively, this may have more to do with perceptions of power. In an in-depth qualitative study, Tichenor (2005) observed that women who out-earn their husbands by at least 50% (e.g. a woman who makes £45,000 per year while the husband makes £30,000) will intentionally disrupt the link between income and domestic power for the wives, while maintaining that the potential link exists for the husband. Furthermore, these wives will defer to their husbands in decision making in order to be “good wives” and to minimize the potentially emasculating effect of out earning their husbands. This research demonstrates that although women may have more money than the men close to them, it does not guarantee power and influence over them, suggesting there is an element of status inherent to gender roles.

Status has been linked with a variety of personality traits, which are in turn associated with gender roles. Status has most strongly associated with two dimensional personality traits: leadership-like assertiveness (e.g. Gough, McClosky, & Meehl, 1952) and the hostile and aggressive control (e.g. Cattell, Saunders, & Stice, 1957). These dimensions are comparable to prestige (as conceptualised as a competency) and power (as conceptualised as control). There are, however, additional personality attributes and factors that can be associated with status. Anderson et al. (2001) examined the influence of the personality and physical attractiveness on social dominance in natural social groups (e.g. sororities and fraternities) arguing status comes as “a function of both an individual’s drive and ability to attain status in interpersonal settings and the congruence of the individual’s personal characteristics with the characteristics valued by the group” (p. 116). They also tested for any gender differences as previous work suggested that the genders “differ in the way they think and are motivated by status” (p. 117; Buss, 1999; Hoyenga, 1993; Sidanius, Pratto, & Bobo, 1994). Physical attractiveness for men was found to be positively related to status, but this effect is independent of personality, even though personality and attractiveness have been previously linked (Brand et al., 2012; Griffin & Langlois, 2006; Meier et al., 2010). Unexpectedly, there was no relation between a woman’s attractiveness and her status. Across all groups, extroversion was a strongly positive and stable predictor of status for both sexes, while neuroticism was strong negative predictor for men but not women.



The negative relation of status and neuroticism for men is potentially due to the “femininity” of emotions associated with this attribute (e.g. fear and worry, Barrett, Robin, Pietromonaco, & Eyssell, 1998; Brody, 2000), meaning more neurotic men are perceived as ‘feminine’, reducing their status. This study clearly indicates a link between personality and status, for both genders, and this link may very well be related to conceptions surrounding expectations to gender role conformity.

Men and women differ in how they value power and status. Men tend to think of themselves as more independent than women (Cross & Madson, 1997) and power allows an individual to be independent (Keltner et al., 2003). Men also are more likely to use reward/coercion and indirect strategies to get their own way and have more positive attitudes towards power (Offermann & Schrier, 1985). Women, however, tend to have a greater need for affiliation (Hill, 1987). Women tend to define themselves by their group membership and relations (Cross, Bacon, & Morris, 2000; Cross & Madson, 1997) and are more likely to use personal/dependent and negotiation strategies (Offermann & Schrier, 1985). The relative preference for power vs prestige between men and women was analysed in a study using conjoint analysis, and demonstrated men exhibited twice as much preference for power as women, and women exhibited greater preference for prestige (Hays, 2013). These differences are additionally reflective of gender roles as men and women navigate social hierarchies in a pre-constructed macro-level system organised, in part, by gender.

Status is linked to personality and behavioural attributes making it a personal attribute that functions within society. Similarly, gender is conceptualized as the way in which the process of reproduction organises behaviour at all levels from individual identity to large scale institutions (Connell, 2005). Under this conceptualisation, masculinity is defined as “the practices through which men and women engage [in gender relations], and the effects of these practices in bodily experience, personality and culture” (Connell, 2005, p.71). Therefore, masculinity has three components: it is a social location that both men and women can have, it is a set of practices and characteristics that are understood to be ‘masculine’, and that these practices have cultural and social effects (Schippers, 2007). Masculinity is not something one can “have” or “be” but is something individuals can produce by engaging in masculine behaviour; it is a set of behaviours that occur over time and situations that have individual effects. These re-

occurring practices create a structure for the production and distribution of resources and the distribution of power (Schippers, 2007).

The link between mate preferences and status may be the product of an interaction between both individual attitudes about status as well as the obtainment of status. Gangestad and Simpson (2000a) proposed that the conflicting results regarding the impact of a woman's economic position on her mate selection practices reflect differences in the measures used, as wealth is not equivalent to power and neither is equivalent to personal attitudes regarding status. Moore, Cassidy, Smith, and Perrett (2006) looked at financial independence, the belief in the importance of financial independence (i.e. ambition), and the extent of input in decision making at work and home (i.e. power), as measures of female status, along measures of income and education. Financial independence and power significantly predicted preference for men's physical attractiveness over his financial prospects, but conversely, income alone predicted a preference for financial prospects. It was concluded that the two measures tap into different aspects of resource control and status. Financial independence and power tap into realized means of status, whereas ambition may tap into personal desires for status. Koyama, McGain, and Hill, (2004) focused on whether the trade-offs women make would vary with measures of status at individual levels. They demonstrate that individually rated financial prospects are positively related to preference rankings for physical attractiveness, while scores on the Liberal Feminist Attitude Scale (Morgan, 1996), which measures attitudes and perceptions of the status of women, are negatively related for preference ratings of earning potential. These two studies demonstrate that individual attitudes and belief systems contribute to female mate preferences. Women who access to and desire for power, breaking away from constraining gender roles, also express more male-typical mate preferences.

As individual ideological attitudes and beliefs about gender roles can influence mate preferences. Ambivalent Sexism Theory purports that sexism is the combination of complementary gender ideologies, held by both men and women (Glick et al., 2000), that serve to maintain the social hierarchy. Ambivalent sexism (Glick & Fiske, 1996) is comprised of both hostile (HS) and benevolent (BS) sexism towards women, with its roots planted in the traditional gender roles. Sexism is typically thought of and referred to as a general hostility towards women. However, Glick and Fiske (1996, 1997, 2001) and Eagly and Mladinic (1989, 1994) both noted that not all sexism is explicitly hostile

or aggressive. In fact, some sexism can be described as condescending, infantilizing or patronising, and this is benevolent sexism. For example, the notion that women should be cherished and protected by men cannot be described as hostile or aggressive but implies that women are unable to care for themselves. Feminist theories examining how one's gender impacts an individual's ability to control his or her life, resources and power (e.g. Gowaty, 1992) suggest those who did not grow up with feminist ideology are more likely to express the traditional, benevolent sexist attitudes that women are of lower status compared to men.

Regarding mate-preferences, sexism is a predictor and contributing factor to mate-trait preferences. Hostile sexism stems from the perception of a competition existing between the two genders for control and status within society and correlates with other measures that relate to social status and intergroup competition (Christopher & Mull, 2006). This power struggle permeates into many aspects of men's and women's lives, such as the workplace and at home. Hostile sexism attempts to punish the women who seek to disrupt the status quo. Previous research has demonstrated that women typically score higher on benevolent sexism than hostile sexism (Glick et al., 2000; Glick et al., 2004). Further, benevolent sexism ideology predicts women's preference for relationships and partners with traditional gender roles, in this case meaning men with good earning potential (Johannesen-Schmidt & Eagly, 2002). Conversely, previous studies have demonstrated that as women's hostility increased, their preference for 'warm partner' and 'romantic partner' decreased (Lee, Fiske, Glick, & Chen, 2010).

The evidence presented in this section demonstrates the relation between gender roles, status, and mate preferences. There exists a clear link between the conformity to gender roles and status, in that status can be the product of certain personality and behavioural attributes that are associated with gender roles (such as the desire for control or exhibition of neuroticism). Similarly, our beliefs about gender roles, i.e. sexist ideologies, are linked with mate preferences. In examining how women's status can impact mate preferences, both ideological orientation and role conformity need to be taken into consideration.

### **1.6. Summary**

Evolutionary Psychology and the Biosocial Model provide two different explanations for sex differences in mate preferences. EP argue that sex-specific constraints on

reproductive success results in women's preferences for mate's resources and status and men's preference for physical attractiveness in women. Variation is explained as part of an adaptation that allows for context-specific trade-offs in order to optimise mating outcomes. The biosocial model argues that sex differences in mate preferences are the result of an interaction between environmental factors that can either amplify or reduce the importance of biological differences, which then feeds into the division of labour between gender roles. EP and SRT differ in their predictions on the impact of status on mate preferences, in that EP predicts women will exhibit preference for mates with more status and resources relative to herself, whereas SRT predicts that as women gain status and engage in more "male-typical" social roles, so too will their preferences shift to be more "male-typical" with reduced preference for mate's resources.

The examination of how women's status impacts their mate preferences has produced divergent results. Social role theorists point to evidence that as women gain parity with men on socioeconomic metrics, women come to prefer physically attractive mates and express less concern for earning potential (e.g. Eagly & Wood, 1999; Kasser & Sharma, 1999). This supports the notion that social roles are a driving force behind their mate preferences. Evolutionary theorists point out that women's expected incomes are positively related to their rating of men's earning potential, and consistent universal differences counter-arguing that biology is the driving force of mate preferences (e.g. Buss & Barnes, 1986; Wiederman & Allgeier, 1992). Social psychologists have criticised the use of socioeconomic metrics as it is unclear how items like education or income are combined to create a single measure of status (e.g. Oakes & Rossi, 2003) and do not capture differences between individuals such as power dynamics. Power has been demonstrated to have its own conflicting results as personal power (e.g. Domestic Authority) is linked to a preference for physical attractiveness, whereas societal power (e.g. Ritualised Female Solidarity) is linked with preference for resource acquisition. The link between mate preferences and status may be the result of an interaction between either individual and societal levels of social status, or the result of an untapped psychological element such as the link between status and personal attributes.

### **1.7. Aims and Objectives**

Considering the literature examined in this chapter, there is a gap regarding broader conceptions of status and its role in mating preferences. By examining status through numerous lenses, it should be possible to bridge this research gap and provide support

of SRT. Accordingly, to address this gap in the literature, the aim of this thesis is to examine how different measures of women's status relate to sex-differentiated mate preferences in providing support for Social Role Theory over the evolutionary approach.

The first objective was to examine the effects of women's perceptions of their power on sex-differentiated mate preference trade-offs. Power was examined via perceptions of financial independence, education and income. It was hypothesised that participants who feel they have greater power will express greater preference for physical attractiveness as compared to those with less financial control. The potential relationship underlying this hypothesis was investigated across different age groups (Study 1), was experimentally manipulated (Study 2), and was examined in the light of gender role engagement (Study 3). This extensive set of testing served to fulfil the first objective and test the associated hypothesis.

The second objective was to examine the effects of subjective status on sex-differentiated mate preference trade-offs. Subjective status was the participants' own perceptions of themselves and their group (e.g. women) status within their society. This is the same as prestige. Prestige was measured within individual participants with the MacArthur Subjective Status Scale. Further, prestige as a measure of status was examined as it relates to gender role engagement to impact mate preference trade-offs. It was hypothesized that participants with higher levels of status would exhibit more masculine gender role engagement thus exhibiting greater preference for physical attractiveness. This hypothesis and the underlying relationship were examined in the light of factors such as gender role engagement and ideology (Study 3). Group prestige was then tested through the manipulation of meta-awareness of gender stereotypes to provoke the sense of women are seen as a lower status group (Study 4 and 6).

The third and final objective is to examine the effects of status and the endorsement of traditional gender role ideology on mate preference trade-offs. Per SRT, gender roles arise from the traditional division of labour, and therefore endorsement of traditional gender roles was hypothesized to predict mate preferences favouring men who can fill the traditional role of a provider (high status) position and women who can fulfil the role of a homemaker (lower status) position. This was assessed through the Ambivalent Sexism Inventory used throughout this thesis. This was tested throughout all studies to replicate previous findings.

Overall, the thesis adopts a quantitative methodology in which data were collected through questionnaires. Participants from a wide range of ages and backgrounds were recruited via online surveys advertised across social media (Study 1, 3, and 5) to avoid relying solely on a local undergraduate sample. Previous measures of mate preferences have been limited using scales where value between one rating and ranking is not equivalent between each position. The data can result in researchers having a false sense of the extent of participant's prioritization of partner attributes. The thesis makes use of typical rating scales as well as atypical methods of measuring preference and trade-offs: isoclines (Study 3 and 4) and conjoint analysis (Study 5 and 6).

## **Chapter 2. Study 1: Attribute Preferences Across Age Cohorts**

### **2.1. Introduction**

As discussed throughout Chapter 1, Evolutionary Psychology (EP) propose that women face a trade-off in their mate preferences (discussed in detail in section 1.2.2, Buss, 1998a; Gangestad & Simpson, 2000b; Gross, 1996). EP suggests that women evolved to pick up cues in men's traits that would increase the survival of potential offspring (Cosmides & Tooby, 1987), leading to preference for men's resources over physical attractiveness (Buss, 1995). Though Social Role Theory (SRT) predicts the same preferences, it suggests it is due to gender roles and women's constraint in their access to status and resources. Though both theories suggest that mate preferences can be flexible and predict women valuing resources, SRT argues preferences are qualified by specific variables. The purpose of the present study is to test the two theories by focusing on important variables that can act as cues of societal roles and status: age, education, financial independence, gender role ideology and mate value.

#### **2.1.1. Women's Status Shift Within Western Societies**

Proponents of Social Role Theory argue when restrictive gender roles mean women can only secure resources and status through men, the optimal solution is to select a partner who is able and willing to provide the resources the women need (e.g. Smuts, 1989). However, when gender roles are egalitarian and women can obtain resources and status for themselves, the importance of men's resource investment may decrease (Cashdan, 1993; Gangestad, 1993; Low, 1990). Support for this argument comes from evidence of cross-cultural samples demonstrating that in societies with greater gender parity, women express weaker preferences for resource acquisition characteristics and stronger preference for physical appearance (Eagly & Wood, 1999; Kasser & Sharma, 1999; Moore & Cassidy, 2007; Zentner & Mitura, 2012). See Section 1.4 for a detailed discussion. The differences in the magnitude of preference for attributes has been demonstrated between cultures that differ in the extent to which women engage in traditional gender roles and ideologies (e.g. Eastwick et al., 2006, Zentner & Mitura, 2012). If, however, SRT holds as a theory and substantial societal shifts in gender roles occur within a culture, we should be able to see similar shifts in relevant factors (e.g. gender role ideology and mate preferences) across age cohorts.

Within the western societies, the 20<sup>th</sup> century was marked by dramatic changes in gendered power dynamics that have continued into the 21<sup>st</sup> century. Particularly in the

US and the UK, the societal expectations and the role of women substantially shifted as a result the self-sufficiency and sacrifice required during the Great Depression and World War II. Expectations shifted again, toward the restricted domestic roles of wife and mother in the 1950s and early 1960s. Generally, women's participation in the workforce increased over the past century, but with a distinctive increase occurring in the 1960s (Lindsay, 2003). By the late 1960s and 1970s, feminist movements gained traction with the intent of increasing women's freedom, status, and prospects to be more on par with men (Chafe, 1972; Dean, 2009; Honey, 1984). Following on, through the 1970s and 1980s women began enrolling in undergraduate degrees at higher rates than previous generations and furthered their education with postgraduate degrees allowing them to secure independent careers (Goldin, 2006). This trend continued with a report by the Pew Research Centre (2013) stating that those born between the 1980's and the 2000's are more now likely either to be enrolled in university or have completed a bachelor's degree compared to their male peers. Similarly, an economic shift occurred. In the 1980's the median hourly wage for women in full and part-time employment (age 16 and older) was 64% of the median male wage, whereas of 2012, women were earning 84% of the male median wage. While this is still a significant discrepancy, it is considerably less of one. The Pew report stated that today's "young women are the first in modern history to start their work lives at near parity [with men]" (Pew Research Centre, 2013, p. 2) – particularly for 25-34 year olds who are earning 93% as much as their male peers. These social and economic changes in women's education and income have implications for women's psychology and mating behaviour, particularly in providing support for Social Role Theory

The changes in women's education and income have significantly changed many aspects of their lives. For example, family sizes become smaller, and the age of first marriage and pregnancy becomes delayed (Newson et al., 2007; Twenge, 2001). Delayed marriage and reproduction is indicative of shifting gender roles and increased status as societies with later marital age confer more status for women (Stewart & Winter, 2015). The increase in status is further evidenced by changes in women's personality over time. In two meta-analyses, Twenge (2001) revealed that 'assertiveness' (a personality trait positively associated with status; Eagly, 1983; Eagly & Wood, 1982) in American women of high school and university age was found to increase between 1931 and 1945, and then decreased between 1946 and 1967, and finally increase once again between 1968 and 1993. These changes in the assertiveness



expressed by women maps onto changes in women's education and employment. These changes in women's education, employment, reproductive behaviours, and even personality, all suggest women have increased in status in western cultures like the US and UK, with implications for learned gender roles in SRT.

The biosocial model argues that people learn gender roles by observing in their gender group. Therefore, the influence of role modelling is important to note, as gender roles have changed over time. Indeed, the "traditional" role referred to throughout this thesis is, from an evolutionary standpoint, quite novel (Sear, 2016). Thus, these roles should continue to shift across a more human timescale, as they have in recent years. A girl born before 1965 is most likely to have had a mother who either was a homemaker or was employed in a low status job such as a clerical worker (Chafe, 1972; Reskin & Roos, 1991). During the 1980s, more mothers were active participants in the labour force. Thus, girls growing up in the 1980s should have very different views of women's roles and status in society (Twenge, 2001).

Those born throughout the 1990s have been found to have different expectations and experiences about gender than previous generations. They are entering the labour force with the highest rates of gender income parity, though 75% feel that changes still need to be made to achieve equality. Further, 15% say they have been discriminated against at work because of their gender (Pew Research Center, 2013). Overall, those born after the 1990s express attitudes that are much more egalitarian than those of earlier cohorts (Broido, 2004). This tends to be expressed as placing high importance on individual accomplishments and job aspects (Ng et al., 2010). Thus, the perception of gender roles and gender ideology has changed with each age cohort. This can be linked to changes in mothers' education due to gender role modelling. Under SRT then, it can be predicted that mate preferences will differ between age cohorts if the perceptions of the status of women has shifted to reflect these changes, as measured by gender role ideology along with women's engagement in education and the economy.

### **2.1.2. Impact of reproductive status and mate value**

Any differences in mating preferences found across age cohorts alone does not provide evidence for Social Role Theory. Evolutionary accounts would argue that age cohort differences in mate preferences would be linked to their reproductive status and mate value. In examining preference across different life stages of reproduction, Kościński

(2011) demonstrated girls just entering puberty (approximately 13 years old) report an overall weaker preference for male faces, suggesting that mate preference is still underdeveloped at this age. However, preference for male faces signalling for short-term mating were most preferred by non-pregnant young women (approximately 16-34 years old). Additionally, preference for masculine faces and youthful appearance in male partners decreases from young adulthood to middle age (Vukovic et al., 2009), but are more strongly preferred by young reproductive-aged women compared to pubescent girls or post-menopausal women (Little et al., 2010). Due to the decrease in fertility, menopause is associated with a shift away from a mating-orientated psychology towards a more family- and community-oriented psychology (Hawkes, O'Connell, Blurton Jones, Alvarez, & Charnov, 1998). However, the effects of menopause on mate preferences is unclear as peri- and post-menopausal women demonstrate significant preference differences for women's facial sexual dimorphism but no significant difference emerges for men's faces (Vukovic et al., 2009). This could possibly be due to a high level of intrasexual variation for post-menopausal women (Kościński, 2011).

Though older women are associated with a shift from mating-orientated psychology towards family- and community-oriented psychology (Hawkes et al., 1998), older women (50+ years old) are still interested in pair-bonding as evidenced by the fact that adults over the age of 50 have been the fastest growing demographic to utilise online dating over the last twenty years (Cooney & Dunne, 2001; Stephure et al., 2009). Evidence suggests that the motivations for dating and the experience of dating differ for younger and older individuals. Younger individuals date for 'mating' purposes, in order to secure reproductive access and instrumental support from partners. Older individuals date in order to alleviate loneliness and for sexual fulfilment, and are unlikely to provide instrumental support or result in marriage (Bulcroft & O'Connor, 1986; Bulcroft & Bulcroft, 1991). Similarly, while there tend to be an equal number of men to women in their 20s and 30s, there is a disproportionate number of women to men (3:1) aged 65 and older as women tend to outlive men (Thies & Travers, 2006). Though younger women tend to prefer older men (Kenrick & Keefe, 1992), older women are reluctant to date men who are older than them (Dickson et al., 2005). In fact, Bulcroft & Bulcroft (1991) found that older women (60+ years old) seek partners who display signs of health and mobility. Older women are reluctant to date older men due to the potential loss of the independence they had experienced while being single and fear that in forming a long term bond, they will find themselves in the role of care-taker for a man

in failing health (Dickson et al., 2005) or with a mate who will be a financial burden (Talbot, 1998).

Mate value is an estimate of how valuable a person would be as a mate in a reproductive relationship and is assessed via the combination of several attributes such as personality, demographic factors and physical attributes (Brase & Guy, 2004; Buss, 1999). In other words, it is a rough estimate of how desirable an individual is to members of the opposite sex. The most common technique used to measure mate value is trait-based, where researchers assess participants on one or more characteristics that are considered to contribute to mate value. Evolutionary psychologists have shown that men generally find younger, reproductive-age women more attractive than older women, and argue that this is because younger women have a greater reproductive potential whereas women will typically prefer older men, as older men have had more time to acquire resources and status required for child rearing (Buss, 1989a; Kenrick & Keefe, 1992). For women, then, evolutionary psychologists argue that value as a mate is tied to their physical appearance and attributes that signal their health and fertility (Buss & Shackelford, 2008), such as hip-to-waist ratio (Singh, 2002; Singh, Dixon, Jessop, Morgan, & Dixon, 2010) and facial attractiveness (Law Smith et al., 2006).

As the attributes associated with women's mate value are linked with fertility, signs of advancing age are associated with lower mate value (Kenrick et al., 1996; Kenrick & Keefe, 1992). Aging may be evinced through skin coloration becoming less homogenous (Matts et al., 2007) or faces losing symmetry (Burt & Perrett, 1995; Kowner, 1996). These physical signs of age then in turn shape a woman's perceived health, youth and attractiveness. Furthermore, pre-pubescent and post-menopausal females have hip-to-waist ratios comparable to their male counterparts. Following the onset of puberty, women will typically maintain a lower hip-to-waist ratio compared to men (0.67-0.80 for women compared to 0.85-0.95 for men). However, this changes following the onset of menopause, after which women's hip-to-waist ratios approach the masculine range (Aréchiga et al., 2001; Kirschner & Samojlik, 1991). That said, evidence for hip-to-waist ratios as a measure of attractiveness is somewhat weak and not uniform across cultures (Swami, Knight, Tovée, Davies, & Furnham, 2007).

Gangestad & Simpson (2000b) suggest that women make trade-offs between two attributes in a potential mate: good gene indicators and good investment indicators. This

is based on the premise that both attributes cannot be obtained from the same mate as men who present a high level of good gene indicators are less likely to invest in long term relationships (Waynforth, 1999) and are more likely to abandon a current relationship for a new one (Schmitt & Buss, 2001). Mate value has been demonstrated to impact the trade-offs and preferences women have for a mate, as women who perceive themselves as having low mate value are found to express a weaker preference for masculine traits (such as high masculine facial dimorphism and a masculine voice tone) than those who perceive themselves as having a higher mate value (Feinberg et al., 2012; Little & Mannion, 2006; Penton-Voak et al., 2003; Vukovic et al., 2008). However, women who are higher in mate value should be able to attract and retain men who possess both good gene and good investment indicators and are therefore found to have higher standards, demanding more from their prospective mates in terms of attractiveness, income ability, parental investment, and good partnership indicators (Buss & Shackelford, 2008).

Similarly, in studies where participants are asked to allocate points to potential mate attributes so that each point represented a decile increase of that attribute, the mate-value effect has been observed. When a budget is in place, those with higher self-reported mate-values have slightly higher demands for attractiveness, and a significantly higher demand for a sense of humour and yearly income (Edlund & Sagarin, 2010). This suggests that the trade-offs come into play more significantly in the case of those with lower perceptions of their own value and thus more willingness to sacrifice partner mate value, whereas women who perceive themselves as being a highly valued mate will tend to focus on the same in a partner. As a woman's mate value is linked with signs for fertility, (Kenrick et al., 1996; Kenrick & Keefe, 1992), it would be expected that older women would perceived themselves as having a lower mate value, and thus express partner preferences in line with this.

### **2.1.3. Summary and Purpose**

Women's status within western societies has undergone substantial shifts. This is status as defined by socioeconomic variables such as education and financial control, as well as restrictive gender role ideologies. If Social Role Theory is predicated on social factors, we should be able to examine the effects of these factors within a society. However, social factors need to be balanced against reproductive measures that can vary as a function of age, such as mate value, in order to provide support for SRT over

evolutionary accounts. SRT suggests that as women gain status and engage in more “male-typical” social roles, so too will their preferences shift to be more “male-typical” with reduced preference for mate’s resources.

The purpose of the current study is to explore which variables influence mate preferences and whether these preferences are influenced by differences in age cohort, socioeconomic status (operationalised by educational background), individual status (operationalised as financial independence), self-rated mate value, or gender role ideology (operationalised by the ambivalent sexism inventory). As Social Role Theory suggests gender roles and social factors are the driving motivation behind mate preferences, I anticipate mate preferences to be predicted by the variables under review. Under SRT, younger women should differ from older cohorts by expressing less traditional ideologies. Furthermore, more educated and financially independent women should exhibit greater preference for masculinity. Evolutionary accounts would suggest that more educated women will exhibit greater preference for intelligence and status, and mates who are going to invest in the relationship.

## **2.2. Methods**

### **2.2.1. Participants**

Participants for study 1 were recruited via e-newsletters, email lists, social media postings and through the University of Dundee Psychology Experiment Participation system. While an initial 731 participants took part in the study, participants were excluded from analysis if: a) they did not identify as female (n=59), b) did not self-identify as exclusively heterosexual (n=186) or c) did not allocate the correct total of 35 points (n=166). A total of 341 participants were excluded as they met one or more of the exclusion criteria.

The final sample was comprised of 390 females, with a mean age of 33.13 years (SD=14.36 years), ranging from 18 to 90 years of age. A hundred and 33 participants reported being single, 32 were in casual relationships, and 218 were in serious, committed relationships. The sample consisted of seven participants who chose not to disclose their nationality, six participants from Australia, 21 from North America, five from Asia, 28 from continental Europe, and 323 from the United Kingdom and Ireland.

Participants were grouped into one of four categories: early reproduction (n=145), middle reproduction (n=114), late reproduction (n=65), or post reproduction (n=66). These categories were created to reflect both the societal norm of women's reproduction as well as that of public health organisations (Hamilton et al., 2015; Merrill et al., 2005). Women between the ages of 18-24 years of age were classified as "early reproduction", 25-35 were classified as "middle reproduction" while women 36-50 were classified as "late-reproduction" and women 51 years of age and older were classified as "post-reproduction".

## **2.2.2. Materials**

### **2.2.2.1. Measures of Status**

Socioeconomic status was assessed via educational background of participants, as well as their mothers and fathers, by identifying the maximum level of education as either primary school, secondary school, college, undergraduate or postgraduate degree (Cowan et al., 2012). Financial independence was assessed on a scale of 1 (completely dependent on others) to 7 (completely independent) (Moore et al., 2006). These items are presented in Appendix 1.

### **2.2.2.2. Single-Item Mate Value**

Mate value was measured with a single item asking participants to rate their attractiveness on a Likert scale from 1 (Not at all Attractive) to 7 (Extremely Attractive) (Surawski & Ossoff, 2006). The item is presented in Appendix 2.

### **2.2.2.3. Ambivalent Sexism Inventory**

To assess the participants' gender role ideology the Ambivalent Sexism Inventory was used (ASI: Glick & Fiske, 1996) which is a widely implemented and validated scale (e.g. Glick et al., 2000; Johannesen-Schmidt & Eagly, 2002; Rudman & Glick, 2001; Thomae & Houston, 2016; Travaglia, Overall, & Sibley, 2009). The ASI is comprised of 22 items, half of which measure hostile sexism (e.g. "Once a woman gets a man to commit to her, she usually tries to put him on a tight leash" and "When women lose to men in a fair competition, they typically complain about being discriminated against") and half measure benevolent sexism (e.g. "Women should be cherished and protected by men" and "Men should be willing to sacrifice their own wellbeing in order to provide financially for the women in their lives"). Participants were presented with each item of the ASI and were asked to rate the statements from a scale of 0 (disagree strongly) to 5 (agree strongly). These items were summed into one sexism score for

participants. This measure was adopted because of its wide use in the existing literature. The ASI demonstrates a good level of reliability (Cronbach's alpha = .82) and the scale is presented in Appendix 3.

#### 2.2.2.4. *Point Allocation for Appraising Mate Attribute Preferences*

A point allocation task was used to measure trade-offs in preferences for mate attributes. For this, the mate attributes to be evaluated were taken from Moore (in prep). This study includes 217 female participants who were asked an open-ended question in which they outlined their partner preferences. Participants additionally were asked to describe their ideal mate with specific regard to their mate's wealth/status, personality, physical attributes, background and beliefs. An additional question allowed them to include any other attributes, which may have been missed. The data collected were then thematically analysed by two independent researchers who extracted seven factors: *Masculine Personality & Appearance, Pleasant Personality & Committed to the Relationship, Fun & Adventurous, Compatible with you & Loving, Talented, Intelligent, and Good Values & Status*. The participants were presented with the seven mate attributes and were asked to allocate 35 points across the attributes. The instructions explained that the participants were to decide how important each set of attributes was in a potential long-term romantic partner and allocate points accordingly. The task is presented in Appendix 4.

They were given the example that if the only characteristic that mattered was *Pleasant Personality & Committed to the Relationship*, then they should allocate all the points to that attribute; however, it would be more likely that the participants would want to split the points among several categories and therefore, participants should allocate the points in accordance with how important the attribute was to them. This point assignment task was adopted from previous research that also examined mate preference trade-offs (e.g. Edlund & Sagarin, 2010). Point allocation task allows not only the measurement of the relative value of traits to one another, but also the degree to which a specific trait is important within an overall budget. That is, if the study had only measured each trait by itself, it would be hard to tell which the participant would favour if forced to choose between apparently equally valued traits, and forced choice paradigm would only allow for the examination of two traits.

### 2.2.3. Procedure

Participants were provided with a link that brought them to the online survey. Participants first filled in the demographic (e.g. age, gender, sexual orientation) followed by information regarding their perceptions of their attractiveness and financial independence and the ASI items. Participants then allocated 35 points across the seven mate attributes.

### 2.2.4. Analyses

First, differences in education, mate value, financial independence, and ambivalent sexism between age groups were explored in order to determine whether the age groups did indeed differ in the variables that I anticipated would differ with age.

Then, to test the potential influence of participant variables on the stated preferences, a multivariate analysis was performed in R version 4.0.3 (R Core Team, 2020) using the *vegan* (Oksanen et al., 2009) package. The analysis created “preference profiles” based on the relative proportions of points allocated to the mate attributes (*Masculine Personality & Appearance, Pleasant Personality & Committed to the Relationship, Fun & Adventurous, Compatible with you & Loving, Talented, Intelligent, and Good Values & Status*), and assess differences in the preference profiles among groups. First examined was how preference profiles differed across age cohorts, relationship status, and their interaction using permutational multivariate analysis of variance (PerMANOVA; *adonis* function), with 9,999 permutations to generate p-values. The PerMANOVA revealed a significant interaction between age cohorts and relationship status, therefore separate ordinations were performed to visualise the preference profiles for single participants vs. those in a committed relationship, and to assess differences among age classes. As only a small number of participants were in a casual relationship, they were treated as single for the purpose of the ordinations. Non-metric multidimensional scaling (NMDS) based on Bray-Curtis dissimilarities (*MetaMDS* function) was used to produced stable two-dimensional solutions with stress scores  $< 0.2$  and  $r^2 > 0.95$ . Ordination plots were generated and fit all possible explanatory variables (age in years, self-rated attractiveness, financial status, educational status, maternal education and ambivalent sexism) as vectors to the ordinations (*envfit* function) using 9,999 random permutations to determine their significance in explaining the distribution of preference profiles in ordination space. To assess which components of the preference profiles best explained the distinction among age categories, all components were fit as vectors to the ordination.



Lastly, to determine the influence of education, mate value, financial independence, and ambivalent sexism on mate preferences across age groups, hierarchical regression models were fit for each mate attribute in turn. Dummy variables were created for categorical data (Allen, 2007). The categorical data included: age groups (18-24, 25-35, 36-50, and 51+), each parents' education (Primary, Secondary, College, Undergraduate and Postgraduate), and participant's own educational attainment. Age groups and educational attainment are treated as categorical data, as though there is a clear order to the groupings the differences between each level is not consistent to be treated as interval. As none of the participants had only complete Primary education, a dummy variable was not created for this category (dummy variables: Secondary, College, Undergraduate and Postgraduate). Dummy variables were entered in the first block of the hierarchical regression. One dummy variable was excluded from each set of categorical variables to act as a reference category. For the age groups, the youngest group was excluded from analysis as the reference group. For the parents' education, the primary education variable was excluded to use as the reference group, and secondary education variable was used for the participant's own education reference.

Self-ratings of participant attractiveness, financial independence and ASI were entered in the second block of the regression model. Where multiple significant associations were revealed, interactions between predictor variables were explored using moderation analyses. The significance of each of the age groups in Tables 2.5-2.11 are based on the use of these dummy variables. The range being a significant predictor corresponds to the dummy variable for that categorical choice being significant.

## **2.3. Results**

### **2.3.1. Group Differences**

A Kruskal-Wallis H test showed that there were no statistically significant differences in participants' educational attainment between the age groups,  $\chi^2(3) = 3.45$ ,  $p = .328$ . Statistically significant differences were found in participants' mother's educational attainment  $\chi^2(3) = 41.56$ ,  $p < .001$ , in that those in the 51+ group had less educated mother's than the other groups ( $p < .001$  in all pair-wise comparisons with Bonferroni correction). Similarly, significant differences were found in participants' father's education,  $\chi^2(3) = 20.99$ ,  $p < .001$ . Pairwise comparisons with Bonferroni correction show that, the 51+ group also had less educated father's than those who were 18-24 ( $p < .001$ ) and those who were 25-35 ( $p = .001$ ).

**Table 2.1 Mean Rank Educational Attainment of Participant and their Parents**

Age Group (Birth Year)	Participant education	Mothers education	Fathers education
18-24 (1991-1997)	133.70	183.66	173.53
25-35 (1980-1990)	157.91	162.63	162.17
36-50 (1965-1979)	149.88	150.64	136.58
51+ (<1964)	146.72	95.48	115.19
Kruskal-Wallis H	3.45	21.00	41.59
Asymp. Sig.	.328	>.001**	>.001**

\*\*p <.01

Univariate ANOVAs were used to examine group differences in participants' self-ratings of attractiveness, financial independence and ASI scores. There were no significant differences among the age groups for self-rated attractiveness,  $F(3,385) = 0.25$ ,  $p = .860$ . There were significant differences in gender role ideologies as measured by the ASI scores,  $F(3,298) = 3.40$ ,  $p = .018$ ,  $\eta_p^2 = .03$ . Tukey's post-hoc analysis revealed that the 18-24 year old age cohort held more sexist ideologies ( $M = 43.48$ ,  $SD = 16.21$ ) than those in the 36-50 year old cohort ( $M = 36.23$ ,  $SD = 13.31$ ,  $p = .030$ ) and the 51+ year old cohort ( $M = 36.70$ ,  $SD = 14.53$ ,  $p = .048$ ).

Similarly, significant differences were found for the groups' financial independence,  $F(3,297) = 22.42$ ,  $p < 0.001$ ,  $\eta_p^2 = .03$ . Tukey's post-hoc analysis revealed the 18-24 year olds perceived themselves as significantly less financially independence ( $M = 3.61$ ,  $SD = 1.85$ ,  $p < .001$  in all comparisons) compared to the 25-35 year olds ( $M = 5.31$ ,  $SD = 1.59$ ), the 36-50 year olds ( $M = 5.72$ ,  $SD = 1.56$ ) and the 51+ year olds ( $M = 5.62$ ,  $SD = 1.80$ ).

**Table 2.2 Mean Participant Self-Ratings of Attractiveness, Sexism and Financial Independence (SD)**

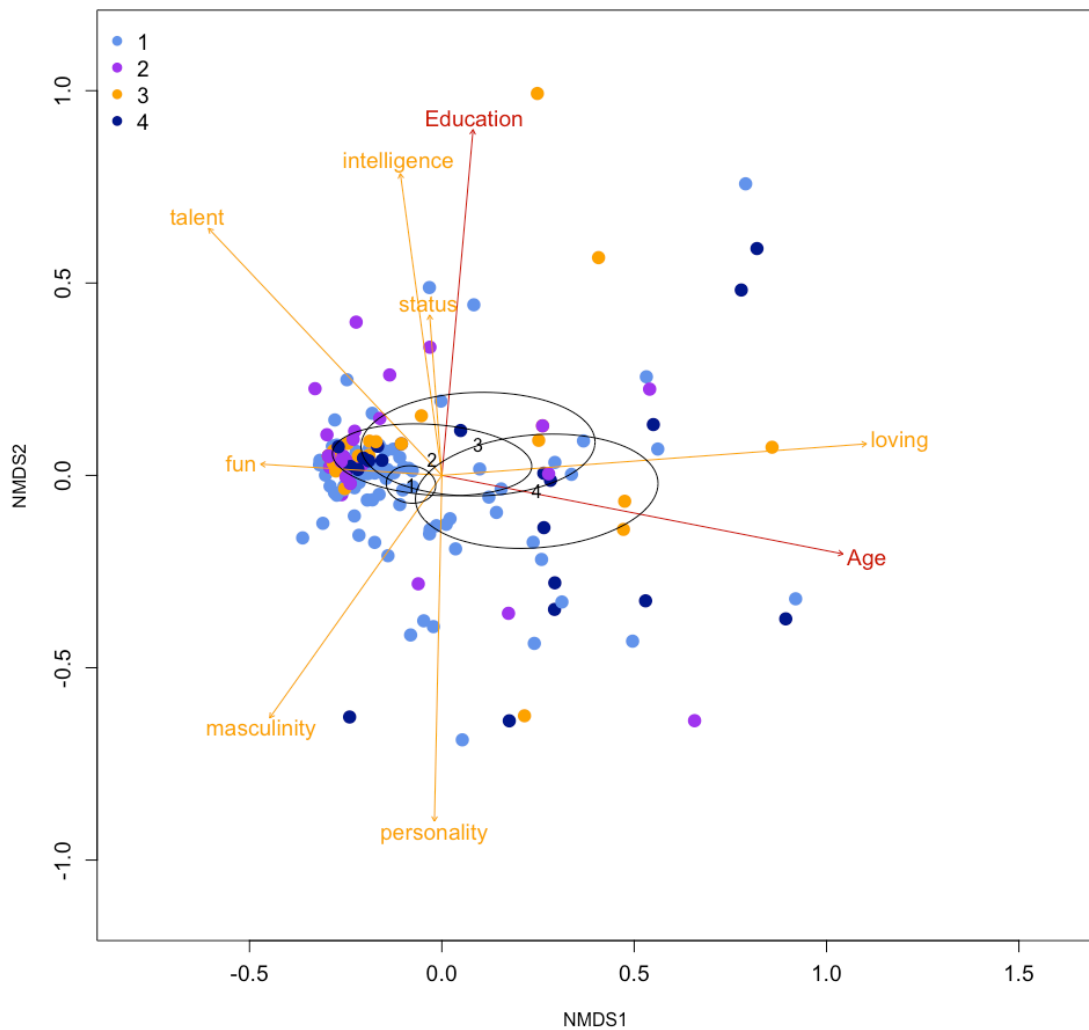
Age Group	Self-Rated Attractiveness	Ambivalent Sexism	Financial Independence
18-24 (1991-1997)	3.99 (1.17)	43.48 (16.21)**	3.61 (1.85)**
25-35 (1980-1990)	3.99 (1.37)	40.11 (14.61)	5.31 (1.59)
36-50 (1965-1979)	3.89 (1.07)	36.23 (13.31)	5.72 (1.56)
51+ (<1964)	4.08 (1.15)	36.70 (14.53)	5.62 (1.80)

\*\*p <.01 compared to all other groups

PerMANOVA based on the whole dataset revealed that preference profiles differed according to age class ( $p = 0.016$ ), relationship status ( $p = 0.013$ ) and their interaction ( $p = 0.047$ ), although they only explained a very small proportion (c. 5.5 %) of the total

variation in preference profiles. The mean point allocations for each attribute by age cohort are presented in Table 2.3. Individual NMDS ordinations demonstrated that the effect of age explained differences in the preference profiles of single participants, but not of those in a committed relationship. The ordination plot (Figure 1) for single participants showed that the preference profiles differed between single participants in the youngest and oldest age classes. The preference profiles were similar among participants in the youngest age class but varied increasingly with age. Thus, age in years explained the spread of preference profiles along the first NMDS axis ( $r^2 = 0.11$ ,  $p = 0.006$ ). Of the other explanatory variables, only education was significantly correlated with the second NMDS axis ( $r^2 = 0.08$ ,  $p = 0.023$ ), indicating that participant education explained some of the differences in the distribution of participant profiles within age classes.

Fitting the components of the preference profiles to the ordination plot revealed that participants with a higher education status tend to rate intelligence (and, to a lesser extent, status) more highly, whereas less educated participants tend to prefer personality over intelligence. Younger participants had a slight preference for fun, whereas the importance of a loving partner increases with age. The preference for masculinity and talent were not well explained by age or education, although masculinity is more likely to be valued by younger, less well-educated women.



**Figure 2.1** NMDS representation of preference profiles for single participants in four age classes; ordinations were based on Bray-Curtis dissimilarities and ellipses represent standard errors for age classes based on 95% confidence intervals, where: 1 (blue) is 18-24 years old; 2 (purple) is 25- years old, 3 (orange) is 36-50 years old and 4 (black) is >50 years old; significant correlations between explanatory variables (age in years and education) with ordination axes are shown as red arrows; the individual components of preference profiles were fit to the ordination plot as orange arrows.

**Table 2.3 Mean number of points allocated by age group (SD)**

Age Cohort (birth year)	Compatible with you & loving	Pleasant personality & committed to the relationship	Intelligent	Good values & status	Fun & adventurous	Masculine personality & appearance	Talented
18-24 (1991-1997)	8.32 (2.89)	8.40 (3.29)	4.98 (2.23)	4.31 (1.73)	3.98 (2.17)	3.96 (2.27)	2.61 (1.48)
25-35 (1980-1990)	9.54 (7.65)	7.75 (3.27)	6.15 (2.36)	5.42 (3.13)	4.50 (2.06)	3.54 (2.02)	2.86 (1.94)
36-50 (1965-1979)	8.90 (3.02)	8.59 (4.13)	6.75 (3.07)	4.68 (1.75)	4.61 (1.78)	4.43 (2.66)	2.94 (1.34)
51+ (1964 and earlier)	10.89 (5.93)	8.83 (3.20)	5.87 (4.08)	4.88 (1.66)	4.32 (2.46)	3.61 (2.06)	2.32 (1.46)
Total Mean (SD)	9.33 (5.05)	8.41 (3.44)	5.75 (3.16)	4.74 (2.09)	4.28 (2.15)	3.89 (2.25)	2.65 (1.56)

### 2.3.2. Predicting Attribute Preferences

Compatible with you & loving

With “*compatible with you and loving*” as the dependent variable, the first model containing the categorical dummy variables was not significant,  $R^{2ad} = -.01$ ,  $F(14,274) = 0.91$ ,  $p = .554$ . When the self-ratings of attractiveness, financial independence and ambivalent sexism variables were entered in the second level, the F-change was significant,  $F^{change}(3,271) = 3.46$ ,  $p = .017$ . The overall model remained non-significant,  $R^{2adj} = .02$ ,  $F(17,271) = 1.38$ ,  $p = .148$ . Though the overall model was non-significant, the regression revealed that those between the ages of 25-35 ( $\beta = -0.18$ ,  $p = .042$ ) and those between 36-50 ( $\beta = -0.27$ ,  $p = .002$ ) allocated less points compared to those between 18-24 years old. Additionally, participants’ gender role ideology as measured by the Ambivalent Sexism Inventory predicted the number points allocated, in that those who scored higher on the inventory allocated less points to the attribute ( $\beta = -0.15$ ,  $p = .012$ ). The full models are presented in Table 2.5.

**Table 2.4 Model predicting preference for Compatible with you and loving**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	-3.19	2.64	-0.10	.228	-5.64	2.76	-0.18	.042*
36-50	-6.38	2.97	-0.18	.032*	-9.75	3.15	-0.27	.002*
50+	-1.08	3.17	-0.03	.734	-4.65	3.34	-0.13	.166
Participant Education								
College	-2.72	4.04	-0.07	.501	-1.59	4.01	-0.04	.692
Undergraduate	-2.88	3.93	-0.09	.464	-1.86	3.90	-0.06	.633
Postgraduate	-0.47	3.85	-0.02	.902	-0.33	3.81	-0.01	.931
Mother’s Education								
Secondary School	4.78	5.45	0.16	.381	4.30	5.39	0.14	.426
College	5.14	5.67	0.15	.366	4.17	5.61	0.12	.458
Undergraduate	8.72	5.76	0.23	.131	7.65	5.71	0.21	.181
Postgraduate	2.96	6.41	0.06	.645	2.25	6.34	0.04	.723
Father’s Education								
Secondary School	0.27	4.71	0.01	.955	-0.30	4.70	-0.01	.949
College	-2.64	5.01	-0.07	.599	-3.44	4.97	-0.09	.490
Undergraduate	-0.62	5.12	-0.02	.903	-1.85	5.07	-0.05	.716
Postgraduate	0.67	5.19	0.02	.897	-0.22	5.15	-0.01	.965
Self-Rated Attractiveness					0.02	0.75	0.00	.983
Financial Independence					1.02	0.57	0.12	.074
Ambivalent Sexism					-0.15	0.06	-0.15	.012*
Adj-R2		-.01			.02			
F		.91			1.38			

\* $p \leq .05$

## Pleasant personality &amp; committed to the relationship

With the characteristic of “*pleasant personality and committed to the relationship*” as the dependent variable, the first model containing the categorical dummy variables was significant,  $R^{2ad} = .11$ ,  $F(14,274) = 0.75$ ,  $p = .717$ . When the self-ratings of attractiveness, financial independence and ambivalent sexism variables were entered in the second level, the F-change was not significant,  $F^{change}(3,271) = 0.16$ ,  $p = .925$ . The overall model remained significant,  $R^{2adj} = .11$ ,  $F(17,271) = 0.63$ ,  $p = .860$ . The full model is presented in Table 2.6.

**Table 2.5 Model predicting preference for Pleasant personality & committed to the relationship**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	-1.79	2.10	-0.07	.396	-1.07	2.21	-0.04	.630
36-50	2.55	2.37	0.09	.282	3.81	2.52	0.13	.132
50+	-3.18	2.53	-0.11	.209	-1.89	2.68	-0.07	.482
Participant Education								
College	4.47	3.22	0.15	.166	4.27	3.22	0.14	.186
Undergraduate	0.62	3.13	0.02	.843	0.49	3.13	0.02	.875
Postgraduate	2.16	3.07	0.09	.483	2.20	3.05	0.09	.471
Mother's Education								
Secondary School	-2.04	1.90	-0.12	.287	-2.13	1.94	-0.13	.276
College	0.76	1.10	0.08	.491	0.70	1.14	0.07	.542
Undergraduate	1.21	1.18	0.13	.308	1.23	1.20	0.13	.311
Postgraduate	-2.04	1.90	-0.12	.287	-0.43	1.77	-0.03	.810
Father's Education								
Secondary School	-1.68	3.76	-0.07	.655	-1.57	3.77	-0.06	.678
College	-1.70	4.00	-0.06	.671	-1.26	3.99	-0.04	.753
Undergraduate	-0.45	4.08	-0.01	.913	-0.04	4.07	0.00	.992
Postgraduate	-2.30	4.14	-0.07	.578	-1.80	4.13	-0.05	.664
Self-Rated Attractiveness					0.55	0.60	0.05	.361
Financial Independence					-0.05	0.46	-0.01	.910
Ambivalent Sexism					-0.02	0.03	-0.06	.599
Adj-R2			.11				.11	
F			.717				.860	

\* $p \leq .05$

## Intelligent

With “Intelligent” as the dependent variable, the first model containing the categorical dummy variables was not significant,  $R^{2ad} = .15$ ,  $F(14,274) = 0.98$ ,  $p = .482$ . When the self-rated variables were entered in the second level, the F-change was not significant,  $F^{change}(3,271) = 1.38$ ,  $p = .257$ . The overall model remained non-significant,  $R^{2adj} = .20$ ,  $F(17,271) = 1.06$ ,  $p = .407$ . Though full model was not significant, participants with fathers with an undergraduate education allocated more points to the attribute than those with a father with a primary education ( $\beta = 0.26$ ,  $p = .028$ ). The full model is presented in Table 2.7.

**Table 2.6 Model predicting preference for Intelligent**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	1.12	1.57	0.06	.476	1.83	1.63	0.10	.264
36-50	0.32	1.77	0.01	.856	0.88	1.86	0.04	.638
50+	1.89	1.89	0.09	.318	2.21	1.98	0.10	.266
Participant Education								
College	-3.94	2.41	-0.18	.103	-3.90	2.38	-0.18	.102
Undergraduate	-0.63	2.34	-0.03	.789	-0.86	2.31	-0.05	.710
Postgraduate	-1.42	2.29	-0.08	.536	-1.14	2.25	-0.06	.614
Mother's Education								
Secondary School	1.94	3.25	0.11	.552	1.65	3.19	0.09	.607
College	2.04	3.38	0.10	.547	1.96	3.32	0.10	.556
Undergraduate	3.60	3.44	0.16	.296	2.73	3.38	0.12	.421
Postgraduate	4.54	3.83	0.14	.237	3.80	3.76	0.12	.313
Father's Education								
Secondary School	4.29	2.81	0.24	.128	5.45	2.79	0.30	.051
College	4.03	2.99	0.18	.179	4.46	2.94	0.20	.131
Undergraduate	5.96	3.05	0.25	.052	6.26	3.00	0.26	.038*
Postgraduate	4.02	3.09	0.17	.195	4.64	3.05	0.19	.129
Self-Rated Attractiveness					0.28	0.28	0.11	.319
Financial Independence					0.42	0.27	0.24	.130
Ambivalent Sexism					-0.02	0.03	-0.07	.528
Adj-R2			.15				.20	
F			0.98				1.06	

\* $p \leq .05$



## Good values &amp; status

With “good values and status” as the dependent variable, the first model containing the categorical dummy variables was not significant,  $R^{2ad} = .01$ ,  $F(14,274) = 1.14$ ,  $p = .324$ .

When the self-rated variables were entered in the second level, the F-change was not significant,  $F^{change}(3,271) = 0.76$ ,  $p = .516$ . The overall model remained not significant,  $R^{2adj} < .01$ ,  $F(17,271) = 1.07$ ,  $p = .384$ . The full model is presented in Table 2.8.

**Table 2.7 Model predicting preference for Good Values and Status**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	2.40	1.48	0.14	.106	1.89	1.57	0.11	.231
36-50	1.64	1.67	0.08	.327	1.10	1.79	0.05	.540
50+	0.87	1.78	0.04	.625	0.32	1.91	0.02	.868
Participant Education								
College	4.07	2.27	0.20	.074	4.32	2.29	0.21	.060
Undergraduate	2.00	2.21	0.11	.366	2.28	2.22	0.13	.305
Postgraduate	1.08	2.16	0.06	.619	1.11	2.17	0.06	.609
Mother's Education								
Secondary School	1.62	3.06	0.10	.597	1.79	3.07	0.11	.560
College	1.50	3.19	0.08	.639	1.54	3.20	0.08	.630
Undergraduate	1.38	3.24	0.07	.669	1.70	3.26	0.08	.602
Postgraduate	0.86	3.60	0.03	.812	1.03	3.61	0.03	.776
Father's Education								
Secondary School	-2.13	2.65	-0.13	.422	-2.38	2.68	-0.14	.375
College	-2.98	2.82	-0.14	.291	-3.07	2.83	-0.14	.280
Undergraduate	-4.32	2.88	-0.19	.135	-4.54	2.89	-0.20	.117
Postgraduate	-3.45	2.91	-0.15	.238	-3.56	2.94	-0.16	.227
Self-Rated Attractiveness					0.22	0.42	0.03	.605
Financial Independence					0.40	0.33	0.08	.224
Ambivalent Sexism					0.02	0.04	0.04	.541
Adj-R2			.01				<.01	
F			1.14				1.07	

\* $p \leq .05$

## Fun &amp; adventurous

With “fun and adventurous” as the dependent variable, the first model containing the categorical dummy variables was not significant,  $R^{2ad} = -.01$ ,  $F(14,274) = 0.75$ ,  $p = .722$ . When the self-rated variables were entered in the second level, the F-change was not significant,  $F^{change}(3,271) = 2.12$ ,  $p = .098$ . The overall model remained not significant,  $R^{2adj} < .01$ ,  $F(17,271) = 1.00$ ,  $p = .459$ . The full model is presented in see Table 2.9.

**Table 2.8 Model predicting preference for Fun and adventurous**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	-0.25	1.41	-0.02	.860	0.47	1.49	0.03	.754
36-50	-0.15	1.59	-0.01	.924	0.68	1.70	0.04	.690
50+	0.17	1.70	0.01	.921	1.20	1.80	0.06	.508
Participant Education								
College	2.30	2.16	0.12	.288	1.69	2.16	0.09	.435
Undergraduate	2.98	2.10	0.18	.158	2.46	2.10	0.15	.242
Postgraduate	2.55	2.06	0.16	.216	2.29	2.05	0.14	.266
Mother's Education								
Secondary School	-6.04	2.92	-0.38	.040*	-6.29	2.91	-0.39	.031
College	-5.67	3.04	-0.32	.063	-5.76	3.03	-0.32	.058
Undergraduate	-5.47	3.08	-0.28	.077	-5.71	3.08	-0.29	.065
Postgraduate	-4.03	3.44	-0.14	.242	-4.00	3.42	-0.14	.244
Father's Education								
Secondary School	3.15	2.52	0.20	.213	3.00	2.54	0.19	.239
College	4.50	2.68	0.22	.095	4.41	2.68	0.22	.101
Undergraduate	3.56	2.74	0.17	.195	3.88	2.74	0.18	.157
Postgraduate	3.85	2.78	0.18	.167	3.68	2.78	0.17	.186
Self-Rated Attractiveness					-0.78	0.40	-0.12	.052
Financial Independence					-0.36	0.31	-0.08	.243
Ambivalent Sexism					0.01	0.03	0.02	.778
Adj-R2			-.01				<.01	
F			0.75				1.00	

\* $p \leq .05$

### Masculine personality & appearance

With “masculine personality and appearance” as the dependent variable, the first model was not significant,  $R^{2ad} = -.01$ ,  $F(14,274) = 0.77$ ,  $p = .707$ . When the self-rated variables were entered in the second level, the F-change was significant,  $F^{change}(3,271) = 3.23$ ,  $p = .023$ . The full model, however, remained not significant,  $R^{2adj} = .01$ ,  $F(17,271) = 1.22$ ,  $p = .252$ . The full model is presented in Table 2.10. Though model was not significant, participants’ score on the Ambivalent Sexism Inventory predicted the number points allocated, in that those with higher scores allocated more points to the attribute ( $\beta = 0.19$ ,  $p = .003$ ). Additionally, those with fathers with a secondary education allocated less points than those with fathers with a primary education ( $\beta = -0.32$ ,  $p = .042$ ).

**Table 2.9 Model predicting preference for Masculine personality and appearance**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	0.82	1.36	0.05	.547	1.49	1.42	0.09	.293
36-50	0.89	1.52	0.05	.559	1.97	1.62	0.11	.224
50+	1.94	1.63	0.11	.234	3.18	1.72	0.17	.066
Participant Education								
College	-1.94	2.07	-0.10	.352	-2.36	2.06	-0.13	.254
Undergraduate	-1.67	2.02	-0.11	.408	-1.96	2.00	-0.12	.329
Postgraduate	-2.56	1.98	-0.16	.197	-2.70	1.96	-0.17	.169
Mother’s Education								
Secondary School	1.79	2.80	0.12	.522	2.10	2.77	0.14	.450
College	1.36	2.91	0.08	.642	1.77	2.89	0.10	.541
Undergraduate	1.20	2.96	0.06	.686	1.94	2.94	0.10	.510
Postgraduate	2.63	3.30	0.10	.425	3.17	3.26	0.12	.332
Father’s Education								
Secondary School	-4.76	2.42	-0.31	.050	-4.94	2.42	-0.32	.042*
College	-2.72	2.58	-0.14	.292	-2.55	2.56	-0.13	.319
Undergraduate	-5.03	2.63	-0.24	.057	-4.67	2.61	-0.23	.074
Postgraduate	-4.67	2.66	-0.23	.081	-4.53	2.65	-0.22	.089
Self-Rated Attractiveness					-0.10	0.38	-0.02	.802
Financial Independence					-0.07	0.29	-0.02	.806
Ambivalent Sexism					0.10	0.03	0.19	.003*
Adj-R2			-.01				.01	
F			0.77				1.22	

\* $p \leq .05$

## Talented

With “talented” as the dependent variable, the first model was not significant,  $R^{2ad} = .02$ ,  $F(14,274) = 1.35$ ,  $p = .180$ . When the self-rated variables were entered in the second level, the F-change was not significant,  $F^{change}(3,271) = 0.40$ ,  $p = .748$ . The full model remained not significant,  $R^{2adj} = .01$ ,  $F(17,271) = 1.17$ ,  $p = .286$ . The full model is presented in Table 11.

**Table 2.10 Model predicting preference for Talented**

	Model 1				Model 2			
	B	SE B	$\beta$	p	B	SE B	$\beta$	p
Age Groups								
25-35	0.88	0.99	0.08	0.374	1.04	1.05	0.09	0.326
36-50	1.13	1.11	0.08	0.312	1.31	1.20	0.10	0.276
50+	-0.62	1.19	-0.05	0.605	-0.36	1.28	-0.03	0.779
Participant Education								
College	-2.25	1.52	-0.16	0.139	-2.43	1.53	-0.17	0.114
Undergraduate	-0.42	1.47	-0.04	0.778	-0.55	1.49	-0.05	0.709
Postgraduate	-1.33	1.44	-0.12	0.357	-1.43	1.45	-0.12	0.325
Mother's Education								
Secondary School	-0.16	2.05	-0.01	0.938	-0.24	2.06	-0.02	0.909
College	-2.71	2.13	-0.21	0.203	-2.76	2.14	-0.22	0.199
Undergraduate	-0.03	2.16	0.00	0.988	-0.08	2.18	-0.01	0.970
Postgraduate	-1.66	2.41	-0.08	0.492	-1.62	2.42	-0.08	0.504
Father's Education								
Secondary School	0.86	1.77	0.08	0.628	0.74	1.80	0.07	0.682
College	1.51	1.88	0.11	0.422	1.45	1.90	0.10	0.446
Undergraduate	0.89	1.92	0.06	0.642	0.96	1.94	0.06	0.620
Postgraduate	1.88	1.95	0.12	0.334	1.78	1.97	0.12	0.366
Self-Rated Attractiveness					-0.28	0.28	-0.06	0.331
Financial Independence					-0.05	0.22	-0.02	0.806
Ambivalent Sexism					0.01	0.02	0.02	0.806
Adj-R2			.02				.01	
F			1.35				1.17	

\* $p \leq .05$

## 2.4. Discussion

The present study explores the ways in which age cohort, educational background, gender role ideology, and financial independence shape the trade-offs women make in their mate preference. The results of the PerManova and NMDS suggests that as women increase in age and education, they exhibit greater preference for the attributes associated indicated long term investment (i.e. Pleasant personality and committed to the relationship, Compatible with you and loving, Good values and Status). The preferences reflect previous research that finds women place a high level of priority in mates willingness to commit resources to a relationship (Buss, 1989a; Buss et al., 1990; Davis, 1990; Marzoli et al., 2013; Sprecher, Sullivan, & Hatfield, 1994). The preference profiles were not influenced by mate value, financial independence or parental educational background. This was unexpected as previous research would suggest variation based on mate value (Feinberg et al., 2012; Little & Mannion, 2006; Penton-Voak et al., 2003) and fertility status (Little et al., 2010; Vukovic et al., 2008; Vukovic et al., 2009). The lack of impact of mate value could be due to the participants of the present study not differing in their self-rated attractiveness. Previous research has demonstrated that individuals tend to rate themselves more positively than they evaluate others (e.g. Hornsey, 2003; Vallone, Griffin, Lin, & Ross, 1990; Van Lange, 1991) and self-perceptions are directed in relation to an in-group prototype (Brewer & Weber, 1994). Therefore, rather than women comparing their attractiveness to women across all ages, they are only comparing themselves to women within the same group (e.g. 18-24-year olds compare themselves to other 18-24-year olds whereas 35-50-year olds are comparing themselves to other 35-50-year olds). This may explain why there were no self-rated differences in attractiveness while previous research demonstrates that women's attractiveness decreases with age (Burt & Perrett, 1995; Kenrick et al., 1996; Kenrick & Keefe, 1992; Kirschner & Samojlik, 1991; Matts et al., 2007).

Younger participants preferences generally exhibited a greater preference for an attribute that could be associated with short-term mating (fun). This could reflect their age in cultural context, rather than evolutionary age. While 18-24-year olds are reproductive, they are considered "early reproduction" by modern standards as discussed earlier. Though they may be prioritising what can be considered a short-term attribute, the attributes of fun and loving may reflect a maturity level difference of the same preference. Both fun and loving can be reflections of a satisfying relationship that mates are unlikely to leave. As there was no notable variable that predicted preference

for masculinity and a “male-typical mate preference”, this suggests that SRT cannot explain the results. Instead the results are more in line with evolutionary arguments that suggest women will desire long-term mates who are willing and able to invest the relationship.

Furthermore, the association of increasing levels of participants’ education and increased preference for mate’s intelligence and status provides further evidence against the “structural powerlessness” model (e.g. Buss & Barnes, 1986; Townsend, 1989). Intelligence is a highly desirable attribute. Women with more education are able seeking mates with comparable levels of status to themselves. Intelligence, however, is difficult to disentangle as either a direct (material resources) or indirect (genetic quality) benefit in mate selection (Prokosch et al., 2009). Thus, participants may be able bypass the trade-off suggested by Gangestad and Simpson (2000) between direct (resource) and indirect (genetic) benefits. Despite the inability to disentangle the direct and indirect benefits of intelligence, the direction of the result is still as predicted by evolutionary accounts over biosocial accounts.

It was expected that gender ideology as measured via the ASI would vary between the age categories; which was supported. However, it was in the opposite direction than anticipated based on previous research as the youngest group expressed the greatest traditional gender role ideologies (e.g. Broido, 2004). Deeper investigation into the data revealed that a large proportion of participants in the 18-24 year age groups (84 out of 164) failed to respond to the ASI questions compared to the other groups (only 2 participants from the other three groups did not generate ASI scores). There is a possibility of a self-selection bias within the youngest cohort, which lead to the examining what may be particularly different about this age group. Munro (2013) posited that the current society is undergoing another feminist wave, or perhaps more accurately, the wave has grown. This fourth-wave feminism is defined by its “call-out culture” (p 23), in which sexism (or any number of –isms), is openly challenged, focusing on micro politics in everyday conversation and within the media.

While some have argued that there is not enough evidence to call for a delineation between the third and fourth waves of feminism (Schuster, 2013), there is an agreement amongst scholars that feminism is changing shape and moving to online forums where it is mainly engaged in by young women (Martin & Valenti, 2012). Within the present

sample, the intentional skipping of an entire 22-item scale may be a form of silent protest items that are not inclusive of gender and sexual fluidity. In fact, some participants were not so silent, making comments about the heteronormative nature of the survey, and how some items were “poorly worded” or “exclusive”. This may also explain why the scores for hostile sexism were higher than benevolent sexism as the benevolent sexism subscale is made up of secondary subscales of protective paternalism, complementary gender differentiation, and heterosexual intimacy. When Glick & Fiske (1996) first created the ASI, their intention was to create a new ‘modern’ scale to replace the Attitudes Toward Women scale (AWS, Spence & Helmreich, 1972), which, by the 1990’s, was perceived by many as too ‘old-fashioned’ or ‘quaint’. The authors have commented at how ‘astonishing’ (Glick & Fiske, 2011, p. 51) it was to think that one of the first sexism scales developed in the 1970’s was already out-dated by the early 1990’s, and how the measures used within research cannot keep pace with cultural evolution, citing affirmative action and its backlash as an example. After another 20 years between the creation of ASI and the present study, it may perhaps be time to reevaluate the effectiveness of the scale.

Little et al. (2010) demonstrated differences between peri- and post-menopausal women, in that women’s preference for masculinity is higher during her reproductive years and lower post-menopause (though not always significantly). This differs from the present study in that Little et al. (2010) used visual stimuli, as opposed to explicitly stated preferences for the attribute itself. Faces were presented to participants that had been altered along a dimorphism scale to appear more or less masculine. Conversely, Rantala, Polkki, and Rantala (2010) conducted a study on post-menopausal women’s preference for body hair and found that they actually preferred men’s chests with more hair. The authors suggested this may be due to a cultural shift, as other studies have found that this preference is different between Chinese women and British women within a predominately young sample (18-30 years of age, Dixon et al., 2003). Rather, with the shift in feminist theory, there may also be a shift in what is thought of as “manly”. Looking to current male actors reveals that most have minimal to no chest hair along with the increase in products directly marketed to enhance men’s appearance and the reported increase in men who are concerned about their looks (Wade et al., 2007). The use of visual stimuli in future studies might provide a better sense of the different age groups preference trade-off for certain attributes like masculinity, but also run the

risk of not being able to disentangle preferences for other attributes that may be signalled (e.g. personality, Boothroyd et al., 2007, 2008)

#### **2.4.1. Limitations**

There are several limitations in the present study that should be addressed. As previously discussed, many participants did not engage with the ASI, potentially as a means of privately protesting it. Future research should more explicitly test the reactions of this age category of women to the ASI. If the results in this study are substantiated and women of this age range refuse to respond to the survey, then like the AWS before it, the ASI may have aged out and may need to be replaced by a more up-to-date instrument for measuring sexism.

The present study replicates the general findings that women find certain traits more important than others and that good status is rated relatively higher than appearance, however, not to as great an extent as compared to other studies. Edlund and Sagarin (2010) did find inconsistent results between the limited and unlimited budget conditions, suggesting that each method has a benefit in examining mate preference trade-offs. They suggest that the unbudgeted design is useful for seeing desired overall mate quality, while budgeted tasks are valuable for assessing how individual differences impact priorities. The present study, however, did not find individual variation. The difference may be the result of the number of points used, as the present study gave the participants fewer points (35) compared to previous studies (60). The small budget may have been too restrictive to allow for a great amount of individual variation.

Alternatively, a new method of measuring mate-trait trade-offs may provide more consistent or nuanced results, allowing for individual differences. This issue will be further addressed in Chapter 6.

The attributes presented in the present study differed from previous studies. Many of the attributes had two elements which may have been difficult to participants to disentangle and interpret; for example, masculine personality and appearance contains two separate ideas: personality and appearance. These two attributes may result in a trade-off themselves as previous research suggests that masculine appearance can act as an 'honest' indicator of a male's ability to pass on genes that will increase the survival or reproductive rates of offspring (Cronin, 1991; Zahavi, 1977; Zahavi, 1975) but masculine personalities may be associated with attributes that are undesirable as a long



term partner or one who is likely to leave (Waynforth, 2001). Similarly, having good values is only akin to having good status, if one defines status as having the respect of a community with shared values. Also, the participants in the study may be interpreting the items in unintended and unexpected ways. This leaves the researcher with their own trade-off to make, between using more and specific traits, at the cost of making measuring the trade-offs more difficult; conversely, fewer all-encompassing traits could be used, but this leaves each item open to interpretation by the participant.

Lastly, a major limitation of this study is its cross-sectional nature. The present study attempted to tease apart biological versus social factors in examining evolutionary accounts versus social role theory. The age brackets used in the present study were meant to represent capture a “generation” as a social construct as well as a biological point. However, age and generation intrinsically confounded. Thus, no direct measure of generation was used, only age bracketing. Furthermore, a longitudinal study would be best at capturing the different impacts of generational differences compared to effects of ages. A longitudinal study would allow for a better analysis for the interaction of age effects and social influences. Presumably, as evidence suggests societies are generally become more egalitarian over time as discussed in section 2.1.1. A longitudinal study may demonstrate a further shift in gender roles and reduce the influence of previous generational influence in subsequent years.

## **Chapter 3. Study 2: Perceived Financial and Social Status and Their Impact on Females' Mate Preferences**

### **3.1. Introduction**

The present study attempts to integrate theoretical and methodological insights from Social Psychology with those of Evolutionary Psychology and the Biosocial Model. As previously discussed in section 1.3, studies that examined the effect of women's status on mate preferences have been largely correlational, producing conflicting results. Some studies demonstrate that as women's individual socioeconomic status or income increases, they exhibit greater preference for resource acquisition attributes in their mates. Conversely, other studies have found that as women's access to education, employment and control of resources increases, their preferences shift towards being more "male typical". The conflicting relations between measures of status and mate preferences could be the product of women's perceptions of status rather than actual status. By adapting methodologies from Social Psychology, I attempted to manipulate women's perceptions of their status within society and examine how this perception influences their mate preference trade-offs.

In post-industrial societies, men and women are in direct competition for employment opportunities. This is due to technological advancements that have largely reduced the importance of biological differences that lend themselves to work being performed optimally by one sex group over another (see section 1.2.2.4). As societies become more modern, women moved out of their traditional roles as homemakers and child caregivers to become active members in most sectors of the workforce (Lindsay, 2003). Women are now one and a half times more likely to earn an undergraduate or graduate degree compared to men (Chung & Johnstone, 2010). Despite the gains made in women's education, some research suggests that gender gaps in pay and career achievement persists. One field which exemplifies gender gaps in status is medicine, where women and men are attending medical school at a ratio of 3:2 (Medical Schools Council, 2007). Yet, among physicians, women advance more slowly towards seniority and earn less in similar positions compared to men (Ash, Carr, Goldstein, & Friedman, 2004; Carnes, Morrissey, & Geller, 2008; Isaac, Lee, & Carnes, 2009; Wright et al., 2003). Though Townsend (1989) argued that post-graduate medical students represent a group of women who are not subjected to the same "structural powerlessness" as other women, evidence suggests that even this group suffers from clear gender gaps persist.

Gjerberg (2002) examined gender differences in doctors' medical specialisation preference at the initial stages of their career and in their specialisation 20 year later. The results of this analysis indicated that women initially had the same ambitions and preferences as men, but that more men had completed their specialist training. The factors that influenced whether doctors would complete their medical training, such as age at the birth of their first child and number of children, were found to only impact women. Furthermore, in examining professional burnout for physicians, women are about 60% more likely to experience burnout compared to men, with these odds increasing 12-15% for every five additional hours worked beyond a basic 40 hour work week (McMurray et al., 2000). The odds of women with small children experiencing burnout decreased by 40% for every point increase on a 5-point scale measuring support from their significant other. These results demonstrate that the heavy workloads and the nights on call required for advancing in a medical career make it difficult for women to balance childcare with their careers. The cause of the gaps in women's earnings, representation in senior roles, and medical specialties is often argued to be the result of the choices women make such as choosing not to go into prestigious fields or working fewer hours (Blickenstaff, 2005; Venable, 2002). These explanations run the risk of oversimplifying matters.

### **3.1.1. Analysis of Gendered Status at Macro- vs Micro-Levels**

The examination of an individual's decisions should not be solely limited to the individual level of analysis, but it is at this individual level where the effects may be observed. For humans, power is the ability to influence others and control the outcome of a given situation and is often used interchangeably with status (Aguinis et al., 1998; Dépret & Fiske, 1993; Guinote, 2007). Power (see section 1.5.4) is argued to exist at two different levels; macro-power and micro-power (Lipman-Blumen, 1984). Macro-power refers to the ability to control the rules and resources at an institutional level; micro-power refers to the allocation of resources or application of rules by an individual within an institutional setting. Though macro-level powers do not deny the power that an individual can exert to influence the macro-level system, macro-level structural variables are predominant and restrict an individual's power within the system (Dunn et al., 1993). Gender inequality can be explained with men having historically held most of the macro-power in a society, which restricts the micro-power women are able to exert.

Bem (1993) suggested that the macrostructural perspective has psychological implications and that changes in women's position in a social structure would change their motivations. She argued that "what needs to change is the androcentric social structure that operates systematically and in the here and now to preserve male power" (p. 135). Attempts have been made to rectify gender inequality such as affirmative action hiring policies. Evidence for Bem's argument is illustrated, as previously discussed (Chapter 2), women have become more assertive over time as their role in society has changed. However, this over-emphasises the role of macro-level structures and does not explain within-sex variation in women's ideologies and preferences. Bem's (1993) analysis focuses on the structural level, and does not give as much explicit consideration the individual level whereby a woman would have internalised the rules and expectations associated with her gender as suggested by the biosocial model.

Individual level of analysis, however, runs the risk of under-emphasising or ignoring social structures, resulting in either implying an individual level of responsibility for inequality (i.e. victim blaming) or theories being misconstrued for 'biological determinism' (Schwartz-Shea, 2002). Gender differences, both in power and more broadly, are likely due to a complex interaction of structural inequalities and internalised beliefs. In this way, the macro-level system is rigged against women due to their historical lack of engagement in social institutions, leaving them with limited options and opportunities due to cultural inertia.<sup>5</sup> When women then make decisions, they must make their choices in the context of both macro-level expectations and the micro-level internalised gender norms. In understanding the interactions of the macro-level system with the micro-level individual, it is possible to see within-sex variation as some women's choices will be a direct response to structural changes whereas others will not adapt to a new system.

In examining how mate preferences are impacted by women's status, studies have explored both the individual level of analysis (e.g. Buss, 1989; Townsend, 1989;

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<sup>5</sup> In physics, inertia is an objects tendency to remain unchanged (e.g. an object either at rest or in motion) unless acted upon by some force. In this same way, cultural inertia is defined as a cultures avoidance of change, or conversely, desire for cultural change once movement or change is already occurring (Zárate et al., 2012).

Wiederman & Allgeier, 1992) as well as structural levels (e.g. Eagly & Wood, 1999; Kasser & Sharma, 1999; Moore & Cassidy, 2007; Zentner & Mitura, 2012). Many of these studies have been correlational, however, and so while they can demonstrate relationships, these studies cannot inform us as to the causal effect of women's status on mate preferences. It is possible that there may be one or more confounding variables that have not been measured that underlie both women's status and mate preferences.

For this reason, Moore & Cassidy, (2010) conducted an experiment in which they attempted to experimentally manipulate women's perception of their status in society by asking their participants to write down either the advantages (positive condition) or the disadvantages (negative condition) they had experienced as a result of their gendered group membership. They found that there were no differences between the conditions in the participants' confidence in the ability to provide for themselves in the present, future, or age preference in a mate (ideal age, maximum accepted age and minimum accepted age). Moore & Cassidy (2010) examined the content the participants produced and found a relation in the number of thoughts that were concerned with finances and their preference for attributes associated with physical attractiveness over those associated with resources. There was a trend towards a positive relation with an interaction of condition and number of thoughts concerning finances on mate preferences. Those in the negative condition listed more thoughts concerned with finances and preferred attributes associated with resources over physical attractiveness. Overall, however, the manipulation did not influence women's perceptions of their status at a micro-level; instead it primed the participants into considering women's positions at current macro-level. In order to experimentally examine how women's status impacts mate preference, both the structural and individual level of analysis need to be engaged. In trying to rectify the problems surrounding the levels of analysis of gender inequality (status) and choices, it should be possible to construct an experiment in which male and female participants are assigned to an institutional power position. Thus, the present study attempts to create a system in which women are placed in a position of high or low status, relative to a male counterpart, based on their gender, in order to manipulate their perception of their individual level of status.

### **3.1.2. Objective versus Subjective Status**

The central issue in attempting to manipulate women's perceptions of their status is which element of their status the manipulation taps into. A possible explanation for the conflicting accounts of women's status and their mate-preferences, as previously

discussed, is a disconnect between women's greater societal status and a single woman's personal status. For example, Moore & Cassidy (2007) found that, in non-industrial societies, using a smaller, home-based scale of status is positively linked to preference for physically attractive mates, while having a higher score for Ritualized Female Solidarity shows a higher preference for resources (see section 1.3.3 for more detail). Furthermore, research examining how mate preferences are affected by women's status often make use of socioeconomic variables. As discussed in section 1.5, recent reviews in the literature have pointed out a central issue in using objective indicators such as education and employment for the measurement of status. It is unclear how the items used to measure SES (socioeconomic status, i.e. wealth and education) combine to create a single measurement of status, and often use out-dated population estimates of objective SES indicators (Brown et al., 1996; Liu et al., 2004; Oakes & Rossi, 2003). Wealth and income are not equivalent to aspects of power tapped in measures that assess attitudes of equality or cultural aspects of female empowerment, nor may they be equivalent to self-efficacy and control over one's resources (i.e. finances) which may be central to other measures of autonomy (Gowaty, 1992).

The issues surrounding the validity of objective SES measures in capturing the complex nature of status have led to researchers including new, subjective measures of status. One such measure is the MacArthur Scale of Subjective Status (Goodman et al., 2001), in which participants mark an X on the rung of a ladder to indicate their rank relative to other individuals in their group. Unlike objective measures, subjective measures assess rank relative to others within the same group (e.g. university, local community, country), capturing the individual's perceived place in a hierarchy. Measures of subjective status are moderately correlated with objective measures which suggests that the subjective dimensions of status are likely to independently predict status-related outcomes (Adler, Epel, Castellazzo, & Ickovics, 2000; Goodman et al., 2001). In addition, subjective status is conceptually different from individuals' subjective sense of control (Kraus et al., 2009). In support of this discrepancy between objective and subjective status, research has shown that women's ideal partner's age was positively related to their income, but inversely related to their control of financial resources and parents' income while growing up. Control of finances was also related positively to preferences for "physical attractiveness over good financial prospects" whereas income was negatively related to this preference (Moore et al., 2006).

Drawing from Social Psychology literature, those with high status and those with low status express psychological and behavioural differences that can be mapped on to gender role expectations and sex differences. For example, those with low status in a society experience less personal control, less financial independence, and less personal choice, thus requiring them to be dependent on others (Argyle, 1994; Domhoff, 1998; Snibbe & Markus, 2005; Stephens et al., 2007). This dependency leads to those of lower classes being more community-oriented and motivated to increase their social engagement (Kraus & Keltner, 2009). Similarly, women experience lower perceptions of personal control (e.g. Rosenfield, 1989), are more dependent on marriage and employment for financial independence (e.g. Lee & Mortimer, 2009) and are more socially-oriented compared to men (e.g. Eckel & Grossman, 1998). Psychological and behavioural differences between those with high status and those with low status have been found when status differences are illegitimate and the result of a rigged system. Piff et al. (unpublished) found that the participants assigned to the high status condition in a rigged game of Monopoly™ engaged in displays of power: they moved pieces louder and more determinedly, ate more of the pretzels that were left on the game table, and became less sensitive to the other players' condition and more demonstrative of their material success. Importantly, those in the high status condition attribute their success as the result of internal characteristics and feel they deserve or have earned their position whereas those with low status attribute their position to *societal constraints* (Kraus et al., 2009; Piff, 2013; Piff, Kraus, & Martinez, unpublished). This is in line with the biosocial explanation of female mate-selection: that female preference for mates with resources stems from *sex-specific constraints* that limit females' access to resources thus making their preference a logical adaptation.

### **3.1.3. Summary and Hypotheses**

In summary, previous research has found conflicting results when examining how women's status impacts mate preferences, potentially due to conflating different elements of status measures. Furthermore, while previous research has examined the status of women, this has mainly been through correlational studies. Attempts to experimentally manipulate women's perception of status did not successfully manipulate women's status but rather made their current societal status salient. The psychological changes associated with status (including mate preferences) need to stem from the macro-level system; in order to effectively manipulate status, participants need to be assigned into a rigged game.

The present study attempts to address the impact that relative status has on mate-selection preferences by having participants engage in a game in which they are automatically assigned a position which is either higher in status (doctors) or lower in status (nurses) based on their gender. Additionally, the measurements used (such as socioeconomics or educational equality) may conflate what social status means for individual women, therefore, the study will make use of subjective measures of status.

As groups may cope with perceived low status by means of social competition (i.e. open antagonism on a specific dimension of comparison with the aim of reversing relative positions) or social creativity (i.e. an indirect strategy which references a new dimension; Tajfel & Turner, 2004). These strategies tend to be used when group boundaries are relatively impermeable (Wright, Taylor, & Moghaddam, 1990) which the gender group can be considered. Social competition is preferred when the relative status differences are perceived as illegitimate. Participants engaged in an inter-gendered competition with a male confederate in order to ensure that a) gender was a salient group identity (Randel, 2002) and b) ensure participants engage with social competition (e.g. Fritsche & Jonas, 2005) rather than social creativity which may occur in intra-gender competition (e.g. Mavin, Williams, & Grandy, 2013).

This experimental approach was adopted because prior research, such as that of Piff et al. (unpublished), has demonstrated that such games are successful at momentarily inducing the mindset associated with high- and low-status conditions. The original study utilized a rigged game and the participants temporarily displayed signs of high- or low-status mindsets. Therefore, such a game would seem to be a reasonable way of momentarily inducing these status-associated mindsets in participants. In order to test SRT, this study attempts to manipulate participants into a high- or low-status mindset. This design was chosen in part because the variable of *actual* high- or low-status conditions is one effectively outside the realm of feasible experimental manipulation and, therefore, such an approach as was adopted in this study is one of the few feasible ways of trying to manipulate status. During this study, participants are considered in a state of competition as they are motivated to perform better than the other player, though unequal rewards are received.



The following hypotheses will be tested:

**Hypothesis 1:** The participants in the high-status condition should report higher levels of perceived financial independence and subjective social status, as well as more feministic ideals due to the power associated with their allocated role.

**Hypothesis 2:** The participants in the high-status condition should also exhibit preference for (a) a younger ideal partner age, (b) a lower accepted minimum age, and (c) a lower maximum accepted age compared to the participants in the low-status condition.

**Hypothesis 3:** Lastly, participants in the high-status condition are expected to express more ‘male typical’ mate attribute preferences (e.g. Moore, Cassidy, & Perrett, 2010) preferring physical attractiveness attributes over resource acquisition attributes.

## 3.2. Method

### 3.2.1. Participants

Seventy-nine participants were recruited from the University of Dundee and took part in the study in exchange for participation credit towards their studies or £2. The data from non-heterosexual participants were excluded from analyses. The final sample was comprised of 66 females, with a mean age of 20.08 years ( $SD=3.21$ ); 33 reported being in a relationship; 49 identified as British nationals, with 14 identifying as European. Additionally, there was one participant each from the Congo, Israel, and Malaysia. Initial analysis showed that there was no significant difference between conditions for age,  $t(64) = -0.11$ ,  $p = .914$ , or current relationship status (Fishers Exact test,  $p = 0.211$ ).

### 3.2.2. Materials

#### 3.2.2.1. Instruments

The experimental design was based on that used in a study by Piff, Kraus, and Martinez (unpublished), but using the game of Operation™ instead of Monopoly™. In Operation™, players take turns removing small plastic items from holes which are lined with metal so that when the forceps used to remove said pieces contact the sides of the hole, a light bulb flashes accompanied with a buzzing sound.

The rules of the game experiment were read aloud to the participants; they also received a physical copy. Similar to Piff et al. (unpublished), the rules for the experimental game differed depending on whether the participant had been allocated to the high- or the low-status condition. The rules explained that the participants were allocated to the role of either “Doctor” or “Nurse” based on their gender. These two roles were chosen due

to the difference in their social status and power (Svensson, 1996; Sweet & Norman, 1995). The rules for the low-status condition were as follows:

*“The world of medicine is known for being a highly competitive field. It is also well known for having one of the largest disproportions of gender representation. Surgery in particular is often called a “boys’ club”, referring to the under representation of female surgeons. Many hospitals and surgical practices prefer male surgeons while comparatively, more women are entering the nursing field. Men have been found to be extremely successful surgeons as they tend to have more nimble hands and more adept at handling stress and pressure. For this reason, male surgeons are given higher salaries, compared to their female counterparts.*

*You are about to play a game that simulates surgery. You may be familiar with the classic board game, Operation. However, the version you are about to play is slightly different to the traditional rules in order to accurately reflect the current working environments within the medical field. The player with the most money at the end of the game is deemed to have won.*

*1. Females are automatically given the assignment of “Nurse”, and males are automatically given the assignment of “Doctor” to replicate traditional work environments often found in a surgery room. If two players of the same gender are playing, a coin will be tossed to see who is assigned each role.”*

The instructions continue to explain how the game functions and states that the participant in the role of the “Doctor” will have the first turn. The rules for the low-status condition followed the same format, however flipping the gender bias stating:

*The world of medicine is known for being a highly competitive field. It is also well known for having one of the largest disproportions of gender representation. Surgery in particular is often called a “boys’ club”, referring to the under representation of female surgeons. However, recently, many hospitals and surgical practices now prefer female surgeons while conversely, more men are entering the nursing field. Women have been found to be extremely successful surgeons as they tend to have smaller and more nimble hands. For this reason, female surgeons are given higher salaries, compared to their male counterparts....*

*1. Females are automatically given the assignment of “Doctor”, and males are automatically given the assignment of “Nurse” to replicate modern work environments often found in a surgery room. If two players of the same gender are playing, a coin will be tossed to see who is assigned each role*

For each turn, players were “paid” a salary with fake play money. The purpose of the play money was to help elicit the feelings of resource acquisition and power imbalance (Vohs et al., 2006). The participants’ perceived socio-economic status was momentarily manipulated, and the money served as tangible evidence and visual representation between the different statuses and resource accessibility. Those in the high-status condition were given £75 per successful turn and £50 for unsuccessful turns. Players in

the low-status condition were given £50 for successful turns, and £25 for unsuccessful turns. Though a tie is technically possible, this pay difference ensured that those in the high-status condition would win. At the end of the play period, the participant who had the most money could “purchase” a small prize. The small prizes were chocolates which cost £400 of the play money.

### **3.2.2.2. *Measure of Gendered Perceptions***

A questionnaire was created with 27 items in order to examine the extent to which participants perceived their gender to have impacted upon their performance and contributed to their sense of self. Several questions were adapted from the collective self-esteem scale (Luhtanen & Crocker, 1992). Further items were modified from the Ambivalent Sexism Inventory (Peter Glick & Fiske, 1996) to assess gender role ideology in order to examine whether the manipulation impacted perceptions and beliefs about gender roles. The questionnaire was created as the current ones available do not adequately probe the issues of gender role, power and status. Analyses indicated that the gender perception scale had good internal reliability (Cronbach’s  $\alpha = .78$ ). The items are presented in Appendix 5.

### **3.2.2.3. *The MacArthur Scale of Perceived Social Status***

The MacArthur Scale of Perceived Social Status (Goodman et al., 2001) was also included as a measure of subjective status. This scale was developed to help measure the common sense of status. This scale asks participants to think about where they stand in their community, and to place an X on a ladder where they belong. Analysis of this Community Status Ladder reveals that people do not rely on wealth, education, or occupation when answering, which helps negate the issue of confounding class with status. The scale is presented in Appendix 6. The MacArthur Scale of Perceived Social Status.

### **3.2.2.4. *The Brief Mood Introspection Scale***

As recommended by Moore & Cassidy, (2010), to ensure that affect was not unintentionally manipulated and confounding the results, the Brief Mood Introspection Scale (BMIS) was used (Mayer & Gaschke, 1988). This measured participants on a variety of emotions such as Happy, Sad, Jittery, and Tired, as well as producing an overall mood score. The reliability for this instrument was good (Cronbach’s  $\alpha = .83$ ) and is presented in Appendix 7.

### 3.2.2.5. *Mate Attribute Items*

The last questionnaire tapped into participants mate-selection preferences. The questionnaire applied the frequently used technique of providing a closed-ended list of traits that could potentially be found in a mate as well as asking about ideal partner ages. The list consisted of 60 (un)desirable traits that had been previously tested by Todosijević, Ljubinković, and Arančić (2003). This list of 60 traits was chosen as it was the most comprehensive list available, in order to provide the broadest and most nuanced image of mate-trait preferences. As this list was presented in two different sections of the experiment, the items were not presented in randomized order. This was to help facilitate memory for items' location on the list for later selection so that participants would be better able to complete the task in the allotted amount of time. The questions and items are presented in Appendix 8.

### 3.2.3. Design

The present experiment was a between-subjects test with two conditions (Role: High status vs. Low status). To reduce the number of gender perception items, a factor analysis was conducted. The factors with the largest eigenvalues were extracted—specifically, those that met the critical eigenvalue (eigenvalue  $\geq 1.00$ ) were extracted. To see which factors are most influential on women's mate-trait preferences, the factors are analysed with a correlation between two key variables: Resource Acquisition and Appearance. These were then used as the independent variables with resource acquisition and appearance as the dependent variables in an ANOVA.

The Resource Acquisition item was calculated by finding the average score for items thematically related to social status/income. This variable consists of the items: educated, enterprising, ambitious, successful in a job, having money, having a car, and diligent. The Appearance variable is calculated by finding the average score for items that are thematically related to appearance. This variable consisted of the items: physical attractiveness, beauty, good taste in clothes, good looks, and attractiveness. The resource acquisition and appearance traits were used as dependent variables in a final ANOVA between the two conditions, with the role performed used as the independent variable. The factors that were found to significantly relate to gender perception items in either the correlation or ANOVA were used as covariates in the final analysis of the mate-preference.

### 3.3. Procedure

Prior to taking any part in the study, all participants were provided information about the experiment. They were told that they could end the experiment at any point without penalty. Additionally, all participant information was to remain anonymous. All participants provided informed consent before taking part in the study.

Participants were allocated to one of two conditions in which they played the role of either the “Doctor” (high-status condition) or the “Nurse” (low-status condition). At the start of each testing session, the instructions that assigned the roles were placed face down on a table so that the experimenter did not know which one she was selecting. Each participant for the day was assigned alternating roles. The procedure was identical between both conditions. First, participants and confederates were met by the experimenter in a waiting area and brought to the lab space. Participants were seated across a table from the confederate with the experimenter at the head of the table. After providing informed consent, the experimenter read the instructions out loud as the participant and confederate followed along. These instructions explained that the participants were assigned their role based on their gender to replicate either modern or traditional work environments often found in surgical practices.

At the start of the experiment, as the priming paragraphs and accompanying instructions and rules for the task were read out, participants were invited to ask questions if anything was unclear. After participants understood what was expected of them, they engaged in five minutes of competitive game playing against the confederate. Each person’s turn lasted until they either removed the plastic piece or until the buzzer indicated they had touched the sides of the cavity. After each turn, the players received the designated salary assigned to their role and the outcome of their turn.

After the 5-minute time period of game playing had elapsed, players were asked to count how much money they had earned. They were encouraged to count twice for accuracy and to increase the saliency of their monetary gain. Once the players had established their earnings, the winner (i.e. the doctor) was invited to trade in the money they had earned for a small prize of chocolate. Participants typically earned one or two chocolates; no player ever achieved three.

Participants then proceeded to answer a series of questionnaires, and rated the items relating to gendered issues on a 7-point Likert scale from 1-Not at all to 7-Completely.

Items measuring subjective social status were rated on a 7-point scale, where the topmost rung of the ladder was seven, and the number one was at the bottom. Individual effects on the BMIS were measured on a 4-point scale, while overall mood was measured between -10 and 10, with a zero midpoint. Participants stated their partners preferred ages (ideal, maximum and minimum acceptable ages) and then rated the 60 (un)desirable traits on a 7-point scale, ranging from least important/desirable to most important/desirable. Lastly, participants selected 20 of the 60 traits to rank-order so that the most important/desirable trait was placed at the top of the list and the least important/desirable trait was placed at the bottom, while undesirable traits were excluded. Participants included demographic information such as age, gender, nationality, sexual orientation, and relationship status.

### **3.4. Results**

#### **3.4.1. Effects on Brief Mood Introspection Scale**

To check whether there was an effect of the manipulation on participant's mood, the Brief Mood Introspection Scale was tested in an ANOVA. However, there was no significant effect of the manipulation on the mood of the participants,  $F(17,13) = 1.40$ ,  $p = .273$ .

#### **3.4.2. Financial Independence and MacArthur Scale of Social Status**

Six measures were analysed to measure the manipulation of perceived social status and financial independence. Participants reported how financially independent they believe they currently are and how independent they will be in the future, as well as their current social status and future social status. The current scores were subtracted from the future scores, and the differences between these two measures were analysed in an ANOVA with the original four measures.

Participants additionally assessed themselves on the MacArthur Scale for both their current status and future status. Again, the difference between these two scores was analysed. No significant difference was found between the two conditions for either current financial independence, future independence, current status, future status, or the differences between the two measures,  $F(4,58) = 0.58$ ,  $p = .675$ . The results are presented in Table 3.1.

**Table 3.1 Means of Measure of Financial Independence and MacArthur SSS Scale**

	High Status (Doctor)		Low Status (Nurse)		p-value
	Mean	SD	Mean	SD	
Future Financial Independence	6.06	1.32	5.94	1.41	.719
Current Financial Independence	4.00	2.24	3.50	2.20	.374
<i>Difference</i>	2.06	2.25	2.44	2.53	.539
Future Social Status	5.68	.748	5.62	.942	.808
Current Social Status	3.39	.99	3.69	1.06	.250
<i>Difference</i>	2.29	1.04	1.94	1.08	.191

### 3.4.3. Preferences for Partner Ages

Using participants' age as a covariate, there was no significant effect of condition on participants' partners' age preference,  $F(3,61) = 0.32$ ,  $p = 0.812$ . The overall model revealed that the participants' own age had a significant effect on the age preferences exhibited by the participants,  $F(1, 63) = 46.10$ ,  $p < .001$ ,  $\eta_p^2 = .65$ . This includes ideal partner age,  $F(1,63) = 341.48$ ,  $p < 0.001$ ,  $\eta_p^2 = .84$ , the maximum accepted partner age,  $F(1,63) = 178.62$ ,  $p < .001$ ,  $\eta_p^2 = .74$  and the minimum accepted partner age,  $F(1,63) = 199.18$ ,  $p < .001$ ,  $\eta_p^2 = .76$ . As seen in Table 3.2, the participants in the high-status condition reported that the maximum accepted partners' age would be 25.69 (SD=4.93) years, while the minimum accepted partners' age is 19.38 years (SD=2.37). The ideal age for the participants in the high-status condition was 21.91 years (SD=5.02). The participants in the low-status condition reported that the maximum accepted partners' age would be 26.18 years (SD=6.00) and 19.24 (SD=2.55) for the minimum accepted partner age. The ideal age for the low-status condition was 22.21 (SD=3.69).

**Table 3.2 Mean Maximum, Ideal and Minimum Age Preference of Partner**

	Maximum Accepted Partner Age (in years)		Ideal Partner Age (in years)		Minimum Accepted Age (in years)	
	Mean	SD	Mean	SD	Mean	SD
High Status (Doctor)	25.69	4.93	21.91	5.02	19.38	2.37
Low Status (Nurse)	26.18	6.00	22.21	3.69	19.24	2.55
p-value	.606		.657		.513	

### 3.4.4. Ranked Partner Traits

The items in the rank-order questionnaire were given point values dependant on their position. Items placed in the first position (being the most important/desirable) were given 20 points, and the next item was given a point value of 19, and each following

item was given a descending point value. Six items were combined to create the Resource Acquisition value, and five items were combined to create the Appearance value. The value of Appearance traits was subtracted from the value of Resource Acquisition traits, so that a positive mean demonstrates a preference for Resources over Appearance. Analysis revealed that there was no significant difference between the two groups in their ranking of traits,  $F(1, 64) = .003, p = .960$ . The participants in the high-status condition had a higher preference for Resource Acquisition over Appearance ( $M = 5.28, SD = 16.11$ ) with the participants in the low-status condition exhibit comparable preferences ( $M = 5.09, SD = 14.92$ ).

#### **3.4.5. Gender Perception Factor Analysis**

A factor analysis with a varimax rotation was conducted on the gender perception items as presented in Table 3.3. A total of nine factors were extracted: Equality of household (eigenvalue of 5.30), Low Social Power (eigenvalue of 3.61), Gender Hindrance Awareness (eigenvalue of 2.25), Gender Self Identity (eigenvalue of 2.14), Gender Empowerment (eigenvalue of 1.86), Gender Atypicality (eigenvalue of 1.59), Traditional Gender Ideology (eigenvalue of 1.48), Gender Benefit Awareness (eigenvalue of 1.32), and Career Prospect Awareness (eigenvalue of 1.23). These factors accounted for a total of 71.65% of the total variance in the dataset.



**Table 3.3 Item Loadings on Extracted Factors from Gender Perception Measures**

Item	Equality of Household	Low Social Power	Gender Hindrance Awareness	Gender Self Identity	Gender Empowerment	Gender Atypicality	Traditional Gender Ideology	Gender Benefit Awareness	Career Prospect Awareness
Do you feel your gender had an impact on your performance?			0.47						
Did you feel your gender benefited your performance?									0.74
Did you feel your gender was a hindrance?			0.76						
At any point in the study, did you feel self-aware of your gender?			0.85						
How strongly do you identify with your gender?				0.73					
How typical of your gender do you feel?				0.41		0.33			0.31
How much do you believe your gender impacts your sense of self?				0.68					-0.32
How much do you believe your gender dictates your personality?				0.53	-0.31		0.36		
How much do you believe your gender impacts others' perceptions of you?		0.38		0.52				-0.34	
I am very much like other people in my gender.						0.34			
I am very much NOT like other people in my gender.						-0.77			
The world perceives my gender as being of lower power.		0.91							
The world perceives my gender as being of higher power.					0.73			-0.32	
The world perceives my gender as being of lower status.		0.86							
The world perceives my gender as being of higher status.	0.53				0.30				

I feel my career options are limited due to my gender.	0.34			-0.67
At this moment, I am financially independent (e.g. from parents or partners).			-0.69	
I believe I will be financially independent in the future (e.g. from parents or partners).				0.88
It is very important to me to be the main financial provider for my family.		0.74		
I believe it is a man's duty to be the main financial support for his family.	0.53		0.56	
I believe it is a woman's duty to be the main financial support for her family.	0.47	0.32	0.37	-0.35
Traditional gender roles are better for families.			0.82	
I would like to have final say over familial decisions (e.g. child rearing, religion, diet).	0.69			-0.31
I believe the husband should have final say over familial decisions (e.g. child rearing, religion, diet).	0.83			
I believe the wife should have final say over familial decisions (e.g. child rearing, religion, diet).	0.89			
I believe the husband should have final say over how the family resources (e.g. time and money) should be spent.	0.85			
I believe the wife should have final say over how the family resources (e.g. time and money) should be spent.	0.88			
MacArthur Measure of Current Status		0.43		-0.50
MacArthur Measure of Future Status	0.33	0.39	-0.54	

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(suppressed small coefficients < 0.30)

### 3.4.6. Gender perception ANOVA

The factors were put in as dependant variables in a Multivariate ANOVA with a Bonferroni Corrections, and the results presented in Table 3.4. The overall model revealed an effect of role on the factors,  $F(9, 43) = 4.10$ ,  $p = .001$ ,  $\eta_p^2 = .46$ . The first factor, Equality of Household did not reveal a significant difference as the participants in the low-status condition expressed a preference for equality within a household comparable to the participants in the high-status condition. However, the second and third factors (Low Social Power,  $F(1,51) = 6.90$ ,  $p = .011$ ,  $\eta_p^2 = .12$ , and Gender Hindrance Awareness,  $F(1,51) = 10.03$ ,  $p = .003$ ,  $\eta_p^2 = .16$  respectively) were significantly different between the two conditions. The participants in the high-status condition viewed their gender as significantly lower in societal power ( $M = 0.32$ ,  $SD = 0.88$ ) than the participants in the low-status condition ( $M = -0.36$ ,  $SD = 1.02$ ). Conversely, the low-status participants were significantly more aware of their gender being a hindrance ( $M = 0.42$ ,  $SD = 0.99$ ) than the participants in the high-status condition ( $M = -0.38$ ,  $SD = 0.86$ ). No significant effect of condition was found for Gender Self Identity, Gender Empowerment, Gender Atypicality, Traditional Gender Ideology, or Gender Benefit Awareness. A significant difference was found for the last factor of a Career Benefit experienced from gender, where the participants in the high-status condition felt more of a benefit ( $M = 0.30$ ,  $SD = 1.12$ ) than the participants in the low-status condition ( $M = -0.34$ ,  $SD = 0.72$ ),  $F(1,51) = 6.02$ ,  $p = 0.18$ ,  $\eta_p^2 = .12$ .

**Table 3.4 Mean ratings of Gender Perception Factors (SD)**

	High Status (Doctor)	Low Status (Nurse)	
	Mean (SD)	Mean (SD)	p-value
Equality of Household	-0.09 (0.88)	0.10 (1.13)	.500
Low Social Power	0.32 (0.88)	-0.36 (1.02)	.011*
Gender Hindrance Awareness	-0.38 (0.86)	0.43 (0.99)	.003*
Gender Self Identity	0.21 (0.97)	-0.24 (1.00)	.105
Gender Empowerment	-0.03 (0.86)	0.03 (1.15)	.838
Gender Atypicality	0.02 (1.00)	-0.02 (1.10)	.869
Traditional Gender Ideology	-0.06 (1.05)	0.07 (0.96)	.646
Gender Benefit Awareness	0.08 (0.96)	-0.09 (1.06)	.539
Career Prospect Awareness	0.30 (1.12)	-0.34 (0.72)	.018*

\*Significant at the 0.05 level (2-tailed).

### 3.4.7. Correlations between partner characteristics and gender perceptions

Two factors extracted from the gender perception items were significantly correlated with the resource acquisition and appearance variables. The first factor, Equality of Household, was significantly correlated with the Resource Acquisition Trait,  $r(49) = .51, p < .001$ , as well as the appearance variable,  $r(49) = .49, p < .001$ . Gender Self Identity was positively correlated with Resource Traits,  $r(49) = .31, p = .025$ . The remaining factors were not significantly correlated with the two key variables. Correlations are presented in Table 3.5.

**Table 3.5 Relation between key variables and gender perception factors**

	Appearance		Resource Acquisition	
	r	p-value	r	p-value
Equality of Household	.49	<.001*	.51	<.001*
Low Social Power	.08	.592	-.02	.914
Gender Hindrance Awareness	.17	.223	-.01	.956
Gender Self Identity	.19	.173	.31	.025*
Gender Empowerment	-.03	.827	.18	.220
Gender Atypicality	.16	.257	.17	.225
Traditional Gender Ideology	.07	.601	-.08	.581
Gender Benefit Awareness	-.24	.089	.13	.383
Career Prospect Awareness	.21	.141	.09	.539

\*Significant at the 0.05 level (2-tailed).

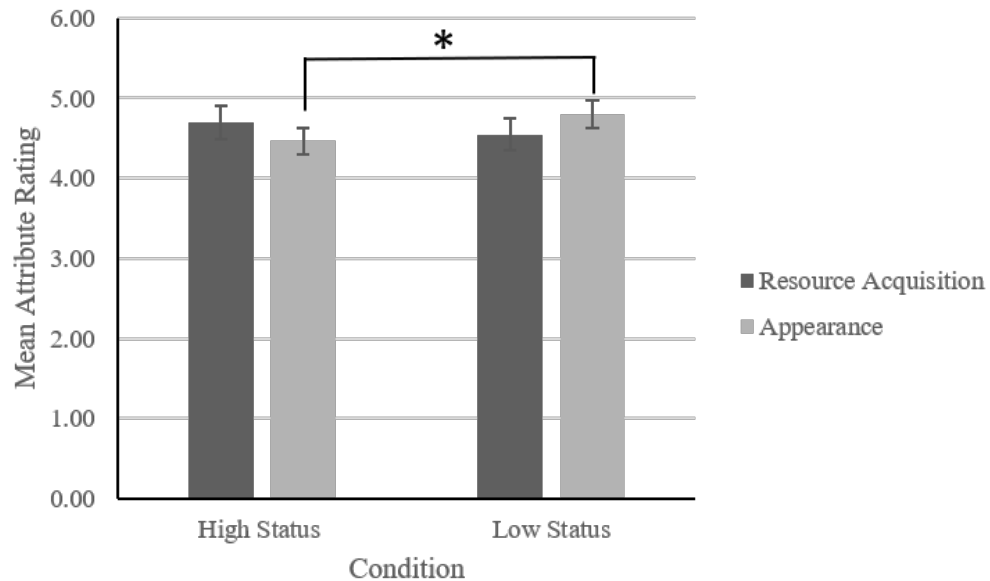
### 3.4.8. Partner Traits and Gender Perceptions ANCOVA

A Multivariate ANCOVA was used to test whether preference for traits (i.e. Appearance or Resource Acquisition) within participants, differed between conditions while controlling for gender perceptions. Five of the Gender Perception factors were used as continuous covariates. These five factors were selected as they either significantly differed between the two conditions (Low Social Power, Gender Hindrance Awareness, and Career Prospect Awareness) or correlated with preferences independently of condition (Equality of Household, and Gender Self Identity). The overall model demonstrated the main effect of participants' role was non-significant,  $F(2, 43) = 2.74, p = .076$ . Tests of between subject effects demonstrated no effect of status condition on female's preference for the traits variable,  $F(1, 44) = 0.15, p = .701$ . However, an effect of role was found on women's preference for the appearance variable,  $F(1, 44) = 4.30, p = .044$ . As demonstrated in Figure

3.1, the participants in the low-status condition expressed a higher demand for partners who were physically attractive ( $M= 4.80$ ,  $SD= 0.73$ ) than those who were high-status condition ( $M= 4.46$ ,  $SD= 1.06$ ).

Several of the covariates were found to be significant in multivariate tests at the  $p=.05$  level. The Equality of Household,  $F(2,43) = 10.55$ ,  $p < 0.001$ , Gender Self Identity,  $F(2,43) = 4.14$ ,  $p = .023$ , and Career Prospect Awareness,  $F(2,43) = 2.74$ ,  $p = .076$ , were all found to be significant. The overall multivariate model revealed that Low Social Power,  $F(2,43) = 0.66$ ,  $p = .524$ , and Gender Hindrance Awareness,  $F(2,43) = 0.55$ ,  $p = .579$ , were non-significant covariates.

Tests of between-subject effects the factor Equality of Household as a significant effect on the participants' ratings of both the resource acquisition,  $F(1,44) = 12.24$ ,  $p < .001$ , and appearance variables,  $F(1,44) = 11.17$ ,  $p = .002$ . Gender Self Identity also demonstrated to be significant for both resource acquisition,  $F(1,44) = 5.97$ ,  $p = .019$ , and appearance,  $F(1,44) = 5.29$ ,  $p = .002$ . However, the Career Prospect Awareness factor was only found to be significant for the appearance variable,  $F(1,44) = 10.31$ ,  $p = .002$ , but not for the resource acquisition variables,  $F(1,44) = 0.15$ ,  $p = .701$ .



**Figure 3.1 Mean Preference Scores of Mate Characteristics.** The participants in the low status condition exhibited significantly greater preference for a mate's physical appearance compared to the high status condition. \*Significant at the 0.05 level (2-tailed).

### 3.5. Discussion

It was predicted that increasing the relative status of female participants compared to a male confederate would lead to participants exhibiting a preference for physical attractiveness over resources. It was also predicted that participants in the high-status condition would report higher levels of financial independence and subjective social status, as well as more feministic ideals. Lastly, the participants in the high-status condition would also exhibit a preference for partners with (a) a younger ideal partner age, (b) a lower accepted minimum age, and (c) a lower maximum accepted age compared to the participants in the low-status condition. However, these hypotheses were not supported. Indeed, fully opposite to what was predicted, the participants in the low-status condition rated physical attractiveness as more important/desirable compared to high-status females. This result is contrary to much of the previously discussed research.

According to the evolutionary approach, women should exhibit a preference for resource acquisition characteristics in mates (Buss, 1989a; Trivers, 1972). On the other side of the

issue, the social role approach also states women's mate preferences are a response to the systematic restriction of their access to resources through highly gender-divided workforces (Moore & Cassidy, 2007; Wood & Eagly, 2002). It would logically follow under the social role approach that by increasing a woman's access to resources that her preferences should shift away from men's resource acquisition traits towards physical attractiveness.

However, in the present study it was the participants in the low-status condition that exhibited a stronger preference for mates who were physically attractive over mates with resource acquisition traits comparative to the participants in the high-status condition. As low-status is characterised as lacking in financial independence and being dependent on others (Argyle, 1994; Domhoff, 1998) it seems counter-intuitive for the women in the low-status condition to exhibit a larger preference for attractiveness over resources.

The result of the present study also counters much of the previous research which demonstrates that as women's economic positions increase, so does their demand for physically attractive partners (Carmalt, Cawley, Joyner, & Sobal, 2008; Gangestad, 1993; Swami et al., 2007; Tovee, Furnham, & Swami, 2007). This may be indicative of flexible mating strategies for women who find themselves in positions of either high or low status. It has been previously demonstrated that a positive correlation exists where women who have high income and status have higher preference for men's resource acquisition traits (Kalmijn, 1991, 1994; Townsend, 1989; Wiederman & Allgeier, 1992). For these women, it may be that they are concerned with having to support their partner and children. With women still currently doing the majority of parenting and household chores (Craig & Mullan, 2010; Evertsson & Neramo, 2007; Kan et al., 2011), the notion of having to support a partner who does not significantly contribute to the household, in terms of resources or labour, may repel women away from prioritising physical attractiveness.

Additionally, it may possibly be due to concerns of social desirability; of wanting not to appear "shallow" by preferring physically attractive mates or as "gold diggers" for explicitly preferring men with high income. Social desirability may be the reason that positive correlations exist between income/wealth and preference for male resource-acquisition traits. It may also relate to the theory of assortative mating, where individuals

pair with another who is of comparable mate-value. Individuals tend to date and marry within their own social groups (Argyle, 1994; Kalmijn, 1991), so a woman will want a mate that shares her values and economic levels. Assortative mating exists for both income and physical attractiveness (Sweeney & Cancian, 2004), but the priority on which factor to pair with another may be flexible dependent on the individual's income and attractiveness.

Existing theoretical perspectives suggest that women must weigh the benefits and the risks of mating with physically attractive men, as such men may be more likely to abandon the relationship, leaving the woman without the man's parental investment (Curran & Lippold, 1975; Schmitt & Buss, 2001; Wade, Fuller, Bresnan, Schaefer, & Mlynarski, 2007; Waynforth, 2001). However, women of low socioeconomic status are statistically more likely to find themselves lacking in paternal investment (Bianchi, 1994; Bjorklund & Ellis, 2014; Black et al., 1999; McLanahan, 1985). By restricting the participants' relative income and access to resources (i.e. the chocolates purchased within the experiment), the manipulation should have placed the participants into a similar mindset of those with low socioeconomic status, as previous research has demonstrated that participants actively engaging with competitive game-playing tasks and that the manipulation activates the corresponding cognitions and motivations associated with each status (Piff, Kraus, Côté, Cheng, & Keltner, 2010). For these women, it may not benefit them to prefer resource acquisition traits in men, as the father may not remain with the mother long enough for her to benefit from shared resources.

Conversely, it may benefit them to prefer physically attractive mates as physical attractiveness may be a signal of good health (Buss & Shackelford, 2008). The links between attractiveness and health have been found through the mediating factors of weight and hip-to-waist ratios in women (Singh, 2002; Singh et al., 2010; Weeden & Sabini, 2005) and facial symmetry for both genders (Jones et al., 2001). While the "good gene" hypothesis is not directly supported in the present study, it may be advantageous for a woman to pair with a physically attractive man if this is indeed linked to good health and possibly good genetics. For some species of birds, it has been demonstrated that physical attractiveness is linked to higher survival rates (Krebs & Davies, 2009; Møller, 1994;



Norris, 1993) and though humans may not have the same survival problems that can plague small birds (e.g. predators, severe cold weather, food shortages), there are still advantages to gain from good genes.

Mating with a physically attractive man would give the woman's children an advantage as attractive people are viewed more favourably within society. Numerous experiments have demonstrated that those perceived as physically attractive are also perceived to possess more sociable traits (Brand et al., 2012; Griffin & Langlois, 2006; Meier et al., 2010). Being physically attractive would provide the children with opportunities not afforded to them due to restricted resources. This somewhat related to the "sexy sons" notion in the existing literature, whereby it has been noted that females' attractiveness preferences are propagated because they are likely to mate with attractive males, thereby passing on both their mate's attractiveness and their preference for it (Cameron, Day, & Rowe, 2003). This is distinct from the ideas hypothesized from the results of this study in the sense that creating more attractive children through mating with attractive men is herein considered as a mechanism by which the children might benefit through increased social attractiveness in subsequent generations.

The gender perception items along with the MacArthur Scale of Subjective Social Status were used to examine ideologies among participants as well as to assess how the manipulation may affect them. It was also found that the participants in the low status condition expressed a higher preference for gender equality within a household. As the Equality of Household factor was created from items that measured the extent to which participants believed that either the husband or wife should have final say over household resources (i.e. money), and familial decisions (e.g. child rearing, religion, diet) as well as who should be the main provider, it is unknown at this time whether the participants in the high-status condition expressed preference for male domestic dominance or female domestic dominance. It is possible that the participants in the high-status condition had divided opinions (e.g. participants highly agreed that it was "a man's duty to be the main financial support for his family" but "the wife should have final say over familial decisions

(e.g. child rearing, religion, diet”) while the participants in the low-status condition rated each choice evenly.

Further testing and analysis may reveal if this is the case which could lend support to social role theory (Eagly & Wood, 1999), that it is more likely the division of labour that is the root of women’s preferences. For the participants in the low-status condition, the lack of division of labour could be one interpretation for their preference for physical attractiveness over resource acquisition partner traits. The majority of previous research that the present study contradicts was conducted in societies with highly divided labour groups and women were historically restricted in their ability to contribute to the workforce and society (e.g. Hrdy, 1997). The lower status of the participants may lead to them demanding more equality, while the higher status of the participants makes them satisfied with the status quo (Kluwer, 1998b; Rabinowitz, 1999).

The result of the participants in the low-status condition feeling hindered by their gender is in line with the previous research. Those who are low status attribute their relative failure to societal constraints (Kraus, Piff, & Keltner, 2009), as in the case with the participants’ loss within the experiment. The participants in the high-status condition expressed that they felt that women within society lacked power, but they were personally untouched by the issue and placed their success within the study to their individual performance. As the participants in the high-status condition felt they would get a career benefit from being a woman, it is possible that they think they can use their gender to the advantage in combination with their own personal ability to perform.

It is worth noting, that there was no significant difference between the two conditions’ measurements of their personal current or future financial independence and social status. This result, in combination with the career benefit and hindrance associated with gender between the two conditions, may be an artefact from the priming paragraph. The paragraph at the start of the rules states that women are (not) preferred by hospitals for surgery positions, as women (do not) make better surgeons. This may have instilled belief within the participants about systematic benefits and hindrances of being a woman. Both ideas are

simultaneously correct, though they are not both held by the two conditions. There is a well-established “glass ceiling” within many companies that inhibits women from rising through ranks (Kluwer, 1998a; Ryan & Haslam, 2005). While more women are able to break through into higher paid and well-respected professions, there is evidence that suggests women are being overly selected for upper-management positions within companies that are failing (Ryan & Haslam, 2005, 2007). The participants in the present study may feel that they have equivalent opportunity and likelihood of achieving high salaried and respected positions but have different perspectives and attitudes towards it. It is equally as likely that the result is due to the sample consisting of women enrolled in higher education.

### **3.5.1. Limitations**

The present study focused on the role that relative status has on mate-trait preferences using a rigged game to create an imbalanced system. The manipulation took several steps to ensure that the status differences were made salient; however, as the status and financial independence measures did not differ between the two groups, the manipulation did not have the intended effect. A possible explanation for this may be that the female participants may not have actively engaged in the competitive aspect of the paradigm, as women seem to prefer avoiding taking part in competition (Niederle & Vesterlund, 2005). The competition between the two players is a key factor in the experimental paradigm as it was meant to reflect real world situations where people compete for the same employment positions and access to resources. It remains unclear if the preference for avoiding competition in women is socially learned or evolutionarily based. There may also be an element of expectancy states, as women do not expect to perform well in competition against men, and then choose to avoid it. Competence, meaning the ability to effectively carry out a task independently, may be the source of status through the prestige route. Should a woman feel competent and confident about her abilities, she would not shy away from competition. Alternatively, women may have instead viewed the manipulation as the passive reception of uneven rewards. This, in turn, could lead to a decreased emphasis on their *relative* status via-a-vie the other player, or men in society.

Another significant limitation, one which could explain the surprising results, is that it is possible that the present experiment does not effectively manipulate the participants into low socioeconomic mind-sets and future experiments may wish to address this issue. Previous research has demonstrated that merely comparing oneself to those with a higher or lower social-class ranking can put participants into the respective mindsets, suggesting the mere experience of social class has a causal relationship to decision-making and behaviour (Piff, Stancato, Côté, Mendoza-Denton, & Keltner, 2012). However, as the present study did not demonstrate this effect, it is either possible that the manipulation did not work or that gender and mating preferences are impacted by status mindsets in a similar way as, for example, ethical decision making. Such approaches might need to involve a more substantial experimental manipulation, as it is perhaps questionable to assume that a brief game can manipulate a person's perceptions of status. However, if not, this is likely a variable which would be considerably difficult to truly manipulate.

## **Chapter 4. Study 3: Gender Engagement, Status, and Trade-Offs**

### **4.1. Introduction**

As previously discussed in Chapter 1, evolutionary perspectives reduce the impact of individual variation as well as situational and cultural conditions on preferences (Eagly & Wood, 1999). Instead, these perspectives focus on between-sex differences rather than within-sex variation (Gangestad & Simpson, 2000a; Walter, 1997). Alternatively, SRT (Eagly & Wood, 1999) downplays sex-differences and instead focuses on within-sex variation. In testing SRT, however, the within-sex variation of men's mate preferences has largely not been examined. Under SRT, preferences are predicted based on gender roles and status; as women gain parity with men, their preferences become more male-typical. It is unknown if men's mate preferences also vary based on the complimentary changes in gender roles and status. Therefore, I will examine both within and between sex variation of men and women in order to fully understand the nature of mate preferences.

As previously discussed, women's higher levels of perceived financial independence (Moore, Cassidy, Law Smith, & Perrett, 2006), education (Goodwin & Tinker, 2002), and broader measures of gender empowerment (Eagly & Wood, 1999; Zentner & Mitura, 2012) show women shifting their preferences to be more "male-typical", exhibiting preference for physical attractiveness over resource-acquisition traits in mates. However, women's income and socioeconomic status positively relates to more "female-typical", preference for men with resource-acquisition traits (Kalmijn, 1994; Townsend, 1989; Wiederman & Allgeier, 1992). Studies examining men's mate preferences have not focused as much on the impact of status, but Greitemeyer (2007) found preferences for women with a relatively lower SES over women with higher SES. The preference, however, was due to education level rather than income. Men perceived women with higher education levels as less likeable and less faithful and were therefore less likely to pursue a relationship. In an experimental study, Li, Li, Chan, and Zhang (2016) primed both men and women with money and found that both sexes who were made to feel relatively wealthy exhibited a stronger preference for physical attractiveness in potential new partners. The study also found men felt less satisfied with their partner's physical attractiveness when primed to feel

wealthy (Li et al., 2016). This finding raises the question: why is financial independence positively related to preference for a mate's physical attractiveness for both men and women, but women's income is positively related to preference for mate's resource acquisition potential?

Research has demonstrated that having money creates a mentality of self-sufficiency and weakens the desire for strong social bonds (Mogilner, 2010; Vohs et al., 2006). Self-sufficiency and independence are traits associated with men and masculinity (e.g. O'Neil, Helms, Gable, David, & Wrightsman, 1986; Snell, 1989). The mentalities and behaviours associated with masculinity may be the syllogistic missing step to explain why resource control and education are linked to male-typical mate preferences for both genders whereas socioeconomic status and income are not. In other words, variables like perceptions of financial independence may relate to power and gender roles, whereas income alone may not.

In testing SRT, studies have focused on measures of power, however, it may be more appropriate to examine aspects of personality or behaviour as having power is not the same as having desire for power. Rather than assume that those with more control over resources exhibit more male-typical preferences, it could be that as gender roles become less rigid, those with more masculine behaviours have more male-typical preferences. For instance, the traits associated with high levels of socioeconomic status such as self-sufficiency, independence, and restricted social engagement (Mogilner, 2010; Snibbe & Markus, 2005; Stephens et al., 2007; Vohs et al., 2006) are also associated with masculine behaviour (Snell, 1989). The conflicting results in relating status and mate preferences discussed are potentially because research has not accounted for gender role engagement, e.g. women who exhibit masculine behaviour may either pursue status or having status may result in more masculine behaviour. Individuals may find themselves in control over resources for a variety of reasons, such as being given control or finding themselves in a position where they are independent from others. Instead, it may be the pursuit of control that can influence mate preferences. In other words, those who break away from traditional gender roles may also break away from traditional gender preferences. If evidence can demonstrate

that gender role engagement is associated with status and mate preferences, this would provide support for the Social Role Theory over evolutionary approaches.

There is an important distinction between gender role ideology and gender role engagement. Gender role ideology is the endorsement of gendered ideas, e.g. normative approaches to work allocation or behaviour expectations. Gender role engagement, however, is the expression of personality or behavioural traits that are masculine/feminine. Changes in gender roles in society have led to changes in individuals (Twenge, 1997, 2000, 2001) and there has been a significant decrease in sexist ideologies at the population level, e.g. the belief that women should remain in the home (O'Brien et al., 2013; Wang, Parker, & Taylor, 2013). However, this does not imply the adoption of egalitarian ideologies is homogeneous. Variation in ideology along with a growing gap between traditional ideals and modern realities can have an impact on choices and behaviour. For example, though a woman may have a full-time career and be the main provider she is still expected to take on the majority of the household responsibilities (Coltrane, 2000), and to be the main caregiver in the home (Corrigan & Konrad, 2007; Rosette & Tost, 2010). In fact, as women's contribution to household income increases between 51-100%, they tend to perform more household chores, possibly in an effort to demonstrate compliance to traditional gender role norms (Bittman et al., 2003). Meanwhile, men are still expected to live up to masculine ideals in all domains (Rudman, Moss-Racusin, Phelan, & Nauts, 2012). Though gender roles have undergone a 'quiet revolution' (Esping-Andersen, 2009; Gerson, 1993; Goldin, 2006), men and women might hold egalitarian ideologies, they may not engage in egalitarian roles.

Men face unique pressures to conform to traditional masculine roles despite changing roles for women. This results in men caught between maintaining their prescriptive roles or behaving in a complimentary manner to women's roles. Gender-role conflict is a psychological state where the gender roles ascribed to an individual has a negative impact or consequence on that person or on others (O'Neil, Helms, Gable, David, & Wrightsman, 1986). The conflict results in the restriction of a person's (e.g. a husband) or another's (e.g. his wife) ability to actualize their potential. The Gender-Role Conflict Scale (GRCS,

O'Neil et al., 1986) was specifically created to measure men's personal gender-role attitudes and behaviours and the conflicts associated with their role (e.g. the desire to spend time with their family vs work dedication).

Men may hold onto more strict gender role ideologies as their masculine identity is threatened by women's increase in status and income (Hiller & Philliber, 1986; Hunt & Hunt, 1987). Previous work has found that gender role conflict in men is negatively related with attitudes towards feminism, with high levels of conflict relating to a preference for traditional behaviour and gender roles in women (Blazina & Watkins, 2000). Similarly, men who are driven to be successful even at the cost of time with their family, opt for a more traditional role within the family (Mintz & Mahalik, 1996). The pressure to succeed conflicts with being a supportive husband or father as it interferes with his own ambition and failing to succeed threatens his dominance at home (Gilbert, 2014).

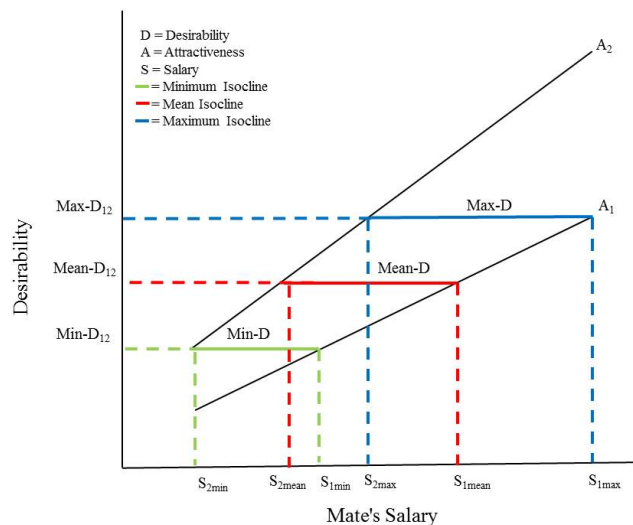
Women, however, do not have the same gender role conflict. Eagly, Eastwick, & Johannesen-Schmidt (2009) demonstrated sex differences in mate preferences in relation to the expectation of traditional marital roles. Sex differences diminished, however, when men and women expected to be in the same role. Though this study demonstrates sex differences, it did not examine the variation within women's preferences. While women on average may imagine their future roles differently compared to men, it is unclear if this is due to desire/ambition or an expectation based on models such as women portrayed in the media or their own parents. As education (Eagly & Wood, 1999; Kasser & Sharma, 1999) and feminist attitudes (Koyama et al., 2004) are linked with decreased preference for mate's resources while women's income and SES has a positive relationship with preference for resources (Matthijs Kalmijn, 1991, 1994; Mate Selection Criteria: A Pilot Study, 1989; Wiederman & Allgeier, 1992), the discrepancy between the different measures of status and its effect on women's mate preferences could be explained through a difference in levels of agentic personality traits and the behaviours associated with role fulfilment. In other words, variation in women's mate preferences may have less to do with their personal circumstances (e.g. their income or control over resources) and more to do with an internalised gender role engagement which leads them to pursue control and status.



As in Chapter 2, previous methods of measuring trade-offs have used point allocation methodologies (Edlund & Sagarin, 2010; Kenrick, Sadalla, Groth, & Trost, 1990; Li, Bailey, Kenrick, & Linsenmeier, 2002; Waynforth, 2001). In these point-allocation studies, participants are given a number of points to distribute across various attributes in order to ‘create’ their ideal mate, with more points being given to an attribute indicating a higher degree of that quality (e.g. a mate with 7 points awarded to physical attractiveness might be considered in the 70<sup>th</sup> percentile of attractiveness). More points being allocated to a given attribute is interpreted as a stronger preference for that attribute. However, there is a distinction between strong preference for an attractive partner and a preference for a highly attractive partner, which the point allocation methodology muddles. Furthermore, though point allocation methods allow us to see a trade-off occur by examining how participants ‘spend’ their points, there are limitations to this method as it does not reveal ‘equivalency values’. In the point-allocation experiments, the value of a point allocated to any given trait is unclear. For example, it is unclear what 3 points is equivalent to in a partner’s income beyond being in the 30<sup>th</sup> percentile of a population or how it increases with an additional point. Furthermore, an increase of 1 point could, for example, be given the equivalency of £1000 in income, but it is much more difficult to qualify the value of a point increase for physical attractiveness. It is difficult, then, to fully understand the trade-offs being made as they lack meaningful grounding in the real world.

In a novel approach, previous work by Lazarus & Thorogood (2004) made use of isoclines to demonstrate the trade-offs women made between a men’s physical attractiveness and salary and how this trade-off differed between age groups. Isoclines are a line on a diagram connecting points of equal values of a measurement. Isoclines allow us to examine the trade-off in a system, by finding the values of two variables while the value on a third variable remains constant (Longinetti et al., 2010). Lazarus & Thorogood (2004) used isoclines to calculate the magnitude of a drop in salary that is compensated for by a unit rise in physical attractiveness while maintaining the same desirability rating. Participants were asked how desirable a person was as a long-term partner, based on their physical attractiveness and salary. Figure 4.1. represents how attractiveness and salary may relate to desirability ratings, and how the trade-off equivalency can be found with isoclines. Line A1

illustrates desirability ratings for a face of low physical attractiveness as salary levels increase. Line A2 illustrates the same relationship for a face of higher attractiveness. The isoclines join points of equal desirability between the two levels of attractiveness. They represent the monetary value of a mate's salary (in £) that a participant is equivalent for one unit of attractiveness. In other words, isoclines represent the change in salary needed for a change in attractiveness, while maintaining the same desirability level. A smaller isocline line would suggest that the participant is willing to tolerate a smaller increase in salary to rate a face of lower attractiveness (A1) as desirably as a face of higher attractiveness (A2). In the present study, Lazarus & Thorogood (2004)'s isocline methodology was used to examine the equivalency value of salary and facial attractiveness, as it allow us to find effect of salary and attractiveness on desirability, the trade-off value between these two attributes, and may provide insight into individual variability in trade-off solutions.



**Figure 4.1** Isoclines representing trade-offs between attractiveness and salary. A potential mate's salary (S) runs along the x-axis while the desirability rating runs along the y-axis. The black lines represent best linear fits between S and D for different levels of attractiveness (A). The isocline is the difference in salary for two levels of attractiveness which are rated to have the same desirability on a scale (D). The maximum isocline is the trade-off which can be calculated for the highest value of D (Max-D), whereas the minimum isocline is the trade-off which can be calculated for the lowest value of D (Min-D). Adapted from personal communication with Lazarus, J. (July 7, 2015).

#### 4.1.1. Present Study

Previous studies have examined how the endorsement of gender roles relate to mate preferences (Eagly, Eastwick, & Johannesen-Schmidt, 2009; Johannesen-Schmidt & Eagly,

2002). However, studies have not examined how gender role engagement relates to mate preference trade-offs nor have they examined how status (such as financial independence) relates to gender role engagement. There is a clear gap in the literature to examine the relationships between status, gender roles and mate trade-offs. It is important to identify the impact that status and gender role engagement have on preferences and trade-offs because if SRT holds as a theory, status and gender role engagement should predict mate preferences and trade-offs. Therefore, the present study examines how different measures of status, gender ideology and gender role engagement predict intra-sex variation in mate preferences and trade-offs.

Inter-sex differences are also examined to replicate previous findings and examine if this sex difference is found using the isocline procedure as described in Lazarus and Thorogood (2004) to ascertain its suitability for future research. EP argues that women face a trade-off between mate attributes (Gangestad & Simpson, 2000a) however makes no mention of a similar trade-off in men. An important but subtle nuance is that trade-offs imply an equivalency in *value*, but this is not the same as equivalency is *preference*. The isocline methodology is specifically utilized to find equivalency values in a trade-off between variables, whereas ratings allow us to examine the extent of preference.

## 4.2. Hypotheses

In accordance with the objectives of this chapter, both intrasexual variation within men and women will be examined as well intersexual differences.

### Women's Intrasexual Variation

**Hypothesis 1:** Women who score highly on measures of status will exhibit more masculine gender role engagement and express more egalitarian gender ideological views.

**Hypothesis 2:** Women's preference for physical attractiveness over resources and status will be predicted by their score on measures of status, their gender role engagement, and their gender ideology.

**Hypothesis 3:** The magnitude of women's trade-offs as measured by the isoclines will vary as a function of their status measures, gender role engagement and gender ideology.

### **Men's Intrasexual Variation**

**Hypothesis 4:** Men who score highly on measures of status will also score higher on the Gender Role Conflict Scale and express less egalitarian views as measured by the Ambivalent Sexism Inventory

**Hypothesis 5:** The extent men exhibit preference for physical attractiveness over resources and status on a rating task will increase as they express more gender role conflict, score higher on measures of status, and express less egalitarian beliefs as measured with the Ambivalent Sexism Inventory (ASI, Glick & Fiske, 1996).

**Hypothesis 6:** The magnitude of men's trade-offs as measured by the isoclines will vary as a function of their status measures, gender role engagement and gender ideology.

### **Sex Differences**

**Hypothesis 7:** Men will exhibit greater preference for physical attractiveness over resources compared to women.

**Hypothesis 8:** Men will have a larger equivalency trade-off value than women under the isocline methodology.

## **4.3. Methods**

### **4.3.1. Participants**

A total of 371 participants took part in the present study. Participants who did not identify as exclusively heterosexual were removed from analysis (n=101). Of the remaining 270 participants, 77 participants identified as men and 193 as women. The mean age of participants was 25.46 (SD=10.18). Fourteen participants were from the European Union, three from North America, one from South America, three participants were from Asia, 241 participants were from the United Kingdom, and eight participants did not identify their nationality. A total of 238 participants self-identified their ethnicity as Caucasian, five as of Mixed-African decent, 13 as Asian, one of Hispanic decent, five of non-identifiable mixed ethnicity, and eight participants did not identify their ethnicity. One participant did not identify their relationship status, but 134 participants were in a serious relationship at the time of the study, 21 were in a causal relationship, and 114 were not in a romantic relationship.

### 4.3.2. Materials

#### 4.3.2.1. *Measures of Status*

As status can be achieved through two routes (power and prestige), the MacArthur Scale (Goodman et al., 2001) was re-used from Chapter 3. This scale asks participants to rate themselves on their level of financial independence (i.e. power) and social status (prestige) at the time of the study and in the future. Items measuring subjective social status were rated on a 7-point scale, where the top most rung of the ladder was seven, and the number one was at the bottom See Appendix 6 for measures, respectively.

#### 4.3.2.2. *Ambivalent Sexism Inventory*

The Ambivalent Sexism Inventory (ASI: Glick & Fiske, 1996) was included (see 2.2.2.3 for further description) as a measurement of gender role ideology. Items were rated on a scale from 0- Disagree Strongly to 5- Agree Strongly. The ASI demonstrated a good level of reliability (Cronbach's alpha =.81) and is presented in Appendix 3. Participants scores were averaged to generate a single score.

#### 4.3.2.3. *13-item partner preference task*

Mate attribute preferences were measured by participants rating 13 mate attributes (e.g. *Kind & Understanding, Dependable Character, Exciting Personality, etc.*) on their desirability/importance on a scale from 1- Extremely unimportant or undesirable to 7- Extremely important or desirable. The attributes were adapted from the attributes extracted from a factor analysis of a larger factor analysis (see Buss et al., 1990; Buss & Barnes, 1986). From the participants' ratings, two variables were created; preference for mate's prospective status and resources and preference for mate's physical attractiveness. Preference for status and resources was calculated as the average of preference ratings for *Good Financial Prospect, Ambition & Industriousness, and Education & Intelligence*. Preferences for physical attractiveness were calculated by averaging the items *Good Looks & Attractiveness* and *Good Health*.

#### 4.3.2.4. *Gender Role Engagement Measures*

Men and women participants were provided with different measures for examining their gender role engagement, as they face unique pressures in conforming to gender roles.

Women were given the Masculine Behaviour Scale (MBS; Snell, 1989) measured the extent to which participants engage in stereotypically masculine behaviour. The scale consists of 20 items. Participants respond to each item on a 5-point scale from Agree (scored as a +2) to Disagree (scored as -2), with a Neither agree nor disagree option (scored as 0). Items tapped into different aspects of masculinity such as the pursuit of success with items such as “I am very ambitious in the pursuit of a success-oriented career”. The second subscale is *restrictive emotionality* which examines the public restriction of privately held emotions with items such as “I don’t often talk with others about my emotional reactions to things”. The third subscale measures *inhibited affection*. This is the inhibition of feelings of affection for loved ones and is measured with items such as “I don’t often tell others about my feelings of love and affection for them”. The last subscale is *exaggerated self-reliance & control* with items like “I try to be in control of everything in my life”. The scores for each subscale were then averaged together. The MBS demonstrates a good level of reliability (Cronbach’s alpha =.87)

Men were given the Gender Role Conflict Scale (GRCS, O’Neil et al., 1986) which taps in four areas of men’s gender role. The GRSC consists of 37 statements that examine men’s thoughts and feelings about gender role behaviour. Men report their agreement or disagreement with each statement on a Likert scale of 1 (strongly disagree) to 6 (strongly agree). Each item factors into only one of the subscales. The SPC subscale consists of items such as “I strive to be more successful than others” and “I often feel that I need to be in charge of those around me”. The RE subscale has items such as “I have difficulty telling others I care about them” and “I do not like to show my emotions to other people”. RABBM contains items that measure restricted affection such as “Hugging other men is difficult for me” and “Expressing my emotions to other men is risky”. The last factor, CBMF, has items such as “My need to work or study keep me from my family or leisure more than I would like” and “My career, job or school affects the quality of my leisure or family life”. Participants scores were averaged together for a single score. The GRCS demonstrates a good level of reliability (Cronbach’s alpha =.91)

#### 4.3.2.5. *Mate stimuli for Isoclines*

In order to examine the effects and trade-offs of salary and facial attractiveness, participants were presented with a series of potential partners. Photos of 148 men's faces (Moore et al., 2012) and 46 women face's (Law Smith et al., 2006) were previously rated for attractiveness (on an ordinal scale 1 = not at all attractive, 7 = extremely attractive). The photos were ranked within their respective gender group from most attractive to least attractive, and then divided into groups to create seven level of attractiveness. LSD Post-hoc tests revealed that the 7 levels of attractiveness were on average significantly different from each other for the women's faces,  $F(6,141)=320.80, p<.001$ , and for the men's faces  $F(6,37)=156.70, p<.001$ . Mean rated facial attractiveness was calculated for each level, and the two faces with ratings closest to the average were selected. Two faces were selected from each level to reduce any noise imposed by individual differences in preferences. Each face was then paired with a series of income levels ranging from £20,000 to £140,000, increasing by increments of £20,000. With seven levels of attractiveness, seven levels of income, and two faces at each level of attractiveness, there were 98 photo stimuli for each gender.<sup>6</sup> Two faces were used per level of attractiveness during data collection; however, the desirability scores were averaged across the pairs of faces at each level of attractiveness and salary.

#### 4.3.3. Procedure

Participants were recruited from the University of Dundee through a campus wide e-newsletter and through the Psychology Experiment Participation system. Participants clicked a link that loaded the online survey. Participants first filled in the demographic information, followed by information regarding their status. Participants then filled out the remaining questionnaires. Participants were presented with the face/salary pair stimuli for the opposite gender (that is to say, men were presented women's faces, and women were presented men's) and asked to rate the stimuli for desirability as a long term romantic relationship on a 10-point scale, from 1 (not at all desirable) to 10 (extremely desirable).

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<sup>6</sup> Sample stimuli have been excluded from the appendices due to ethical considerations.

## 4.4. Results

### 4.4.1. Measures of Status

A factor analysis with varimax rotation was used to generate two status factors and are presented in Table 4.1. The first factor was the *Social Status* factor (eigenvalue=1.71). The second factor is the *Financial Independence* factor (eigenvalue = 1.06). These represent the routes of prestige and power, respectively. These factors accounted for 69.12 of the total variance.

**Table 4.1 Rotated Component Matrix of Status Factors**

Item	Factors	
	Social Status	Financial Independence
Current Financial Independence		.793
Future Financial Independence		.749
Current Social Status	.880	
Future Social Status	.871	
Eigenvalue	1.708	1.057
Variance	42.71	26.41

### 4.4.2. Women

#### 4.4.2.1. Status, gender ideology and engagement

A bivariate (Spearman's) correlation analysis demonstrated relations between the Masculine Behavioural Scale, Ambivalent Sexism Inventory, and the status factors. Though the correlations were not significant, the *Financial Independence* factor positively correlated with the ASI, ( $r_s = .08$ ,  $p = .350$ ) and the MBS, ( $r_s = -.16$ ,  $p = .053$ ). Similarly, though not significant, the *Social Status* factor positively correlated with the ASI ( $r_s = .14$ ,  $p = .124$ ) but negatively correlated with the MBS ( $r_s = -.13$ ,  $p = .115$ ). Correlation coefficients are presented in Table 4.2.



**Table 4.2 Correlation of status factors, Ambivalent Sexism, and the Masculine Behaviour Scale**

	Financial Independence	Social Status	Ambivalent Sexism	Masculine Behavioural Scale
Financial Independence	-			
Social Status	-.06	-		
Ambivalent Sexism	.08	.14	-	
Masculine Behavioural Scale	.16	-.13	.11	-

#### 4.4.2.2. *Women's Mate Preference Ratings*

From the mate attributes items (Buss et. al., 1990; Buss & Barnes, 1986), preferences for status and resources was calculated as the average of preference ratings for *Good Financial Prospect, Ambition & Industriousness*, and *Education & Intelligence*. Preferences for physical attractiveness were calculated by averaging the items *Good Looks & Attractiveness* and *Good Health*. A repeated measures ANOVA revealed a stronger preference for resources and status ( $M=5.09$ ,  $SD=1.09$ ) than physical attractiveness ( $M=4.85$ ,  $SD=1.18$ ),  $F(1,118) = 11.82$ ,  $p = 0.001$ ,  $\eta_p^2=.07$ .

A linear regression was constructed to assess whether women's status, gender-role ideology, and gender role engagement predict the extent to which participants exhibit preference for physical attractiveness over resources and status. The extent of preference was measured by subtracting the preference score for resources and status from the preference score for physical attractiveness. The extent of preference was put in as the dependent variable, with the status factors (*Financial Independence, Social Status*), ASI and MBS entered as predictors. Overall, the model was not significant,  $F(4,118)=2.19$ ,  $p=.074$ . The model is presented in Table 4.3.

**Table 4.3 Models for Predicting Women’s Preference for Physical Attractiveness over Resources**

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	$\beta$	t	Sig.
(Constant)	-0.82	0.37		-2.22	.028
Masculine Behavioural Scale	-0.13	0.13	-0.09	-0.95	.344
Ambivalent Sexism	0.23	0.13	0.17	1.80	.074
Social Status	-0.15	0.09	-0.16	-1.67	.098
Financial Independence	-0.18	0.08	-0.19	-2.15	.034*

\* $p < 0.05$  level (2-tailed).

#### 4.4.2.3. *Women’s Effects of Factors on Desirability Ratings for Isoclines*

A linear mixed effects model was used to test the effect of salary and attractiveness on women’s desirability ratings of the trade-off stimuli for isoclines. Salary and attractiveness levels of the stimuli were entered as fixed effects, participant as random effect, and the desirability as the dependent variable. Tests of Fixed Effects demonstrated a significant effect of salary,  $F(6,2425.64)=57.31, p < .001$ , and a significant effect of attractiveness,  $F(6,2208.59)=297.52, p < .001$ , on desirability ratings. However, no interaction was found for salary and attractiveness,  $F(36,769.66), p = .705$ . The estimates of the fixed effects are presented in Table 4.4. Women’s desirability ratings for the mate stimuli used for calculating isoclines are presented in Figure 4.2. As the data does not demonstrate an interaction of attractiveness and salary, it suggests that the relation between attractiveness and salary is constant. However, the results here examine group level effects, and do not represent the trade-off between attributes.

**Table 4.4 Estimates of Fixed Effects for Salary and Attractiveness for Female Participants**

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	3.33	0.15	456.98	21.68	>.001	3.03	3.64
Salary Level 1	-0.72	0.14	449.40	-5.25	>.001	-0.99	-0.45
Salary Level 2	-0.56	0.13	438.34	-4.26	>.001	-0.82	-0.30
Salary Level 3	-0.33	0.14	444.58	-2.42	.016	-0.59	-0.06
Salary Level 4	-0.25	0.13	441.12	-1.85	.064	-0.51	0.01
Salary Level 5	-0.13	0.13	430.94	-0.99	.321	-0.39	0.13
Salary Level 6	-0.12	0.14	451.03	-0.81	.417	-0.39	0.16
Salary Level 7	0 <sup>a</sup>	0.00					
Attractiveness Level 1	-1.23	0.12	348.95	-10.64	>.001	-1.45	-1.00
Attractiveness Level 2	-1.07	0.12	367.21	-9.10	>.001	-1.30	-0.84
Attractiveness Level 3	-0.75	0.13	410.66	-6.02	>.001	-1.00	-0.51
Attractiveness Level 4	-0.87	0.12	398.93	-7.05	>.001	-1.11	-0.63
Attractiveness Level 5	-1.35	0.11	342.91	-11.83	>.001	-1.58	-1.13
Attractiveness Level 6	-0.12	0.14	452.30	-0.85	.399	-0.40	0.16
Attractiveness Level 7	0 <sup>a</sup>	0					

<sup>a</sup> Parameter is set to zero because it is redundant

As the relationship between salary and attractiveness is constant, it was decided to use one isocline for each participant. This allows us to examine if there are individual variables that can predict isocline magnitudes or if these magnitudes exhibit gender differences. For each participant, the slope and intercept were calculated from the line of best fit for each level of attractiveness. Using the slope and intercept from each participant's line of best fit, the salaries for a given desirability rating for each level of attractiveness can be calculated, using the formula  $Y = mx + b$  where  $Y$  is the desirability rating,  $m$  is the slope,  $b$  is the intercept and  $x$  is salary. Once the two salaries are known, the trade-off can be calculated. For each participant, the maximum and the minimum trade-off were calculated. These are the trade-offs made at the highest and lowest salary points. The trade-offs were calculated using the following formula:  $I = \frac{S1-S2}{A2-A1}$ , where  $I$  represents the trade-off,  $S1$  is the salary of the lower attractiveness level ( $A1$ ) and  $S2$  is the salary of the higher attractiveness ( $A2$ ; Lazarus, personal communication, July 7, 2015).

Isoclines can only be calculated when there is a main effect present in the individual participant for both attractiveness levels and salary levels. In reviewing the data, some

participants rated the desirability of a level of attractiveness consistently regardless of the income attached (e.g. “a 4” for a face at one level and a “5” for a face of a different level). Thus, these participants did not provide a trade-off, and received a score of 0 (N=47). This score of 0 is not the same as participants with missing data (N=69). Though no trade-off between salary and attractiveness can be found, participants did generally demonstrate an effect of attractiveness, where the more attractive faces were rated as more desirable, as illustrated in Figure 4.2. Isoclines could be calculated for 124 of the female participants. The mean isocline value was 0.93 (SD=5.37), but with a range of 44.85. As each level of salary is equal to an increase of £20,000, the average trade-off between a unit of attractiveness and salary can be converted to £18,600 (SD=£107,400).

A linear regression was done to examine whether the magnitude of women’s trade-off values as represented by the isoclines will vary as a function of their status measures, gender role engagement and gender ideology. Overall, the model was significant,  $F(4,114)=3.09, p=.019$ , and is presented in Table 4.5.

**Table 4.5 Models for Predicting Women’s Isocline Magnitude**

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	$\beta$	t	Sig.
(Constant)	-3.24	2.15		-1.51	.134
Financial Independence	-1.22	0.50	-0.22	-2.45	.016*
Social Status	0.44	0.54	0.08	0.82	.413
Ambivalent Sexism	1.54	0.75	0.20	2.07	.041
Masculine Behavioural Scale	-0.65	0.78	-0.08	-0.83	.411

\* $p<0.05$  level (2-tailed)

#### 4.4.3. Men

##### 4.4.3.1. Status, Gender Ideology and Engagement

Bivariate (Spearman’s) correlation analyses were conducted to test relationship between status factors, Gender Role Conflict and, Ambivalent Sexism Inventory. The *Financial Independence* factor positively correlated with all other measures but not significantly. The *Social Status* similarly was positively correlated with the other measures, but not significantly. The Ambivalent Sexism and the Gender Role Conflict scale demonstrated a

significant positive correlation ( $r_s = .28$ ,  $p = .021$ ). Correlation coefficients are presented in Table 4.6.

**Table 4.6 Correlation coefficients of status factors, the Ambivalent Sexism Scale, and Gender Role Conflict**

	Financial Independence	Social Status	Ambivalent Sexism	Gender Role Conflict
Financial Independence	-			
Social Status	.10	-		
Ambivalent Sexism	.07	.22	-	
Gender Role Conflict	.21	.07	.28*	-

\* $p < 0.05$  level (2-tailed).

#### 4.4.3.2. Men's Mate Preference Ratings

Similar to the analysis for women, two traits were calculated. The first was preference for a potential mate's status and resources and the second was preference for physical attractiveness. A repeated measures ANOVA revealed a significantly stronger preference for physical attractiveness ( $M = 4.97$ ,  $SD = 1.19$ ) than resources and status ( $M = 4.51$ ,  $SD = 1.05$ ),  $F(1,76) = 8.99$ ,  $p = 0.004$ ,  $\eta_p^2 = .11$ .

A linear regression was conducted to examine if the strength of men's preference for physical attractiveness over resources could be predicted by the status factors, gender role ideology and gender role engagement. The extent of preference was put in as the dependent variable, with the status factors (*Financial Independence*, *Social Status*), ASI and GRCS entered as predictors. Overall, the model was not significant,  $F(4,55) = 1.59$ ,  $p = .189$ . The model is presented in Table 4.7.

**Table 4.7 Models for Predicting Men's Preference for Physical Attractiveness over Resources**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	$\beta$		
(Constant)	-0.50	0.93		-0.54	.592
Financial Independence	-0.03	0.17	-0.02	-0.17	.869
Social Status	-0.31	0.14	-0.29	-2.19	.033
Ambivalent Sexism	0.41	0.25	0.22	1.65	.105
Gender Role Conflict Scale	0.03	0.26	0.01	0.11	.917

#### 4.4.3.3. Men's Effects of Factors on Desirability Ratings for Isoclines

A linear mixed effects model was used to test the effect of salary and attractiveness on men's desirability ratings of the trade-off stimuli for isoclines. Salary and attractiveness levels of the stimuli were entered as fixed effects, participant as random effect, and the desirability as the dependent. Tests of Fixed Effects demonstrated a significant effect of salary,  $F(6,713.43)=11.08.54, p<.001$ , and a significant effect of attractiveness,  $F(6,734.83)=397.90, p<.001$ , on desirability ratings. However, no interaction was found for salary and attractiveness,  $F(36,224.46), F=0.46, p=.996$ . The estimates of the fixed effects are presented in Table 4.6. Men's desirability ratings for the mate stimuli used for calculating isoclines are presented in Figure 4.3. As the data does not demonstrate an interaction of attractiveness and salary, it suggests that the relation between attractiveness and salary is constant. However, these results demonstrate group level effects, and do not represent the trade-off between attributes, particularly at the individual level.

**Table 4.8 Estimates of Fixed Effects for Salary and Attractiveness for Male Participants**

Parameter	95% Confidence Interval						
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	5.96	0.25	130.63	24.19	>.001	5.48	6.45
Salary Level 1	-0.75	0.26	131.74	-2.86	.005	-1.26	-0.23
Salary Level 2	-0.69	0.26	131.67	-2.60	.010	-1.21	-0.17
Salary Level 3	-0.42	0.25	127.74	-1.71	.090	-0.92	0.07
Salary Level 4	-0.22	0.26	129.09	-0.86	.391	-0.73	0.29
Salary Level 5	-0.20	0.25	128.85	-0.80	.424	-0.69	0.29
Salary Level 6	-0.18	0.26	131.57	-0.70	.487	-0.71	0.34
Salary Level 7	0 <sup>a</sup>	0.00					
Attractiveness Level 1	-3.37	0.23	119.57	14.82	>.001	-3.82	-2.92
Attractiveness Level 2	-2.46	0.23	118.36	10.88	>.001	-2.91	-2.02
Attractiveness Level 3	-2.45	0.23	116.03	10.89	>.001	-2.90	-2.00
Attractiveness Level 4	-1.79	0.22	111.52	-8.06	>.001	-2.23	-1.35
Attractiveness Level 5	-1.48	0.23	120.07	-6.39	>.001	-1.94	-1.02
Attractiveness Level 6	0.03	0.28	129.94	0.10	.922	-0.53	0.59
Attractiveness Level 7	0 <sup>a</sup>	0					

<sup>a</sup> Parameter is set to zero because it is redundant

Just as with women's data previously described, as the relationship between salary and attractiveness is constant it was therefore decided to use one isocline for each participant. Trade-offs were calculated in the same manner as for women. If a participant demonstrated no trade-off, they were given a score of 0 (N=33), thus isoclines could be calculated for 64 men. The mean trade-off was 1.01 (SD = 5.21) per unit of attractiveness, but with a range of 37.82. The mean isocline can be calculated to be equivalent to a change of £20,200 (SD=£104,200) per unit of attractiveness.

A linear regression was done to examine whether the magnitude of men's isocline will vary as a function of their status measures, gender role engagement and gender ideology. Overall, the model was no significant,  $F(4,55)=0.85, p=.498$

**Table 4.9 Models for Predicting Men's Isocline Magnitude**

	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	$\beta$	t	
(Constant)	1.66	4.04		0.41	.682
Financial Independence	1.03	0.76	0.18	1.36	.178
Social Status	0.27	0.63	0.06	0.43	.668
Ambivalent Sexism	1.03	1.11	0.13	0.93	.357
Gender Role Conflict	-0.99	1.12	-0.12	-0.88	.383

#### 4.4.4. Inter-sex Differences

##### 4.4.4.1. Mate Preference Ratings

A t-test was conducted to examine the sex differences between the extent to which men and women exhibit preference for physical attractiveness over access to resources. The extent of preference was measured by subtracting the preference score for resources and status from the preference score for physical attractiveness, thus a negative score indicates a preference for preferences for resources over attractiveness. Men exhibited a significantly greater preference for physical attractiveness over resources ( $M=.52, SD=1.32$ ) compared to women ( $M=-.19, SD=1.32$ ),  $t(93)=-3.86, p<.001, d=0.63$ . Levene's test indicated unequal variance ( $F=5.05, p=.026$ ) so degrees of freedom were adjusted from 185 to 93.

#### 4.4.4.2. *Effects of Factors on Desirability Ratings for Isoclines*

A linear mixed effects model was used to test the effect of salary and attractiveness on participants' desirability ratings, and whether this differed between genders. Gender, salary and attractiveness levels of the stimuli were entered as fixed effects, participant as random effect, and the desirability as the dependent. Tests of Fixed Effects demonstrated a significant effect of salary,  $F(6,14774)=13.34$ ,  $p<.001$ , a significant effect of attractiveness,  $F(6,14774)=227.10$ ,  $p<.001$ , and a significant effect of gender,  $F(1,147775)=2017.58$ ,  $p<.001$ , on desirability ratings. There was also significant interaction between the effects of attractiveness levels and gender on desirability ratings,  $F(6,14775)=69.47$ ,  $p<.001$ .

However, no interaction was found for salary and attractiveness, salary and gender, nor salary, attractiveness and gender. The estimates of the fixed effects are presented in Table 4.10. The analysis confirms there is an interaction of gender and attractiveness. As the data does not demonstrate an interaction of attractiveness and salary, it suggests that the relation between attractiveness and salary is constant.

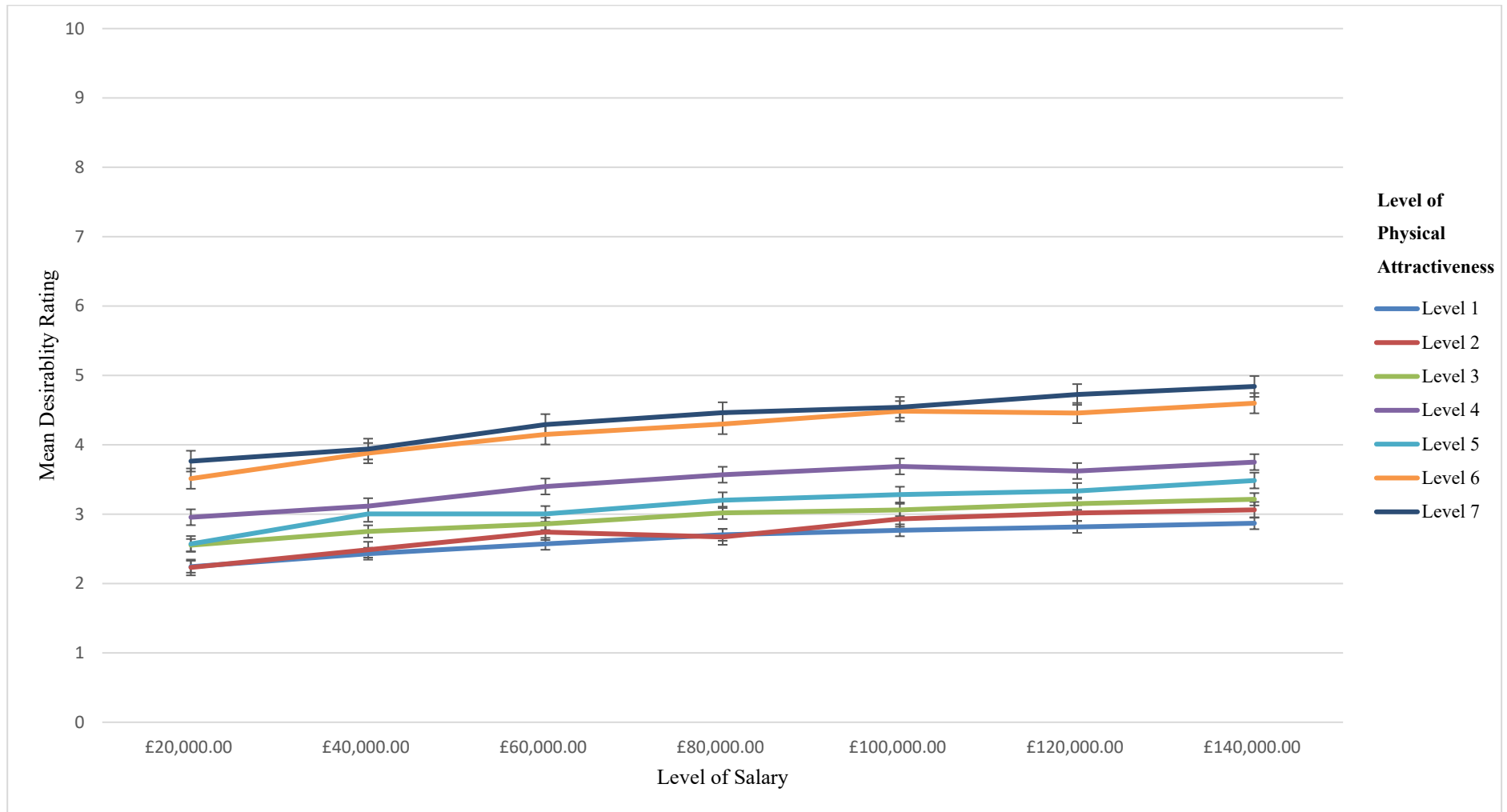
In comparing the isoclines of men and women, an independent t-test was conducted. There was no significant difference between the magnitude of men's isocline ( $M=1.00$ ,  $SD=5.21$ ) and the magnitude of women's isocline ( $M=.94$ ,  $SD=5.37$ ),  $t(186)=-0.09$ ,  $p=.932$ .

**Table 4.10 Estimates of Fixed Effects for Salary, Attractiveness and Gender**

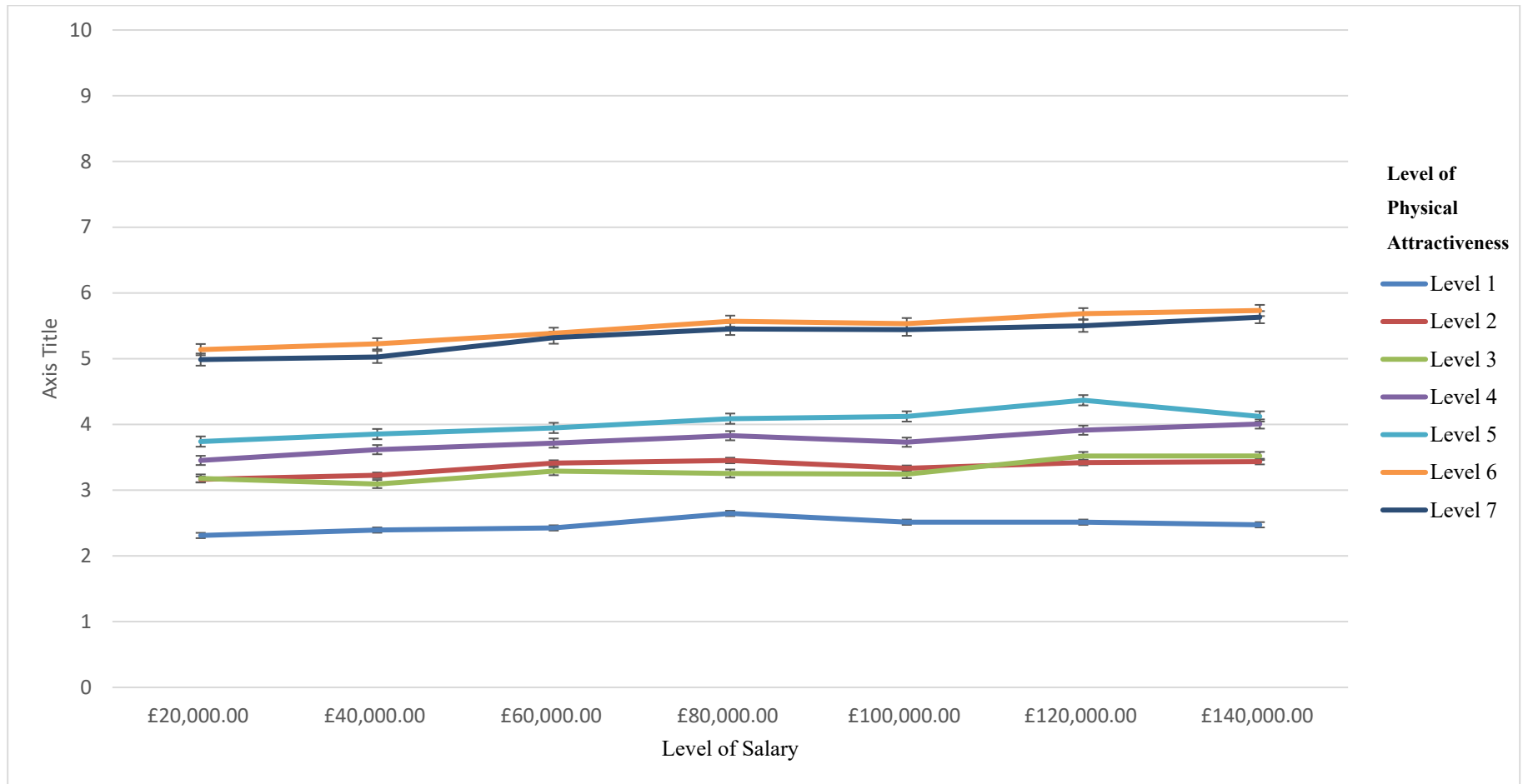
Parameter	95% Confidence Interval						
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	5.97	0.24	14774	24.39	>.001	5.49	6.45
Salary Level 1	-0.77	0.35	14774	-2.21	.027	-1.45	-0.09
Salary Level 2	-0.70	0.35	14774	-2.02	.043	-1.38	-0.02
Salary Level 3	-0.43	0.35	14774	-1.23	.218	-1.12	0.25
Salary Level 4	-0.21	0.35	14774	-0.61	.539	-0.90	0.47
Salary Level 5	-0.20	0.35	14774	-0.58	.564	-0.90	0.48
Salary Level 6	-0.16	0.35	14774	-0.45	.650	-0.84	0.52
Salary Level 7	0 <sup>a</sup>	0	14774				
Attractiveness Level 1	-3.37	0.35	14774	-9.77	>.001	-4.05	-2.70
Attractiveness Level 2	-2.47	0.35	14774	-7.16	>.001	-3.15	-1.79
Attractiveness Level 3	-2.41	0.35	14774	-6.92	>.001	-3.10	-1.73
Attractiveness Level 4	-1.75	0.35	14774	-5.02	>.001	-2.43	-1.07
Attractiveness Level 5	-1.49	0.35	14774	-4.30	>.001	-2.17	-0.81
Attractiveness Level 6	0.03	0.35	14774	0.08	.934	-0.65	0.71
Attractiveness Level 7	0 <sup>a</sup>	0	14774				
Gender: Women	-2.64	0.28	14774	-9.45	>.001	-3.18	-2.09
Gender: Men	0 <sup>a</sup>	0					

<sup>a</sup> Parameter is set to zero because it is redundant





**Figure 4.2** Women's desirability ratings as a function of mates salary and physical attractiveness. The figure shows the linear trends for desirability increases as salary increases for each level of attractiveness. A trade-off can be observed where a horizontal line can be drawn that touches two lines. For example, a horizontal line can be drawn from where desirability equals 4 that touches both the line for attractiveness level 6 and level 7.



**Figure 4.3** Men's desirability ratings as a function of mates salary and physical attractiveness. The figure shows the linear trends for desirability increases slightly as salary increases for each level of attractiveness. A trade-off can be observed where a horizontal line can be drawn that touches two lines. For example, a horizontal line can be drawn from where desirability equals 4 that touches both the line for attractiveness level 4 and level 5.

## 4.5. Discussion

### 4.5.1. Women

It was predicted that women who scored highly on measures of status would also exhibit more masculine behaviour and express more egalitarian views. This hypothesis was not supported. The *Masculine Behavioural Scale (MBS)* was not significantly correlated with either measure of status, though the trend was positive for financial independence and negative for social status. Though the lack of significance indicates that these results should be interpreted with caution, it is still notable that the results are in opposite directions. It could be argued that the results indicate that women who exhibit more masculine behaviours also see themselves as having more power, whereas the opposite is true for prestige. This result is similar to sex differences in status pursuit. As discussed in the introduction chapter, men and women have been found to differ in their pursuit of status (e.g. Hays, 2013). Men tend to pursue power and women tend to pursue prestige. These differences are reflective of gender roles as men and women navigate social hierarchies. There was also a slight positive correlation with the two measures of status and the *Ambivalent Sexism Inventory (ASI)*. The *ASI* captures a gender role ideology that contributes to the maintenance of a social hierarchy that keeps women in a restricted role. Therefore, the lack of a significant correlation suggests that though women may be benefitting from their less restricted roles at a society level, they are not expressing the ideologies that provides them routes to obtaining status, with either financial independence (power) or social influence (prestige). Overall, there does not appear to be a strong link between status, gender role engagement and gender role ideology.

Social Role Theory would suggest there is a relationship between status, gender role engagement and gender role ideology. SRT is premised on men's gender roles having status, and women's roles restricting their access to status. Previous research has demonstrated that status is associated with a range of masculine behaviours and thoughts (e.g. O'Neil, et al., 1986; Piff et al., unpublished, Snell, 1989). Under SRT it was expected that women with status would therefore express more masculine behaviour, and the ideologies associated with the freedom that allows them to break-away from traditional

female behaviour. The lack of significant relationships suggests that gender roles may not be as restrictive as presumed, and that women are still able to obtain power (via education, income, or financial independence as tested in the present study) while still engaging in traditional gender role behaviour.

It was also predicted that the extent of women exhibit preference for physical attractiveness over resources and status on a rating task will increase as women score higher on the Masculine Behaviour Scale, score higher on measures of status, and express egalitarian beliefs as measured with the Ambivalent Sexism Inventory. This hypothesis was also not supported. The overall model produced did not predict the extent of women's preference, thus failing to provide support for Social Role Theory.

Though the overall model was not significant, women's financial independence was a significant predictor of the extent of preference for physical attractiveness over resources on a rating task. This result should be interpreted tentatively. The financial independence predictor suggests that the more financial independence women have, the less they exhibit preference for physical attractiveness over resources. This result goes against previous results by Moore et al. (2006) and Moore et al. (2010). The financial independence factor taps into the power pathway to status. In Moore's original study, only current financial independence was assessed whereas in the current study participant's current and future financial independence was assessed. The decision was made to include both current and future financial independence, as it was recognised that many of the participants would likely be currently enrolled in higher education rather than employed, thus likely to be dependent on financial support in the form of student loans, partners or parents. Moore's research examined current financial control and suggests that as women increase in power, they exhibit greater preference for physical attractiveness over resources (i.e. more male typical preference), providing support for SRT. However, the present study includes future financial independence in the factor and suggests that as women increase in power their preferences become more female-typical, thus not providing support for SRT. As demonstrated in Eagly et al., (2009) a person's vision for the future affects mate

preferences. It is possible then, that the inclusion of future thinking may over-ride the influence of current factors.

The lack of significance in the overall model suggest support for the evolutionary account of mate preferences. Previous research tested the “structural powerlessness” model suggested by SRT (e.g. Buss & Barnes, 1986; Wiederman & Allgeier, 1992), but were not able to find support for it. Instead, evidence suggests that as women gain power and financial independence to the point of parity with men, sex differences become more pronounced (e.g. Lippa, 2010; Schmitt, et al, 2017). The financial independence predictor could be interpreted as reflective of this exaggerated female typical preference.

Further, SRT would suggest that as women move out of traditionally restrictive gender roles they will also move away from traditional mate preferences. The *Masculine Behavioural Scale* taps into many aspects of men’s gender roles such as focus on success dedication and exaggerated self-reliance. Previous research has demonstrated women and men do not differ in engaging with behaviours associated with success dedication and exaggerated self-reliance (Snell, 1989). It is possible that women and men still differ in how they interpret these behaviours. For example, women might strive for success in careers that are lower in cultural status compared to men (e.g. nurses and doctors as in Chapter 2). Therefore, it is possible that that the MBS does not effectively tap into gender role engagement as intended, however, at the time this study was conducted no other measure of gender role engagement was available or deemed suitable. Alternatively, previous research has demonstrated that women who out earn their male partners then begin to lean into traditional gender role behaviours, as demonstrated by evolutionary research previously mentioned. When women out-earn their husbands, they will defer to their husbands in decision making (Tichenor, 2005) and spend considerably more time on household chores (Bittman et al., 2003). This research, along with the results of the present study suggest that as the extent to which women are motivated and able to achieve status, the more they engage in feminine gender roles and mate preferences, counter to what SRT would predict.

It was predicted that magnitude of women's trade-offs as measured by the isoclines will vary as a function of their status measures, gender role engagement and gender ideology. This hypothesis was supported. According to SRT, preferences are predicted based on gender roles and status; suggesting that as women engage in more masculine role behaviour, their preferences become more male-typical. Further, the value a woman places on her mate's resources should vary based on her own resource control, as she increases in resources her preference for physical attractiveness should also increase (Wood & Eagly, 2000). The model demonstrates that women who engage in more masculine behaviour exhibit smaller isoclines, whereas women with more social status exhibit larger isoclines.

The magnitude of the isocline is meant to demonstrate trade-offs by indicating the relative value of one unit of attractiveness for a change in salary, where both options are equally desirable. This is comparable to a choice between 100 pennies or a £1 coin; though both are equal in value, they differ in the number of coins. Someone who is unattractive, but wealthy may have an equal value to someone who is attractive but poor. The model indicates that's women who exhibit more masculine behaviour express smaller isoclines, suggesting that they are willing to accept smaller changes of salary for a unit of attractiveness. The isocline data are difficult to interpret, as they force a trade-off that participants are not explicitly making. Further, they do not indicate preference in the same manner as rating tasks. Additionally, whereas Lazarus & Thorogood (2004) found an interaction of salary and attractiveness, the present study did not. Instead, only main effects exist for salary and attractiveness; with an increased level of each attribute, the participants rated the potential mate more desirable. The lack of interaction suggests the slopes of the attractiveness lines are constant relative to salary levels. Larger isoclines are indicative of flatter slopes in the effect of salary, suggesting that women with more masculine behaviour have stronger effects of salary. Thus, by relating the results of women's isoclines to men's which will be discussed later, it is possible to interpret that the more masculine behaviour a woman exhibits, she exhibits a smaller trade-off as the effect of salary overrides the effect of attractiveness, thus not supporting SRT.

The model also demonstrates that women's social status predicted the magnitude of women's isoclines. The more social status a woman had, the larger her isocline. The social status factor tapped into the prestige route to obtaining status, and is the route preferred by women (Hays, 2013). As women with more social status exhibit larger isoclines, this suggests that they are not as influenced by men's salary in evaluating his desirability. According to SRT, people will exhibit preferences for mates that by maximizing the benefits associated with a mate while minimizing potential costs (Eagly et al., 2004). As these women can obtain a level of status via the route women value more, they may not be looking at men's salary as a means of furthering their own status.

Women's scores on the masculine behavioural scale and social status measure significantly predicted the magnitude of women's isoclines. The directions, however, are opposite of each other and the direction expected based on Social Role Theory. As outlined in the introduction chapter, SRT proposes that to the extent that the individual engage in stereotypical gender roles, people should differ on the extent they value gender-stereotypical attributes. This would suggest that we would expect more masculine women's desirability ratings to not be as impacted by men's income. Further, it would suggest women who obtain status through the feminine prestige route might have a greater impact of income on their desirability, thus producing steeper slopes and shorter isoclines. Instead, the results suggest the opposite. The results are more similar to the results of Conroy-Beam et al., (2015) that demonstrated a negative relationship between sex difference effects sizes and gender equality. Conroy-Beam et al., (2015) argued that their extrapolated data suggests that a society with perfect equality between the sexes would result in greater sex differences. That is, the more status women have the more female-typical their preferences would be. As women who exhibited more masculine behaviour could be interpreted as exhibiting more female-typical preference, yet women with more social status exhibited less strength of preference for income, it would suggest that women's mating may be influenced by their gender role engagement but in that the less concerned with female-typical measures of status, she is free to be more female typical

#### 4.5.2. Men

It was predicted that men who scored highly on measures of status would also exhibit more masculine behaviour and express more egalitarian views. This hypothesis was moderately supported. The measures of status did not relate to gender role ideology or gender role conflict. Gender Role Conflict and gender role ideology as measured by the Ambivalent Sexism inventory, however, were significantly positively correlated. Men who expressed more gender role ideology also held more traditional gender role ideologies, replicating past studies (e.g. Blazina & Watkins, 2000). Men's gender role conflict relates to their conformity of gender role expectations. Conforming to these expectations helps men maintain social hierarchies (Rudman, et al, 2012), which places them in a position of power. The Ambivalent Sexism Inventory taps a belief of competition the sexes for control and status within society, correlating with other measures of intergroup competition (Christopher & Mull, 2006). Further, the inventory also taps into perceptions that women are meant to be cherished and protected by men. The relation between the Gender Role Conflict Scale and Ambivalent Sexism scale, indicates a mutual expectation of gender role conformity for both sexes.

The lack of correlation between the Gender Role Conflict and status measures could be function of the sample. Men are expected to be completely self-reliant as well as acquire resources and status to compete for mate and provide for a family (Levant, 1996), so a relationship was anticipated. Despite efforts to broaden the participant pool, the sample of men consisted almost exclusively of men enrolled in higher education. While education can provide status and access to resources, enrolment in education does not provide power (as measured by financial independence) itself. Conversely, men do not value prestige as much as power, and the lack of value could explain why the social status factor did not relate to the Gender Role Conformity Scale as it is not considered a main factor of masculinity.

It was hypothesized that the extent men exhibit preference for physical attractiveness in women over her status would be predicted by his status, gender role engagement and ideology. This hypothesis was not supported, however. The lack of significant predictors was surprising as previous research has demonstrated that men's preference for physical



attractiveness is predicted by sexism (Chen, et al., 2009; Swami et al., 2010; Swami & Tovée, 2013; Travaglia et al., 2009). Further, research suggests that gender role engagement, or at least the expectation of traditional engagement, leads to greater sex-typical preference (Eagly, et al., 2009; Eastwick et al., 2006). Within the model, the Social Status factor was significant, which could suggest some reverse gender-typical preferencing. The result suggests that an increase in men's self-perceived social status relates to less preference for physical attractiveness over resources. The social status factor represented a "female" typical route of status. Thus, it could be cautiously interpreted that men who exhibit female-typical status exhibit female-typical mate preference, suggesting an alternative mating strategy. This result could provide some support Social Role Theory. However, due to the lack of significance of the other social factors under review, such a claim would verge onto rich interpretation.

It was hypothesised that the magnitude of men's trade-offs under the isocline methodology would be predicted by measures of status, gender role conflict and ideology. This hypothesis was not supported. EP suggests that women face a trade-off and SRT suggests that women may exhibit more 'male-typical' mate preferences as they reach parity with men, there should be a complimentary effect in which men's mate-preferences variate as well. Based on this line of inquiry, it was predicted that men's gender role ideology, gender engagement and status would predict the extent of their trade-offs and preferences. However, in the results, men's trade-offs between women's physical attractiveness and salary was not predicted by their attitudes and beliefs surrounding gender, nor their status. Accordingly, therefore the hypothesis of this study was not supported. The inability to predict men's trade-offs based on gender ideology and role conformity is particularly surprising as studies have found that these factors influence mate preferences, particularly in women (e.g. Eagly & Wood, 1999; Eastwick et al., 2006), although there is still a paucity of research into men's trade-offs which is not the same as preference.

In addition to the overall model not predicting isocline magnitude, no individual factor produced a significant result. This is not to say that men were not affected by the different levels of salary or attractiveness, as the linear mixed effects model demonstrated main

effects for each attribute. In reviewing the data and Figure 4.3, however, it is notable that the effect of salary was not as strong as the effect of attractiveness. Research shows there are benefits for men who have partners contributing financially to the household (e.g. Coltrane, 1997; Covin & Brush, 1991; Gerson, 1993; Hunt & Hunt, 1987; Kimmel, 1998), and the men in this study may be sensitive to this. Further, the data demonstrates a general increase in desirability with salary. As the sample of male participants largely consists of students, it is unlikely that the participants were earning more than £40,000 themselves. This makes the results slightly inconsistent with previous research, demonstrating that men prefer women with lower SES relative to themselves (Greitemeyer, 2007), however this result was a product of education rather than income. Therefore, it could be argued that men are not disinterested in women who earn more money than themselves, but instead are just not as influenced by women's status in their mate preferences. This follows the evolutionary approach to mate preferences, as SRT would suggest that some social influence on mate preferences.

#### **4.5.3. Overall Discussion**

The purpose of the present study was to examine the relationships between status, gender roles and mate preference trade-offs. Both intra-sex and inter-sex differences were examined. Further, the study utilised the novel isocline methodology. It examined intra-sex variation in the equivalency value between physical attractiveness and resource attributes and then examined inter-sex differences. Examining men and women separately revealed the variance of the equivalency trade-off between income and attractiveness could not be predicted. The comparison also revealed that there was no difference in men and women's trade-off equivalency, but these sex differences were found in the rating tasks. The sex differences found in the rating tasks replicate much previous work demonstrating men exhibit a greater preference for physical attractiveness over resources in mates (e.g. Buss, 1989).

Gangestad (1993) suggested the optimal solution in a trade-off would be dependent on the society and participation in the workforce while Eagly, Eastwick, and Johannesen-Schmidt (2009) demonstrated that sex differences diminished when men and women were in the

same role. The present study did not find that gender role engagement impacted equivalency variation nor were there sex differences in equivalency. Instead, the present study seems to indicate that there may be a 'universal' value to attractiveness. Indeed, previous research demonstrate a high degree of agreement in men's and women's attractiveness judgments (Stephen, & Perera, 2014). Men and women may value physical attractiveness equally, and this value does not vary depending on status. However, this is not to say that men and women would make the same choice (e.g. the income or the attractiveness).

Previous research has investigated the link between women's status and the extent of their preference for mate's physical attractiveness and mate's resource attributes (Moore et al., 2010; Wiederman & Allgeier, 1992; Zentner & Mitura, 2012), leading to mixed results. The results demonstrated women have a significantly higher preference for men's resource traits over their physical attractiveness, and the reverse for men. Comparative analysis revealed that women prefer resource attributes more than men, but there was no difference for physical attractiveness. These findings are comparable to previous research such as those found by Buss (1989). Similarly, Eastwick and Finkel's (2008) study found preferences were in line with evolutionary predictions, where women stated a higher preference for mate's earning potentials but did not find that the self-reported preferences reflected the mate choices. The present study did not investigate if a person would choose the increase in income for a decrease in attractiveness over an increase in attractiveness for a decrease in income. For example, a participant may be presented with one potential mate with an attractiveness of "1" and an income of £50,000 and another potential mate with an attractiveness of "7" and an income of £15,000. While these two mate choices may have similar desirability, it is not clear under a force-choice option which mate a participant may choose. As there is no difference in equivalency values, men may choose the mate with a higher physical attractiveness whereas women may choose the mate with a higher income. This forced choice option would counter the discrepancies between stated preferences versus choice (Eastwick & Finkel, 2008). In the future, studies could examine sex differences and variation in trade-offs through choices rather than through ratings.

#### 4.5.4. Limitations and Future Directions

One limitation to the methodology used in this chapter was that there may be several issues with using the isocline approach. While the method may not be as cognitively taxing for participants as a point allocation, as a means of examining trade-offs for the researcher, the isocline methodology is difficult to interpret. As discussed in relation to women's results, the isocline interprets a trade-off made where participants are not explicitly making one. The method as outlined by Lazarus and Thorogood (2004) is intended to find the equivalency value in income per unit of attractiveness. While this is technically achieved, the standard deviations and range of scores generated are so wide that significant sex differences were not found. It is possible as discussed that men and women do not differ in their value of attractiveness, however, as sex differences were found in the rating task and robustly throughout literature it is more likely that the lack of difference is a product of a faulty method.

A further issue with the isocline methodology is that it may restrict the variability it was presumed to allow for. While the isoclines for participants that could be calculated utilising the approach as outlined by Lazarus and Thorogood (2004) were analysed, this method may actually be reducing individual variation and excludes many participants from analysis. This is because many participants would rate the same desirability for an attractiveness level at different salary levels. This problem arose because it was assumed that, as the group produced linear relations between attractiveness and salary for desirability, trade-offs would be calculated as though the individual participants also produced linear relations between attractiveness and salary. However, in both male and female participant groups, many of the individuals did not produce linear relations in their desirability scores for attractiveness and salary. Therefore, isoclines may be inappropriate for examining individual variation.

Lastly, it should be noted that the isoclines were calculated from desirability ratings of a stimuli. The salary levels of the stimuli (i.e. £20,000-£140,000) is a considerably large range of salaries. As many of the participants were students, it is possible that these figures did not represent meaningful income levels that relate to life expectations (Eastwick et al.,

2006). Future research may wish to reduce the range of incomes, for example starting at £10,000 and increasing by intervals of £5,000. This could potentially improve the ecological validity of the method.

In the rating task, the present study did not produce similar relationships between gender role ideology and engagement as previous studies. This result indicates support for the EP as it “does not assume a relationship between preferences for certain qualities in a mate and gender ideology” (Eastwick et al., 2006, p. 612). It is possible that the measures of gender role engagement were inappropriate for the purpose. In designing the present study, other measures were considered but deemed not appropriate. The Sex Role Inventory (Bem, 1974) does not measure masculine/feminine traits within an individual but is measure of cognitive constructs derived from gender roles (Thompson et al., 1992). The Personal Attributes Questionnaire (Spence & Helmreich, 1978) measure of expressive personality attributes rather than gender role tendencies. The scales used in the present study were selected as they examine behavioural elements of gender role performance. As women breach gender roles more easily, it may be that some of the behavioural measures within the scale are no longer considered masculine. As discussed in Chapter 2 about the potential out-dated nature of the Ambivalent Sexism Inventory, it is possible that the measures of gender role engagement need a contemporary update to reflect modern roles. Lastly, future studies may wish to give both men and women a single gender-role engagement questionnaire for better comparative analysis.

## **Chapter 5. Study 4: Meta-Stereotype Awareness and Mate Preferences**

### **5.1.1. Introduction**

Previous research in testing Social Role Theory has largely been correlational (e.g. Kasser & Sharma, 1999; Wiederman & Allgeier, 1992; Zentner & Mitura, 2012). Experimental studies did not manipulate women's sense of individual status but rather made their current societal status salient (e.g. Moore & Cassidy, 2010). Due to the link between mate preferences and gendered stereotypes (as discussed in section 1.3.2) as well as the link between gendered status and stereotypes (as discussed in section 1.5.3), the present study attempts to make women's societal status salient using meta-stereotype awareness.

### **5.1.2. Stereotype Content and Meta-Stereotype Awareness**

Fiske, Cuddy, Glick, and Xu (2002) argued the content of stereotypes follow systemic principles and can be predicted based on two variables in intergroup relations: status and competition. The content of the stereotypes can then be captured along two dimensions: warmth and competence. The relation of status and competition, with warmth and competence is illustrated in Table 5.1. Those with low status are seen as not competent and non-competitive but warm, whereas those with high status are seen as competent and competitive but not warm. The dimensions of warmth and competence map onto the outgroup member's perceived goals and capability to carry out these goals. The different combinations of stereotypic warmth and competence result in different prejudices towards different groups. For out-groups that are considered subordinate and non-competitive (e.g. the disabled), the stereotypes are high in warmth but low in competence thus maintaining the in-group's supremacy and lead to feelings of pity. Conversely, out-groups that are high status and competitive (e.g. the wealthy), the high levels of competence justify the systemic hierarchy, but the low levels of warmth justify the animosity. Lastly, out-groups that are neither warm nor competent are the targets of contempt (e.g. welfare recipients).

**Table 5.1 Four Types of Out-Groups, Combinations of Status and Competition, and Corresponding Forms of Prejudice as a Function of Perceived Warmth and Competence (Adapted from Fiske, Cuddy, Glick, and Xu, 2002)**

Warmth	Competence	
	Low	High
High	Low Status and Non-Competitive e.g. The Disabled, Housewives	High status and Non-Competitive e.g. Ingroup Allies
Low	Low Status and Competitive e.g. Welfare Recipients	High Status and Competitive e.g. The Wealthy, Feminists

The two stereotype dimensions of warmth and competence are present in perceptions of women. Women who exhibit behaviour or attitudes that are incongruent with traditional gender roles (e.g. career women, feminists, lesbians, athletes) are perceived to be competent but not warm, whereas women who engage in gender role congruent behaviour are perceived as warm but not competent (e.g. housewives; Eckes, 1994; Haddock & Zanna, 1994). The attitudes and content of stereotypes directed at women map directly onto the Ambivalent Sexism (Glick & Fiske, 1996, Glick et al., 2000) that view women in either a patronising manner or as in competition with men for control and status. These stereotypes are particularly important as they carry a cognitive component, are used to justify behaviour towards others, and reinforce social gender roles and inter-gender relations.

Meta-stereotypes refer to the awareness and beliefs about the stereotypes held by the out-group about the in-group and the evaluation of those stereotypes (Vorauer, 2006). Meta-stereotype awareness can impact thoughts and induce negative emotions such as lowering self-esteem (Vorauer, Main, & O'Connell, 1998) and increased anxiety (Johns, Schmader, & Martens, 2005). Meta-stereotype awareness can also impact behaviour, leading to various outcomes depending on the situational context and the salient stereotype. For example, a woman may be aware of the stereotypes men hold about women, and thus choose to act in a manner that deliberately avoids confirming a stereotype, so long as they are motivated and effectively able to suppress stereotypic and anxious thoughts that are

inconsistent with their goal (Schmader, Johns, & Forbes, 2008). Furthermore, meta-stereotype awareness impacts intergroup relations (Klein & Snyder, 2003) as those with an increased awareness of stereotyping are less willing to interact with individuals from out-groups, particularly if they violate stereotypical norms (Duguid & Thomas-Hunt, 2015). Though gender is a social identity group, little research has examined the issues surrounding how meta-stereotype awareness impacts women's interaction with men and how this impacts their mate preferences.

### **5.1.3. Benevolent Stereotypes Impact**

Subjectively positive stereotypes on one dimension (e.g. warm) do not diminish prejudice but instead, are functionally consistent with the negative stereotypes on the other dimension (e.g. competence). A component of Benevolent Sexism is the idea of protective paternalism (Glick & Fiske, 1996), a belief that infantilises women. Women are seen as unable to care for themselves and require others to care for them. Benevolent sexism is endorsed and encouraged in many ways. When one person provides help there is a clear and implicit power dynamic (van Leeuwen & Täuber, 2011), that acts as a reminder that one person is inferior and dependent upon another (Nadler & Halabi, 2006). This is particularly true when the situations tap into pre-existing gender role norms, for example, men avoiding or refusing help as an aspect of their masculine identity (Addis & Mahalik, 2003; Boldero & Fallon, 1995; Cleary, Mechanic, & Greenley, 1982; Garland & Zigler, 1994; Lee, 2002; Phillips & Segal, 1969; Rickwood & Braithwaite, 1994; Seymour-Smith, Wetherell, & Phoenix, 2002). Despite research examining how meta-stereotype awareness impacts behaviour, there is a limited amount of research exploring how women navigate situations where they are faced with benevolent sexism. This could be due to the perceived harmlessness of benevolent sexism, though the knowledge of sexist beliefs in others can still be distressing (Johns, et al., 2005; Vorauer, et al., 1998).

A study by Wakefield, Hopkins, and Greenwood (2012) examined how women may alter their help-seeking behaviour when faced with benevolent sexism. Utilizing meta-stereotypes (where exposure to sexist beliefs leads women to think about their gender identity and how the stereotypes apply to them, Vorauer, 2006), the researchers had participants come into a lab to perform an experiment involving a word scramble where the



participants could seek help from other players online. The experiment was interrupted at the start, with a fake phone call from the female experimenter's plumber. The experimenter would act annoyed towards the plumber on the other end of the phone, for having moved some boxes to gain access to a pipe. After finishing the fake phone call, the experimenter would make a comment to the participant about how her plumber as either an impatient man (neutral condition) or a sexist man (priming condition). They found that female participants in the sexist condition were less willing to accept help from the online players when they were primed with the stereotype that women need a man's help for certain tasks (e.g. heavy lifting of boxes). Wakefield et al. (2012) and a few other researchers (e.g. Barreto & Ellemers, 2005; Dumont, Sarlet, & Dardenne, 2010; Moya et al., 2007) have thus begun to establish the negative effects of benevolent sexism and women will often struggle when faced with explicit sexist ideas (Swim & Hyers, 1999). These studies though have neglected the possibility that women may endorse or benefit from sexist gender role ideologies.

#### **5.1.4. Summary and Hypotheses**

In summary, due to the status of women in society, stereotypes can portray women as incompetent and in need of protective paternalism (Fiske et al., 2002). Research has demonstrated the link between benevolent sexism ideology and mate preferences; when women hold more traditional gender values and benevolent sexist ideas, they have more of a preference for men's status/resources (e.g. Travaglia, Overall, & Sibley, 2009). Previous research, however, did not present the sexist ideology in a manner that may have made it saliently sexist, nor did these studies have sexism either be endorsed or rejected by another woman. Furthermore, little to no research examines how meta-stereotype awareness impacts intergroup relations (Klein & Snyder, 2003), let alone how they might impact women's mate preferences. The present study examines how meta-stereotype awareness may impact mate preferences and trade-offs. The study will use a modified version of the paradigm used by Wakefield et al. (2012) to manipulate women's meta-stereotype awareness, with the stereotypes either being endorsed or rejected. Furthermore, though isoclines demonstrated to have many limitations in Chapter 4, the present study was conducted at the same time as the study presented in Chapter 4. The present study replicates

the isocline methodology to further test its efficacy as a means of measuring trade-off values and whether this value can be manipulated.

The following hypotheses will be tested:

**Hypothesis 1:** as women may choose to distance themselves from stereotypes (Schmader, Johns, & Forbes, 2008), the women in the low competence condition (i.e. stereotype endorsement) will express lower sexism scores than those in the high competence condition (i.e. stereotype rejection).

**Hypothesis 2:** women in the low competence condition will anticipate higher financial independence and social status in the future as a way of further distancing themselves from the stereotypes associated with women's competence and dependence

**Hypothesis 3:** women in the low competence condition will express greater preference for physical attractiveness over resources compared to those in the other condition

**Hypothesis 4:** women in the low competence condition will have a higher equivalency trade-off values under the isocline methodology

## 5.2. Method

### 5.2.1. Participants

The present study involved two stages of testing with a 2-week time delay. Female undergraduates studying at the University of Dundee were recruited for the present study and took part in exchange for participation credit towards their studies. The first phase of testing was conducted via an online survey. The second phase of testing took place in a lab. The first phase of testing recruited a total of 161 female participants. When participants returned for the second phase of testing, they were randomly allocated to one of two conditions. Data from participants that did not return for the second phase ( $n=76$ ), as well as from non-heterosexuals ( $n=7$ ) were excluded. Of the remaining 78 participants (age:  $M=19.07$ ,  $SD=1.49$ ), 37 were randomly allocated to the high competence condition and 41 were allocated to the low competence condition. Seventy-two of the participants were from the UK, two from Germany, two from Finland, one from Denmark and one from Columbia. At the time of the second phase of testing, 39 of the participants were not in a relationship, six were in casual relationships, and 32 were in serious relationships.

## 5.2.2. Measurements

### 5.2.2.1. *Ambivalent Sexism Inventory*

The Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) was included (see 2.2.2.3 for further description) as a measurement of the participants' gender role ideology. Each participant received two scores from the Ambivalent Sexism Inventory: A Benevolent Sexism (BS) and Hostile Sexism (HS) score. Items were rated on a 5-point Likert scale from 0- Disagree Strongly to 5- Agree Strongly. The scale is presented in Appendix 3. The two subscales demonstrate reasonably good reliability both at pre-test phase (Cronbach alpha for BS=.78, HS= .86) as well as in the post-test phase (Cronbach alpha for BS=.80, HS=.90)

### 5.2.2.2. *MacArthur Scale of Subjective Social Status*

The MacArthur Scale (Goodman et al., 2001) was re-used from Chapter 3 (see section 3.2.2.2.1). This scale asks participant to rate themselves on their level of social status and financial independence at the time of the study and in the future.

### 5.2.2.3. *13-item partner preference task*

Mate attribute preferences were measured by participants rating 13 mate attributes (Buss et al., 1990; Buss & Barnes, 1986) as described in Chapter 4 (see section 4.4.3.3). As described in Chapter 4, two variables were created; preference for mate's prospective status and resources and preference for mate's physical attractiveness.

### 5.2.2.4. *Mate stimuli for Isoclines*

The mate stimuli for calculating isoclines from Chapter 4 were used (see section 4.4.3.5). The stimuli consisted of portrait photos of men, approximately between the ages of 18-25. These faces were previously rated for attractiveness (on an ordinal scale 1 = not at all attractive, 7 = extremely attractive). Each photo was paired with an income. Two different photos were used for each level of attractiveness and income to capture any individual preferences that may exist in the participants (7 levels of attractiveness x 7 levels of income x 2 faces) leading to a total of 98 photo stimuli.

#### **5.2.2.5. Competence Perceptions Measure**

A scale measuring participant's perceived level of competence was created based on a pilot study. Sixteen females and 14 males between the ages of 18-24 (with two males between 25-34) were asked a series of open-ended questions. The first question asked what it means for a person to be independent, and then if there were specific attributes, skills or knowledge that were required in order to be independent. The results were then thematically analysed. The results suggest that competence was essential in order to live independently (e.g. many participants referenced to carry out tasks and make choices without help from others). The specific skills needed focused on several central themes. The ability to earn an enough income was the most reoccurring theme, followed closely by the theme of budgeting (both time and money). The next common reoccurring theme was domestic chores. Many participants referenced the ability to cook and clean (some additionally commenting about the caring for health in these contexts). The next theme to emerge was the ability to make decisions without the input from others, followed by mechanical skills and the ability to use tools. A total of 17 items were generated to tap into the themes, such as "Be able to repair your car including changing a tyre and the oil" and "Be able to make decisions and have goals without consulting others". Participants rated each item from "1- I would not be able to do this" to "7 - I can definitely do this". Overall, scale demonstrated a good level of reliability (Cronbach's alpha = .84) and participants scored were averaged together to one competency perception score.

#### **5.2.3. Manipulation**

After the participants completed the online version of the study, they were then asked to return to repeat the study two weeks later in the lab. The experimental condition was a modified version of the methods used by Wakefield et al. (2012), with two conditions. Participants were brought into the lab, sat at individual computers with the online survey. The participant information and consent were given through the survey, just as before. Once all the participants had provided consent, they began to fill out the survey they previously completed online; however, this process was disrupted when the experimenter's phone began to ring. The experimenter claimed it is her landlord and asked the participant to stop for a moment while she took the call. The experimenter recited one of two possible

scripts. The different scripts acted as the different condition primes. One script had the experimenter upset and explain to the participant that the landlord is sexist and believes that women are unable to do certain tasks (in the script, unclog a drain), while another script had the experimenter express gratitude that men were able to do these things for her. These act as the high competence and low competence conditions, respectively. The phone call used a voice recording of the “landlord’s” voice, which participants may have been able to overhear (depending on the environmental noise levels and participant’s hearing).

#### **5.2.4. Procedure**

Participants completed the first phase of testing via a web link which brought them to the online survey. The survey asked participants to include a personal email address to provide consent. The email was later used to match the data to the participant between the two testing phases. The survey then continued with a battery of questionnaires. Under the pretext of the online system having lost their data, participants were contacted via email and invited to come into the lab to repeat the experiment approximately two weeks after completing the online survey for additional course credit. They were told that the study was moved into the lab to ensure that the data saved properly.

Participants were tested in a large lab setting at the same time in the experimental phase of the study. Each testing session contained between 2-15 participants. Participants were brought into the lab, sat at individual computers with the online survey. The participants’ information and consent were given through the survey, just as before. Once all the participants had provided consent, they began to fill out the demographic information at the start of the survey; however, this process was disrupted when the experimenter’s phone began to ring. The experimenter then recited one of the manipulation scripts. Once the script was completed, the participants would continue with the survey. All participants were debriefed after the study was concluded.

### **5.3. Results**

#### **5.3.1. Competence Perceptions Measure**

An independent t-test was used to examine if the manipulation introduced in the testing phase impacted participant’s perception of their own competency. The test demonstrated

the mean competency score for the Low Competence condition ( $M=5.43$ ,  $SD=.82$ ) did not significantly differ from the High Competence condition ( $M=5.15$ ,  $SD=.91$ ),  $t(76)=-.97$ ,  $p=.337$ .

### **5.3.2. Ambivalent Sexism Inventory**

Two scores were generated for each participant for each phase of testing from the Ambivalent Sexism Inventory, a Benevolent Sexism and Hostile Sexism score. This was done by adding the score of items together, with some items reversed scored. A mixed-model ANOVA was conducted to examine the differences in scores within the two testing phases as well as between the two conditions with the means presented in Table 5.2. The participants from the High Competence condition scored lower on the Benevolent Sexism Scale in both the pre-test and the post-test phase, however, the main effect of experimental condition was not significant,  $F(1,76)=.21$ ,  $p=.651$ . The main effect for testing phase was also not significant for Benevolent Sexism scores,  $F(1,76)=.06$ ,  $p=.881$ , nor was there an interaction between testing phase and experimental condition,  $F(1,76)=.34$ ,  $p=.564$ .

Though the participants in the High Competence condition scored lower on the Hostile Sexism Scale as well, there was no significant main effect of condition,  $F(1,76)=.51$ ,  $p=.476$ . Similarly, there was no main effect of test phase on Hostile Sexism scores,  $F(1,76)=.20$ ,  $p=.654$ . There was no significant interaction of conditional and time phase,  $F(1,76)=.31$ ,  $p=.579$ .

**Table 5.2 Means Scores for Ambivalent Sexism Inventory**

Dependent Variable	Manipulation	Mean	SD
Benevolent Sexism (pre-test)	High Competence	2.44	0.70
	Low Competence	2.48	0.67
	<i>Total</i>	2.46	0.68
Benevolent Sexism (post-test)	High Competence	2.31	0.83
	Low Competence	2.46	0.70
	<i>Total</i>	2.39	0.76
Hostile Sexism (pre-test)	High Competence	2.44	0.70
	Low Competence	2.48	0.67
	<i>Total</i>	2.46	0.68
Hostile Sexism (post-test)	High Competence	2.31	0.82
	Low Competence	2.46	0.70
	<i>Total</i>	2.39	0.76

### 5.3.3. Financial Independence and MacArthur Scale of Social Status

Six measures were analysed to measure the manipulation of perceived social status and financial independence. Participants reported how financially independent they believe they currently are and how independent they will be in the future, as well as their current social status and future social status. The current scores were subtracted from the future scores. The means are presented in Table 5.3 for subjective social status and Table 5.4 for financial independence.

A mixed-model ANOVA was used to examine the differences in subjective status scores within the two testing phases as well as between the two conditions with the means presented. For participants' future subjective status, there was no main effect of test phase,  $F(1,76)=2.01, p=.160$ . There was no significant main effect of condition on future status scores,  $F(1,76)=1.17, p=.284$ . There was no significant interaction between test phase and condition,  $F(1,76)=.70, p=.405$ .

For participants' current subjective status, there was no main effect of test phase,  $F(1,76)=.37, p=.547$ . There was no significant main effect of condition on current status

scores,  $F(1,76)=.38, p=.542$ . There was a significant interaction between test phase and condition,  $F(1,76)=5.92, p=.017, \eta_p^2=.07$ , in which the High Competence group rated their current subjective status higher in the pre-test whereas the Low Competence group rated their current subjective status higher post-test.

There was no main effect of test phase on the difference in subjective status scores,  $F(1,76)=.56, p=.456$ . There was no main effect of experimental condition,  $F(1,76)=.14, p=.711$ . There was no interaction of test phase and experimental conditions on the difference in current and future subjective status,  $F(1,76)=1.75, p=.189$ .

**Table 5.3 Means of MacArthur Subjective Status Scale**

	High Competence		Low Competence	
	Mean	SD	Mean	SD
Future Social Status (pre-test)	5.51	.84	5.27	.87
Current Social Status (pre-test)	3.98	.99	3.66	1.04
<i>Difference (pre-test)</i>	1.54	.80	1.61	.74
Future Social Status (post-test)	5.32	.67	5.22	.82
Current Social Status (post-test)	3.73	.87	3.80	.81
<i>Difference (post-test)</i>	1.59	.72	1.41	.84

A mixed-model ANOVA was used to examine the differences in Financial Independence within the two testing phases as well as between the two conditions. For participants' future Financial Independence, there was no main effect of test phase,  $F(1,76)=.03, p=.865$ . There was no significant main effect of condition on future Financial Independence,  $F(1,76)=.11, p=.740$ . There was no significant interaction between test phase and condition,  $F(1,76)=.03, p=.865$

For participants' current Financial Status, there was no main effect of test phase,  $F(1,76)=.79, p=.376$ . There was no significant main effect of condition on current Financial Independence scores,  $F(1,76)=.25, p=.618$ . There was a significant interaction between test phase and condition,  $F(1,76)=.42, p=.519$ .



There was no main effect of test phase on the difference in current and future Financial Independence scores,  $F(1,76)=.56, p=.456$ . There was no main effect of experimental condition,  $F(1,76)=.14, p=.711$ . There was no interaction of test phase and experimental conditions on the difference in current and future subjective status,  $F(1,76)=1.75, p=.189$ .

**Table 5.4 Means of Measure of Financial Independence**

	High Competence		Low Competence	
	Mean	SD	Mean	SD
Future Financial Independence (pre-test)	6.30	.85	6.34	.91
Current Financial Independence (pre-test)	3.46	1.59	3.22	1.53
<i>Difference (pre-test)</i>	1.54	.80	1.61	.74
Future Financial Independence (post-test)	6.27	.87	6.34	.73
Current Financial Independence (post-test)	3.49	1.77	3.39	1.34
<i>Difference (post-test)</i>	1.59	.72	1.41	.84

#### **5.3.4. Mate trait preferences**

In the analysis of the 13 mate items (see Buss et al., 1990; Buss & Barnes, 1986), two traits were calculated. The first was the mate's prospective status/resources created by combining *Good Financial Prospect, Ambition & Industriousness*, and *Education & Intelligence*. The second trait was the mate's physical attractiveness, combining the items *Good Looks, Attractiveness* and *Good Health*. A mixed-model ANOVA, examining the differences within the two traits and testing phase, and between conditions, revealed that there was no significant main effect of test phase on mate preference,  $F(1,74)=.62, p=.432$ . There was also no main effect of experimental condition,  $F(1,74)=.82, p=.367$ . There was a significant difference in trait preference, with physical attractiveness scoring higher than status and resources as presented in Table 5.5,  $F(1,74)=20.68, p<.001, \eta_p^2=.218$ .

There was no significant interaction of testing phase and condition on mate preferences  $F(1,74)=.06, p=.814$ . There was no significant interaction of trait preference and condition,  $F(1,74)=.64, p=.425$ . There was no significant interaction of trait preference and testing phase,  $F(1,74)=.69, p=.409$ . There was no significant interaction for testing phase, trait preference, and experimental condition,  $F(1,74)=.03, p=.868$ .

**Table 5.5 Mean Mate Preferences**

	High Competence		Low Competence	
	Mean	SD	Mean	SD
Mate's Status & Resources (pre-test)	15.00	2.35	14.75	3.74
Mate's Status & Resources (post-test)	15.36	2.31	15.03	3.54
Mate's Physical Attractiveness (pre-test)	16.33	1.97	15.75	3.18
Mate's Physical Attractiveness (post-test)	16.53	1.86	15.78	2.82

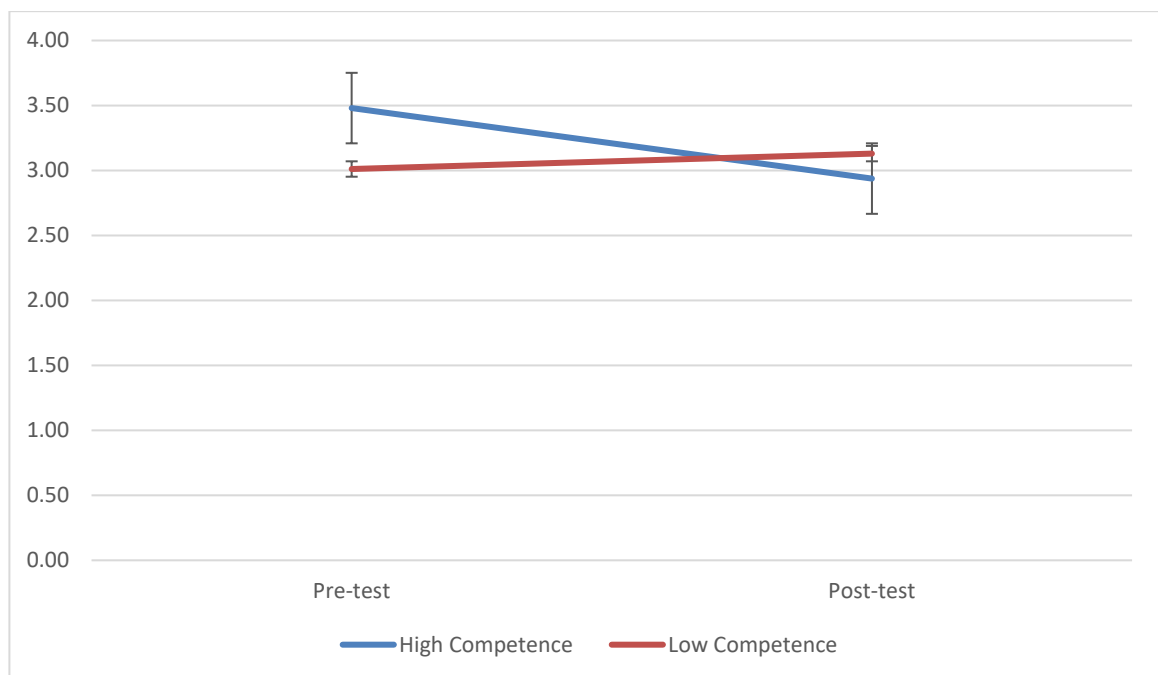
### **5.3.5. Effects of Factors on Desirability Ratings for Isocline trade-off between physical attractiveness and salary**

The same analytic procedure for examining isoclines was followed in the present study as was described in Study 3 (see section 4.4.2.3). The desirability scores for each face-pair per level of attractiveness were averaged together.

A linear mixed effects model was used to test the effect of salary and attractiveness on women's desirability ratings of the trade-off stimuli for isoclines. Condition (High Competence or Low Competence), time (pre-test or post-test), salary and attractiveness levels of the stimuli were entered as fixed effects, participant as random effect, and the desirability as the dependent. The Type III Tests of Fixed Effect demonstrated a significant effect of salary,  $F(6,7350)=25.57, p<.001$ , and a significant effect of attractiveness,  $F(6,7350)=140.16, p<.001$ , on desirability ratings. There was also a significant effect of testing phase,  $F(1,7350)=31.67, p<.001$ , and condition,  $F(1,7350)=13.49, p<.001$  on desirability ratings.

The Type III Tests of Fixed Effect shows an interaction effect of attractiveness level by testing phase was demonstrated  $F(6,7350)=41.56, p<.001$ . Tests of Fixed Effect also demonstrated an interaction of testing phase and condition,  $F(1,7350)=76.98, p<.01$ , illustrated in Figure 5.1. However, no other interactions were found.

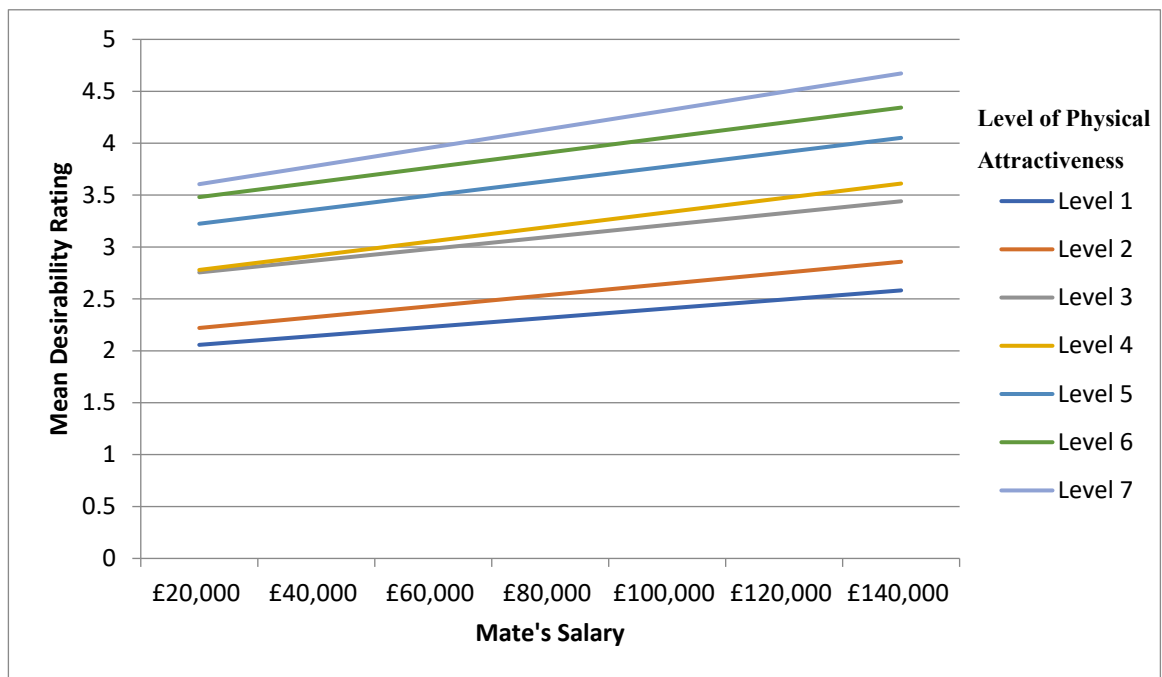
The Estimates of the Fixed Effects are presented in Appendix 13. As in Study 3 the data does not demonstrate an interaction of attractiveness level and salary, suggesting that the relation between attractiveness and salary is constant.



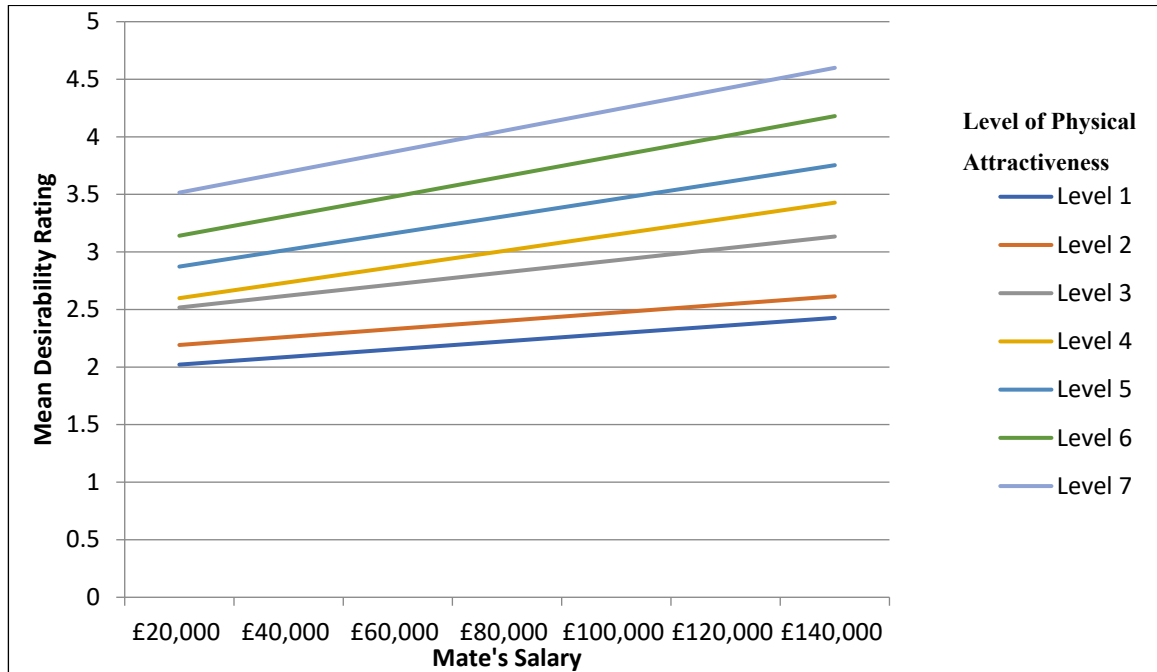
**Figure 5.1 Mean Desirability Ratings as a Function of testing phase and condition.** The graph illustrates that those in the High competence condition rated the stimuli as more desirable during the pre-test phase than those in the Low competence condition. When the manipulation is introduced during the post-test phase, those in the Low Competence condition then rated the stimuli as more desirable than those in the High Competence condition.

Just as in Study 3, reviewing the data revealed some participants rated the desirability of a level of attractiveness consistently (e.g. a rating of “4” for a face at one level and a “5” for a face of another level), regardless of the salary attached. During the pre-test phase, 7 participants that would later be allocated to the High Competence condition and 6 participants that would later be allocated to the Low Competence condition indicated a

consistent preference. As a trade-off could not be calculated, participants generated isocline score of 0. During the post-test phase, 3 participants in each condition indicated consistent preferences. Though no trade-off between salary and attractiveness can be found, participants did generally demonstrate an effect of attractiveness, where the more attractive faces were rated as more desirable. The main effects of attractiveness and salary are illustrated for the pre-test phase in Figure 5.2 and for the post-test phase in Figure 5.3.



**Figure 5.2 Women's desirability ratings as a function of mates salary and physical attractiveness at the pre-test phase. Trends revealed linear relations between desirability ratings and salary per level of attractiveness**



**Figure 5.3 Women's desirability ratings as a function of mates salary and physical attractiveness at the post-test phase. Trends revealed linear relations between desirability ratings and salary per level of attractiveness**

A mixed model ANOVA was conducted to examine the mean isocline trade-off within the two testing phases and between the experimental conditions. There was no main effect of testing phase,  $F(1,76)=.28, p=.599$ . There was no main effect of condition,  $F(1,76)=3.00, p=.087$ . There was also no interaction between testing phase and experimental condition,  $F(1,76)=.13, p=.715$ . The means per condition at each testing phase are presented in Table 5.6. As in Study 3, each level of salary represented an increase of £20,00 in income. The mean isocline for the High Competence condition group can be calculated as the equivalent of one level of attractiveness being worth £21,400 ( $SD=£91,800$ ) during the pre-test phase, but only worth £3,000 ( $SD=£98,600$ ) post-test. Those in the Low Competence condition valued a level of attractiveness as the equivalent of £49,400 ( $SD=£114,400$ ) during the pre-test phase, and £46,000 ( $SD=£181,000$ ) post-test.

**Table 5.6 Mean Isocline Values for Testing Phase and Manipulation Condition**

	Manipulation	Mean	SD
Isocline value (pre-test)	High competence	1.07	4.59
	Low competence	2.47	5.72
	<i>Total</i>	1.80	5.23
Isocline value (post-test)	High competence	0.15	4.93
	Low competence	2.30	9.05
	<i>Total</i>	1.28	7.42

#### 5.4. Discussion

The present study examined how women's sense of status and mate preferences might change when their meta-stereotype awareness was increased, either through endorsement or rejection. It was hypothesised that women may choose to distance themselves from stereotypes (Schmader, Johns, & Forbes, 2008), thus in the low competence condition (i.e. stereotype endorsement) express lower sexism scores than those in the high competence condition (i.e. stereotype rejection). The results, however, suggest that women did not alter their own gender role ideologies in response to the manipulation. Wakefield, et al., (2012) found women changed their behaviour in response to benevolent sexism (i.e. help seeking) but did not examine ideologies. It is not clear then from Wakefield, et al., (2021) if women changed the beliefs to reflect their behaviour. It is possible that behaviours in a situation are flexible in response to meta-stereotype exposure but, due to internalisation, ideologies are less susceptible to manipulation. This could be particularly true if these ideologies are privately expressed as they were the present study, compared to public expression.

The second hypothesis tested was that women in the low competence condition will anticipate higher financial independence and social status in the future as a way of further distancing themselves from the stereotypes associated with women's competence and dependence. The results demonstrated that women in the high competence condition rated their subjective status as higher prior to the manipulation but lower afterwards, and the inverse occurred for the women in the low competence condition. The result was in support of the hypothesis as it was anticipated that those in the low competence condition would attempt to distance themselves from stereotypes associated with women. Against the

hypothesis, the women in the conditions did not differ on their financial independence rating. This could be due to the experimental design not priming for financial independence specifically. Alternatively, the lack of significant difference for financial independence could be due to the sample consisting of undergraduate women from comparable backgrounds. As discussed in chapter 1, people are shaped by their social spheres thus it is likely the sample live in the neighbourhoods with people with similar SES, attended the same schools (Nisbett, 2009) and work with people of similar educational backgrounds and income (Argyle, 1994).

It was additionally hypothesised that women in the low competence condition would express a greater preference for physical attractiveness over resources compared to those in the other condition. This hypothesis was not supported as no significant differences were found between the two groups, although there was a consistent preference for physical attractiveness over status and resources. As previously discussed, physical attractiveness is a key attribute in mate preferences. It is possible that as the sample consisted of young women, they are more motivated by short-term mating interests than long term mating interests. Previous research has demonstrated that women have a higher preference for an attractive partner in a noncommitted short-term (casual, one-night stand) relationship (Buss & Schmitt, 1993). Additionally, the lack of significant differences between groups are similar to Moore & Cassidy (2010). Moore & Cassidy (2010) attempted to manipulate women's sense of status within society by having participants list advantages or disadvantages of being a woman in society, however, there was no significant effect of condition on mate preferences. It is possible that the lack of significant differences in preference ratings may be the result of a fundamental issue with rating systems for measuring mate preferences, particularly for trade-off research. This issue is further addressed in Chapter 6.

Lastly, it was hypothesised that women in the low competence condition will have a higher equivalency trade-off values under the isocline methodology, demonstrating a larger preference for physical attractiveness over income in men. The hypothesis was not supported as there was no significant difference or interaction with the conditions. The

results of the linear mixed effects model however demonstrated a significant effect of salary, attractiveness, testing phase, and condition. It also demonstrated an interaction for testing phase and condition. There was a significant difference between conditional groups in the pre-test phase. Due to the general lack of significant results on other measures, it is plausible that this result is artefact of a faulty methodology which will be discussed in the limitations. The significant results are assumed to be a function of regression to the mean, rather than indicative of an effect of the manipulation.

The current study does not provide experimental support for the relationship between women's status and mate preferences. There are significant number of limitations the to the methodology in the present study that makes any significant result more likely the product of a type 1 error or the result of a confounding variable.

#### **5.4.1. Limitations**

The present study hinged on participants making a connection with the stereotype presented by the researcher in the fake phone call. Due to time constraints surrounding the academic year and participants' availability, testing was done in large groups of (at most) 15 women. This may have unintentionally resulted in many of the participants not listening to an off-hand comment by the experimenter about the nature of the phone call, the key element of the study's manipulation. This would explain the lack of results among all the measures. This issue is addressed in Chapter 7 in order to ensure that the lack of significant effects is the result of the manipulation, rather than the possibility that the participants were not exposed to the manipulation. Given that this manipulation was based on the work of Wakefield et al. (2012), is was expected to have a stronger effect, making this potential pitfall in its application a potential reason for its failure from the researcher's perspective.

Another possibility may be that the manipulation may not have a direct impact on what is being measured. Though Wakefield et al. (2012) found that women's help-seeking behaviour was altered in the face of a stereotypes about women's ability to perform an action, the participants were not faced with a situation in which they might have had to seek help. Additionally, the stereotype they were presented with was not related. Alternatively, it



may be more effective to have participants discuss the stereotypes surrounding their gender. By having participants self-generate positive and negative stereotypes surrounding their gender in a collective group, it may make both their gender identity and the stereotypes more salient.

Social Role Theory suggests that as women gain independence their mate preferences will reflect this shift. The pilot study examined what defines independence and found that financial independence was a component, but not the defining feature. Instead, competence was found to a defining feature of independence. This result reflects the stereotypes surrounding women. However, it also remains possible that independence, as defined by competence, or the ability to care for oneself, is not a factor that contributes to women's mate-preferences. An alternative area of research would be power distribution within a relationship. Power appears to be at the heart of much of what defines status, as well as the struggle between sexes. Power is how much control a person has over a situation and influence over others. The influence of power in mate-preferences can be seen in Moore and Cassidy (2007) and Moore, Cassidy, and Perrett (2010). These studies demonstrated that, as women's control over resources and domestic authority increases, their preference for men's resources relatively decreases. Future studies might investigate the role of power in mate preference; as an example, future studies might examine whether women would rather be with a wealthy man but possess no power within the relationship, or a poorer man but with maximum power within the relationship. Women would be offered various levels of a man's income and a percentage of control within the relationship. This would allow for us to examine how inter-gender power relations factor into mate-preferences. Similarly, a study could have several conditions for how much each participant financially contributes to a household financially. If a woman in a situation where she was confident about her ability to be disproportionately responsible (~75% as an example) for the income generated in a household, she may not focus on a mate's earning potential or ambition, but more so on his fitness or family orientation.

Lastly, the present study replicated the isocline method from Study 3 to further evaluate its efficacy as a means of examining trade-offs and mate preferences. Though the isoclines

demonstrated no significant differences between testing phase and condition, the linear mixed effects model produced several significant effects. This has led to the conclusion that the materials, procedure and analysis as outlined by Lazarus and Thorogood (2004) suffers from both validity and reliability issues. As previously discussed, many participants provided consistent desirability ratings of the stimuli of at one level of attractiveness, seemingly discounting the salary attached. This could be the result of participants interpreting desirability as semantically similar to attractiveness. Attractiveness in this thesis refers to the physical appearance of the prospective mates, whereas desirability refers to the overall perceived value of the individual. Further, as participants were subjected to repeated exposures of the same face, they may establish their rating upon the first exposure and not deviate from their own baseline. The interaction between testing phase and condition can then be explained as regression to the mean as previously stated. The test-retest reliability of the method is called into question. If future studies are interested in attempting to utilise the isocline method, it is recommended to use a split-half procedure. This would reduce the number of times a participant views each face level or salary, also reducing cognitive fatigue and the introduction of other potential confounding variables. Generally, though, isoclines have not demonstrated to be an effective or reliable measure of mate preferences and so cannot be recommended in future studies. For this reason, Chapter 6 will focus on establishing which methodology can potentially provide a reliable and ecologically valid measure of mate preferences and trade-offs.

## **Chapter 6. Study 5: Development of measures for assessing partner preference trade offs**

### **6.1. Introduction**

Previous research into mate preferences have utilized various experimental designs. With a few notable exceptions (Mogilski et al., 2014; Moore et al., 2006), consistent results demonstrate women express a greater preference for mate's resource acquisition compared to men. These results are found in real-life personal ads (Davis, 1990), nationally representative samples (Sprecher et al., 1994), cross-cultural samples (Buss et al., 1990; Buss, 1989), and studies that have experimentally cued different environmental contexts such as global prosperity or resource exhaustion (Marzoli et al., 2013; see Schmitt et al., 2012 for full review). However, the magnitude of this preference has found to vary depending variables such as self-reported mate value (Barkow, 1978; Edlund & Sagarin, 2010; Kenrick et al., 1993; Wade, 2000, 2003) and the method of measurement (Li, Bailey, Kenrick, & Linsenmeier, 2002)). Therefore, preferences are not fixed, and can be influenced by contexts. However, the best way of measuring these issues remains unclear.

#### **6.1.1. Previous methods used to assess trade-offs in mate preferences**

Researchers investigating mate preferences often ask participants to rate and rank attributes found in potential mates, from least to most important or desirable (Buss, 1989; Buss & Barnes, 1986; Hill, 1945; Hudson & Henze, 1969; McGinnis, 1958). However, this method is limited by the use of ordinal scales, in that the value between one rating and ranking is not equivalent between each position. The data can result in researchers having a false sense of the participant's prioritization of attributes. The participants' inability to rank several attributes at the same level or place greater distances between attributes, forces them to make choices that may not accurately represent their relative preferences. This limitation led researchers to ask participants to "design" their ideal mates by providing a list of attributes to which participants must add "mate points", so that a greater number of points indicates the greater importance of that attribute to the participant.

Kenrick, Sadalla, Groth, and Trost (1990) examined sex differences in mate attribute preference by providing participants with a list of 24 attributes and an unlimited "budget"

of points to allocate among the attributes. Participants were told to allocate as few points as needed until the attribute reached the minimally acceptable level for a partner at different levels of commitment. This meant that the more points allocated indicated a demand for a higher level of the attribute (e.g. more points a participant gives to the “physically attractive” attribute means they require a more physically attractive partner). The main characteristics that emerged from factor analysis were the same for both men and women: Status, Attractiveness, Friendliness, Health, and Family Orientation. For all levels of commitment, women demanded a higher quality mate, using more mate points overall, compared to men. For long term relations (i.e. marriage) women demanded a significantly higher level of Status and Family Orientation from their mates compared to men. However, no significant sex differences were found for preference levels of Attractiveness, Friendliness, and Health. Kenrick et al.'s (1990) results support the investment model proposed by EP as women a) demanded greater quality from any potential mates and b) higher levels of direct benefit attributes (i.e. resources and willingness to invest them). The lack of sex differences found in preference for attractiveness demonstrates that both sexes opt for a partner who contributes quality genes. While the results do demonstrate that humans demand more of some attributes than others, the researchers did not measure trade-offs between mate attributes.

Kenrick et al.'s (1990) results, however, could be an artefact of the factor extraction, as intelligence loaded on the attractiveness factor. Li et al. (2002) found intelligence to be the most important attribute for long term mates. Intelligence may possibly be a fitness indicator (Miller, 2000; Prokosch, Yeo, & Miller, 2005), particularly as higher intelligence is associated with longevity and health (Gottfredson & Deary, 2004). Alternatively, intelligence is associated with resource acquisition; individuals with a higher level of intelligence are also likely have greater success in a variety of fields including in resource acquisition (see Cawley, Conneely, Heckman, & Vytlačil, 1997; Gottfredson & Deary, 2004). However, though intelligence is a strong predictor of success, it is not any stronger compared to parental socioeconomic status (Strenze, 2007). As an individual's intelligence is the product of both inheritable genes and the influence of education and environment (Gottfredson, 2002; Rowe, Vesterdal, & Rodgers, 1999), it is difficult to disentangle

whether it is desirable as a direct or indirect benefit in mate selection (Miller, 2000; Prokosch, Coss, Scheib, & Blozis, 2009). With all of this in mind, sex differences may not have been found in Kenrick et al., (1990) as intelligence signals the fitness men look for and the resources women want in a mate. Additionally, including intelligence allows participants to bypass the trade-off suggested by Gangestad and Simpson (2000) between direct (resource) and indirect (genetic) benefits.

Li et al. (2002) built upon the results of Kenrick et al. (1990), drawing upon the perspectives of evolutionary psychology and integrating economic principles. They noted that one of the key mechanisms in economics missing from mate preference research was the distinction between a necessity and a luxury (Varian, 1984 as cited by Li et al, 2002). In economics, those with high income should allocate a significantly larger proportion of their budget to luxury goods, while those with lower incomes must allocate their budgets to first meeting fundamental needs (necessities). Without limitations on a “mating budget”, the results from previous studies do not provide an accurate depiction of the trade-offs that people must make in their mate preferences and choice. Therefore, Li et al (2002) gave each participant three allotments of points to allocate across 10 attributes: a batch of 20 points, 40 points and 60 points. When the budget was the most constricted (20 points), women allocated the most points to ‘intelligence’ and to a partner’s ability to provide resources and status, whereas men allocated the most points to ‘physical attractiveness’. The differences in preference followed the expected pattern from previous research. When the participants had more points, they spent them on characteristics such as ‘creativity’ and ‘friendliness’. Once participants were able to have their needs met, they were able to express a preference for alternative characteristics. Sex differences in mate preferences were most pronounced when the budgets were the most constrained, however, as the budgets expanded the sex differences in preferences decreased.

Edlund and Sagarin (2010) examined how individual differences influence point allocation in both unbudgeted and budgeted tasks. In the unbudgeted tasks, those with higher levels of self-perceived mate values used more points. However, the study failed to find significant sex differences in the number of points used. This was interpreted to mean that while men

and women might differ in how important any given trait is, they both mates want equal overall quality. In the budgetary conditions, the influence of individual differences such as mate value was constrained so in far that all participants had an equal number of points and thus could not be more demanding of a mate. The constraint resulted in different prioritisations and trade-offs of attributes relative to mate value. Therefore, Edlund and Sagarin (2010) suggest that there are benefits to using both methodologies. The unbudgeted design is useful for seeing desired overall mate quality, while budgeted tasks are valuable for assessing how individual differences impact priorities. The unbudgeted methodology utilized by Kendrick et al (1990) and Edlund et al (2010) may be relatively more ecological than the budgeted methodology used by Li et al (2002) in that it allows for more variation to occur so that individuals can demand more or less depending on their own attributes (e.g. Buss & Shackelford, 2008). However, point allocation methods do not address how combinations of different mate attributes may interact (e.g. physical attractiveness and income) nor how the different levels of an attribute (e.g. high intelligence vs low intelligence) affect the trade-offs made and the desirability of a potential mate. The trade-offs being made using these methodologies are between independent characteristics of a partner, rather than between different potential mates with a complete set of attributes at varying levels.

Fletcher, Tither, Loughin, Friesen, and Overall (2004) gave participants a forced-choice task, providing pairs of potential mates with differing levels of warmth/trustworthiness, attractiveness/vitality and status/resources and asked separately, which mate in a given pair was more desirable for a short-term relationship, and which mate was more desirable for a long term relationship. The pair of potential mates was intentionally designed to have opposing levels of characteristics. If one potential mate was highly attractive, low in warmth and high in status, the other mate would be low in attractiveness, high in warmth and low in status. The results of Fletcher et al.(2004), found that women prioritized a potential mate's warmth and status at the expense of his level of attractiveness and that this was stronger for long term relationships; meanwhile, men prioritized mate's warmth and trustworthiness over their physical attractiveness and attractiveness over status. In one sense, this is an expansion as Fletcher et al. (2004) provided participants with potential

mates to choose from with three different attributes. However, their analysis was still limited to examining preference between two attributes at a time, which is a poor reflection of real-world decision-making.

The different methodologies discussed have increased our understanding of how men and women navigate forced trade-off situations. The budgeted point allocation methods allows experimenters to examine the trade-offs participants' make under different conditions, for example under different ecological conditions (e.g. Marzoli et al., 2013). The unbudgeted point allocation method is best used in examining how individual attributes such as mate value effect trade-off demands. Neither of these point-allocation methods allow for the interaction of several attributes, however. Participants may also be experiencing extra cognitive burden by focusing on the points and the value of a point may be vague (see Chapter 2 for detailed discussion). Alternately, Fletcher et al (2004) provided a means of examining choice as a method of trade-off analysis. However, this methodology is limited in its ability to handle multiple attributes as though three attributes were used, only two were not compared at a time, nor does it have a level of sensitivity to measure small preference differences within individuals. Accordingly, none of the existing methodological approaches can be considered ideal.

### **6.1.2. Effects of mate value on trade-offs**

Previous research has demonstrated two forces in mate selection: assortative mating and exchanging. In assortative mating, people will select partners that are similar to themselves on attributes such as socioeconomic status (Blossfeld & Buchholz, 2009; Sweeney & Cancian, 2004) or attractiveness (Murstein & Christy, 1976, see McPherson, Smith-Lovin, & Cook, 2001 for more about homophily). Exchange theory, on the other hand, examines mate selection and relationships through a perspective similar to economic markets, in which people "exchange" different attributes. Exchanges provide individuals with an opportunity for social mobility by leveraging their most desirable attribute for one that they desire (themselves having a low level of that attribute). For example, for those that are also dealing with racial inequalities, low-status white women will partner with higher-status men of colour (Fu, 2001; Kalmijn, 1993; Qian, 1997) and women of colour will partner

with affluent white men (Sassler & Joyner, 2011) exchanging their physical attractiveness and sexual availability for the men's financial resources as well as exchanging racial status.

While everyone might desire a partner that is highly attractive or has significant financial resources, not everyone will be able to acquire a mate with high levels of all desired attributes. In assortative mating, individuals can only attract partners with whom they match in terms of desirability, so that highly desirable people attract highly desirable mates (Burdett & Coles, 1997; 1999; 2001; Loughran, 2002). Exchange theory, however, allows for individuals to trade one of their highly desirable attributes for different highly desirable attribute of another. By exchanging different attributes of comparable levels, the total value of the exchange balances out. There may be an element of individual variability, where some would utilize a matching approach to mating, while others would use the exchange tactic. In both instances, the total mate value of each person is equivalent, though it may be on different attributes. This makes the two approaches to mate value compatible in that both ultimately match together people with roughly similar *overall* mate value, whether this is expressed through uniform similarity on multiple levels or through balanced asymmetry.

In the literature, mate value is not consistently defined and measured. The most common technique used in its measurement is trait-based, where researchers assess participants on one or more characteristics that are considered to contribute to mate value. For women, appearance is typically treated as the main proxy of mate value (Buss & Shackelford, 2008) whereas for men it may be either physical attractiveness (as a signal for good genes, Gangestad, Garver-Apgar, Simpson, & Cousins, 2007) or cues to resource acquisition and investment (Buss, 1989; Symons, 1979). Studies have variously used physical attractiveness (Griffiths & Kunz, 1973), facial attractiveness (Law Smith et al., 2006; Little, Burt, & Perrett, 2006; Perrett et al., 1994), hip-to-waist ratio (Singh et al., 2010) and voice pitch (Collins, 2000) as indicators of mate value.

Other researchers have developed scales, such as the Mate Value Single Item Scale (MVSIS, Brase & Guy, 2004) which aims to assess overall value by asking participants to



rate their overall desirability as a mate. There is also the Mate Value Inventory (MVI; Kirsner, Figueredo, & Jacobs, 2003) which consists of long (34 items) and short (17 items) forms questionnaires that rate different elements of a person's personality and appearance such as *Ambitious*, *Generous*, *Intelligent*, and *Attractive Face* on a 7-point Likert scale. These are then summed for a single mate value score. However, Edlund (2008) subjected the MVI to further analysis and found that the single score solution proposed by Kirsner et al (2003) was not supported when the MVI with 35 items was subjected to a Confirmatory Factor Analysis, but that a five-factor model (family orientation, friendliness, health, physical attractiveness, and status) provided the best fit for data. This demonstrates a central problem in research: that measuring mate value is inherently complex as it relies on the researchers' ability to capture and combine the various attributes which may weigh differently to an individual.

Regardless of the measure used, women who perceive themselves as having low mate value have been found to express a weaker preference for masculine traits (such high masculine facial dimorphism and a masculine voice tone) than those who perceive themselves as having a higher mate value (Feinberg et al., 2012; Little & Mannion, 2006; Penton-Voak et al., 2003; Vukovic et al., 2008). Furthermore, women who perceive themselves as having a high mate value have higher standards, demanding more from their prospective mates in terms of attractiveness, income ability, parental investment, and good partnership indicators (Buss & Shackelford, 2008). Men who perceive themselves as having a higher mate value have a greater preference for feminine faces (Lee, Dubbs, Von Hippel, Brooks, & Zietsch, 2014) and greater demand for physical attractiveness (Edlund & Sagarin, 2010). In this way, mate-value acts as a natural constraint on a person's ability to secure a high-quality mate. As a result, it may be connected to exercises such as point allocation in the sense that a person's own low mate value is equivalent to having low mating budget, whereas a high mate value is equivalent to having a high mating budget.

This mate-value effect has also been found to affect trade-offs in budgeted and unbudgeted mate-design tasks (Edlund & Sagarin, 2010). When there is no budgetary restriction, participants with higher mate values generally have higher demands for all characteristics,

allocating more points overall. When a mate-point budget is in place, those with higher self-reported mate-values have slightly higher demands for attractiveness, and a significantly higher demand for a sense of humour and yearly income. A distinction could be made that the unbudgeted design allows for examination of mate-value on mate-trait demands as those who have higher value may perceive themselves to have more imaginary points, while the budgeted task equalizes all participants better for analysing the trade-offs and prioritization of necessities and luxuries (Edlund & Sagarin, 2010).

### **6.1.3. Discrepancies between Stated and Actual Preferences**

A discrepancy exists between stated mate preferences and actual mate choice. Kurzban and Weeden (2005) analysed the outcomes of speed-dating events, finding that physical attributes predicted participants' selectiveness while characteristics that are not immediately apparent, such as number of children desired or income, were not found to be significant predictors. There was no relation between the participants' stated preferences and their mate-choice in a real-world context. In a similar study, Todd, Penke, Fasolo, and Lenton (2007) found that self-rated levels on characteristics were positively related to stated preferences for similar mate-characteristics. However, these preferences were not linked to actual mate choice. Eastwick and Finkel (2008) conducted a speed dating study and found results that, while women stated a higher preference for mate's earning potential, these again were not matched by mate choices made in the speed-dating context. There are key limitations at speed dating.

Kurzban and Weeden (2007) examined the stated preferences on an online dating website and whether the state preferences were able to predict the behaviour of speed daters. They discovered that the stated preferences reflected traditional sex differences as well as assortative mating preferences. The stated preferences of online dating also predicted the features of the speed-dating events the participants took part in (e.g. women who expressed preferences for older men attended events with older men). Despite this, the advertised preferences did not predict the potential mates selected at speed-dating events (with the exception of race); rather, both men and women selected partners based on physically attractiveness. Though those who participant in speed dating events may be looking for

long term partners, they are only able to assess potential mates for the immediately apparent characteristics (i.e. personality and physical appearance), and thus may be spontaneously deferring to their short-term mating criteria.

Similarly, due to the context of speed dating, where individuals are judged rapidly and repeatedly, those who are at the lower scale of physical attractiveness may avoid taking part to avoid repeated rejection (Li et al., 2013; Montoya, 2008). Li et al (2013) examined the impact of inclusion of potential mates who had lower levels of socioeconomic status and/or physical attractiveness. When the mating pool was expanded to include these mates with potentially lower total mate value, actual mate choice reflected stated mate preferences. By widening the mating pool, participants are forced to focus on the attribute of interest to ensure they do not pair with a mate who does not meet the minimally acceptable level of the key attribute. In this context, sex-differentiated mate preferences become more apparent and increasing the relation between stated mate preference and mate choice.

Additionally, and most importantly, in studies to date mate preferences are the evaluation of individual mate characteristics, while mate choice is the evaluation of a person as a whole. A small number of studies have attempted to address this by analysing real world dating profiles. These studies have been limited by the inclusion of information that is not intentional or under investigation, so have low internal validity due to extraneous variables. For example Lee et al. (2014) examined the complex multivariate nature of mate choice and preferences, by asking participants to rate genuine dating profiles of attractive or not attractive individuals that were also manipulated for sexual dimorphism. The results showed that women's preference for masculine faces is influenced by context and individual differences altered preferences. Women valued intelligence more and attractiveness less for long term mates compared to short term mates. Additionally, when faces were experimentally masculinised, ratings of attractiveness increased five or more points which the authors interpreted as evidence that male facial masculinity can influence attractiveness when present with other information such as the information in the dating profile. For women rating men's profiles, women's preference for facial attractiveness was positively related to pathogen disgust and neuroticism. Preference for masculine faces was

higher in participants who reported high subjective SES. Men's rating of women's profiles was more complex, but followed similar patterns. Lee et al. (2014) did not use controlled dating profiles or standardized photos, meaning that the photos may not reflect a stable level of attractiveness (Jenkins, White, Van Montfort, & Mike Burton, 2011; Morrison, Morris, & Bard, 2013). While this added realism to the profiles, it also added noise to the data.

#### **6.1.4. Conjoint Analysis**

Conjoint analysis (CA) is a multivariate analysis typically used in marketing research (Green & Srinivasan, 1978; Gustafsson et al., 2007; Lohrke et al., 2010; Luce & Tukey, 1964). It is used to examine the desirability of the different characteristics of a product, providing 'utility scores' and 'importance values'. These scores allow researchers to examine how characteristics factor into a participant's choice between products. For example, a company that offers mobile phone contracts would be interested in how different elements (e.g. number of minutes, phone model, and price) contribute to desirability. One buyer may prefer more minutes and a new model of phone at a higher cost, while another buyer will prioritise a lower price, accepting less minutes and an older model of phone.

Despite the potential for its use in mate-preference research regarding the relative desirability of different partner characteristics, CA has been used only once in this field. Mate-preference research typically uses a 'compositional' approach, in which predictions incorporate effects of independent on dependent variables (Hair et al., 1995). CA is a "de-compositional model" based on the idea that an object is valued as a whole. The independent variables are set at different levels, then combined to create several object profiles from which participants choose. Rather than participants providing importance ratings for each attribute, the importance ratings are derived from their choice of a product (or, in this case, potential mate). This has multiple benefits compared to traditional methods.

Mogilski et al. (2014) used CA to examine how knowledge of potential mate's sexual fidelity history impacts the trade-offs made in long- and short-term relationships. When information about sexual fidelity history was present in potential partner profiles, participants valued fidelity over all other attributes for long-term partners. Self-reported preferences, however, differed from patterns that emerged from CA. Consistent sex differences in mate preferences were found in the self-reported measures, with women expressing greater preference for financial stability and emotional investment than men but sex differences did not emerge when sexual fidelity was included in the CA. Greater importance was placed on a fewer number of attributes when making long- versus short-term conjoint rankings as compared with long- versus short-term self-report importance ratings, suggesting that participants place more importance on certain traits when forced to make trade-offs. There was a small-to-modest association between preferences and CA scores. It is possible that noise is added to data collected via CA due to participant's inability to effectively evaluate and articulate their preferences, or they may have state preferences that conform to social desirability.

By using CA, researchers do not have to rely on retrospective or imagined feelings (Fletcher et al., 2004; Shepherd & Zacharakis, 1997) and they can examine the trade-offs participants make in a manner that is comparable to choices made in an actual market (Lohrke et al., 2010). Furthermore, people may not be able to verbalize and articulate their internal preferences and decisions (Wilson & Dunn, 1986), but may be able to more easily select between the profiles of different products (or potential partners). Conjoint Analysis presents participants with complete mate profiles and having participants select potential mates in a more holistic manner may affect the extent to which they prefer their one attribute over another as previous research has shown that while the preferences remain consistent, the magnitude of preferences can alter based on different contexts (Li et al., 2002; Scheib, 2001; Waynforth, 2001).

When previous studies presented budgeted or unbudgeted points to allocate to the traits of a potential partner, participants were attempting to imagine their ideal mate. When the mate market and the number of available attributes become too large, it becomes more difficult

to differentiate between partner options. In situations like this, Lenton, Fasolo, and Todd (2009) found people adopt a time-saving, non-compensatory strategy: using fewer, easily assessed cues (e.g. attractiveness), in order to make fewer and quicker trade-offs. Lenton and Stewart (2008) also found participants use non-compensatory strategies when selecting from a large dating pool rather than small pools. This suggests participants use a different number of attributes for selection depending upon the number of available partners. CA presents participants with typically 3-5 profiles at a time, but over several iterations. This restricts the number of potential mates available so that participant trade-offs are not dominated by one or two attributes, which allows for a more sensitive measure of trade-off preference.

Lastly, participants may form assumptions about mate-traits that are not under investigation when characteristics are limited in their number, level, or definition. For example, researchers may intend for occupation to act as a level of financial resource, but participants extrapolate ambition and intelligence from the job. CA allows the researcher to clearly define the attributes and their levels for participants in order to reduce the potential for misinterpretation or extrapolation.

#### **6.1.5. Summary and Hypotheses**

Previous methods used to examine trade-offs have used a trait-based approach by examining how participants value individual traits. However, the ecological validity of this approach is questionable. The discrepancy between stated mate preferences and mate choice suggests a need for re-evaluation of how trade-offs are examined as mate choices. Conjoint Analysis provides a means of assessing trade-offs in a manner that approximates the way trade-off decisions are made, without increasing cognitive burden. Therefore, the present study is the pilot use of Conjoint Analysis in examining mate preference trade-offs and to examine whether Conjoint importance weights are related to previous measures of mate preference. By replicating the findings from previous studies using the Conjoint method, this study seeks to demonstrate CA's utility in the domain of mate trade-off research.

The present study will examine whether Conjoint importance weights are sensitive to individual difference (i.e. status, mate value and gender ideology). This issue is drawn from the work of Edlund and Sagarin (2010). However, rather than examining budgeted vs. unbudgeted methods, we will be examining budgeted point-allocation based methods vs Choice-Based Conjoint. Sex differences will also be examined to assess whether the extent to which the sexes are different has been potentially exaggerated due to the methodologies used.

General predictions can be made based on previous literature. For example, based on the literature on mate value, it can be expected that mate value will be associated with status and mate preferences, and that those with higher mate values will specifically have greater preference for physical attractiveness. Furthermore, it is also predicted that men will express a greater preference for physical attractiveness compared to women but that this difference will be affected by the methodology used. Overall, however, the work is exploratory in order to examine the validity of the Conjoint methodology

## **6.2. Method**

### **6.2.1. Participants**

Two hundred and seventy-seven participants took part in an online survey, of which 108 identified as female, and 55 as male. Only data from those who were heterosexual were included in analyses. The average age of the participants was 30.49 years old (SD = 12.63). Eight of the participants were from Australia, 8 from continental Europe, 2 from Asia, 27 from North America and 118 from the UK. Sixty of the participants were single, seven were in a casual relationship, and 97 were in serious relationships.

### **6.2.2. Materials**

#### **6.2.2.1. *MacArthur Scale of Subjective Social Status***

The MacArthur Scale of Subjective Social Status scale (Goodman et al., 2001) was used as a measure of the participants status. See chapter 3 section 3.2.2.2.1 for description. Participants rated themselves on their social status at the time of the study and in the future.

Items were rated on a 7-point scale, where the topmost rung of the ladder was seven, and the number one was at the bottom. See Appendix 6.

#### **6.2.2.2. *Ambivalent Sexism Inventory***

The Ambivalent Sexism Inventory (ASI: Glick & Fiske, 1996)) was used as a measurement of the participants' gender ideology. See Chapter 2 Section 2.2.2.3 for further description. Each participant received two scores from the Ambivalent Sexism Inventory: a mean Benevolent Sexism and a mean Hostile Sexism score. Items were rated on a 5-point Likert scale from 0- Disagree Strongly to 5- Agree Strongly. The scale is presented in Appendix 3.

#### **6.2.2.3. *Mate-Value Scale***

The Mate-Value Scale (MVS, Edlund & Sagarin, 2014) was used to assess mate-value. This consists of 4 items rated on a 7-point Likert scale from 1 (extremely undesirable) to 7 (extremely desirable): a) Overall, how would you rate your level of desirability as a partner on the follow scale? b) Overall, how would members of the opposite sex rate your level of desirability as a partner on the following scale? c) Overall, how do you believe you compare to other people in desirability as a partner on the follow scale? d) Overall, how good of a catch are you?. These four items were put through a factor analysis which produced one mate-value factor.

#### **6.2.2.4. *Mate Attribute Items***

Seven attributes were selected to examine mate preferences as previous work in Conjoint Analysis has demonstrated that seven is the average number of attributes that people typically consider in a decision-making situation (Wind & Myers, 1979). The attributes and their definitions were selected based on the attributes used in Mogilski et al.(2014), as well as Lee et al.(2014), Edlund & Sagarin (2010), Li et al. (2002), and Moore (n.d.). The attributes included:

*Financial Stability/Income: describes the extent to which this person possesses economic wealth and financial stability*

*Social Level/Dominance: describes the amount of interpersonal influence a person has and expresses leadership in peer groups*

*Similarity: describes the extent to which you and this person are similar with respect to*



*personality, intelligence, and preferences in leisure activities*

*Physical Attractiveness: describes how physically attractive this person is according to what YOU find physically attractive*

*Emotional Investment/Stability: describes the extent that this partner is committed and cares for you, as well as the ability to not be bothered by problems to interfere with their performance or personal relations.*

*Kindness: describes the extent to which this person is friendly, generous, and considerate to you and others*

*Creativity/Non-work Related Talents: describe this person's ability to excel in extra-curricular areas such as arts, music, or athletics.*

Items were combined as they represent conceptually linked ideas, reducing the number of items under review and potentially over splitting preference trade-offs beyond meaningful distinctions. For example, Emotional Investment and Stability were combined into a single item because Stability in this context refers explicitly to the stability of the relationship, which is conceptually linked to investment.

#### **6.2.2.5. Conjoint Analysis**

Choice-Based Conjoint (CBC), as utilised here, is used for discrete choice modelling. Discrete choice modelling predicts the choice made between two or more options (e.g. which car to buy) compared to traditional regression analysis with continuous variables (e.g. how much money to spend on a car). CBC is a unique method of analysis in mate preference research as participants are asked to select a profile from several options, rather than rating or ranking profiles or individual attributes.

Participants were told that prospective mates had been pre-rated as either high, medium or low compared to the general public on the 7 attributes described above. As there are 7 attributes and 3 levels of each, it is possible to generate 2187 unique potential mate profiles. In the present study the participants were asked to select 1 profile as a long-term romantic partner from a choice of five, over 19 iterations (95 profiles). This allowed for sufficient statistical power without causing participant fatigue, as previous work has demonstrates

that CA utility scores do not improve past 20 tasks (Johnson & Orme, 1996). An example of conjoint profiles is provided in Table 6.1 below. In Conjoint research it is generally advised to present participants with between 3 to 5 options per task (Orme, 2002, 2014; Qualtrics, 2016). The software utilized to conduct the study (Discover Sawtooth Software) is adaptive; it presents participants with randomly generated profiles in the first instance and after the participant makes their first choice the software generates news profiles for the next task. The software learns the participants preferences and generates the new profiles in order to avoid having one attribute dominate all choices in order to tease apart the trade-offs (Sawtooth Software, 2014). The software includes a recommendation wizard that suggests an appropriate number of tasks and concepts per task to ask, based on the number of attributes and their levels examined. The recommendations are based on Logit theory (specifically, the computation of standard errors, Sawtooth Software, 2014).

**Table 6.1: Example of Choice-Based Conjoint Task with Five Profiles**

<b>If these were your only options for potential romantic partners, which would you choose?</b>					
	Mate A	Mate B	Mate C	Mate D	Mate E
<b>Financial Stability/Income</b>	High	Medium	Low	Medium	Low
<b>Social Level/ Dominance</b>	Low	High	Medium	Low	Medium
<b>Similarity</b>	High	Medium	Low	High	Low
<b>Physical attractiveness</b>	Medium	High	Low	Low	Medium
<b>Emotional investment/stability</b>	High	Medium	Low	Low	High
<b>Kindness</b>	Low	High	Medium	Medium	Low
<b>Creativity/non-work-related talents</b>	Medium	Low	High	Medium	High

### 6.2.3. Procedure

Participants were recruited from the University of Dundee campus through the Psychology Experiment Participation system. They were provided with a link to the online survey. Demographic information was completed followed by information regarding their status

and gender ideology. Participants rated mate attributes and their own mate value from 1 (extremely unimportant/undesirable) to 7 (extremely important/desirable). Similar to the point allocation task described in Chapter 2, (see section 2.2.2.4.1), participants were asked to allocate various “mate points” across the 7 mate attributes described above for a potential long-term romantic partner. Three different budgetary conditions were used: 35 points (high), 14 points (medium), and 3 points (low).

The order of completion of mate preference measures was as follows: 7 CBC iterations, 14-point budget allocation, 7 CBC iterations, 35-point budget, 5 CBC iterations, and the 3-point budget allocation.

#### **6.2.4. Analysis**

The same method for calculating the participant preference scores from the point allocation methodology was used from Study 2. The numbers of points allocated by the participants were calculated into percentages within each point condition.

Conjoint Analysis provides two useful scores for analysing preferences. The first is the part-worth utility and the second is the utility importance weight. Figure 6.1 demonstrates the process for calculating utility importance weights. To start, for each level of an attribute a part-worth utility is calculated. The part-worth represents the independent main effect for an attribute’s level while holding all other attributes constant. The utility scores are scaled to sum 0 within each attribute. Scaling the part-worth to 0 results in one level receiving a negative score. However, this should not be interpreted to mean the level is unacceptable, only that it was the least desirable. The range of the part-worth utility scores is calculated for each attribute, and all are summed together. The importance weight for an attribute (in other words, how important an attribute is or how much it weighs in the participant’s decision) is calculated by dividing its part-worth range by the summed range for all attributes.

Attributes	Level	Part-worth	Attribute Utility Range	Attribute Importance
Financial Stability/Income	High	23.91	23.91 - -32.21 = 56.04	$(56.04/699.98) * 100 = 8.01$
	Medium	8.23		
	Low	-32.13		
Social Level/ Dominance	High	14.99	14.99 - -20.46 = 35.45	$(35.42/699.98) * 100 = 5.06$
	Medium	5.47		
	Low	-20.46		
Similarity	High	32.39	32.39 - -48.98 = 81.37	$(81.37/699.98) * 100 = 11.82$
	Medium	16.59		
	Low	-48.98		
Physical attractiveness	High	44.60	44.60 - -69.49 = 114.09	$(114.09/699.98) * 100 = 16.30$
	Medium	24.90		
	Low	-69.49		
Emotional Investment/stability	High	59.34	59.34 - -88.55 = 147.89	$(147.89/699.98) * 100 = 21.13$
	Medium	29.21		
	Low	-88.55		
Kindness	High	90.70	90.70 - -129.54 = 220.24	$(220.24/699.98) * 100 = 31.46$
	Medium	38.84		
	Low	-129.54		
Creativity/non-work-related talents	High	21.59	21.59 - -23.31 = 44.90	$(44.90/699.98) * 100 = 6.42$
	Medium	1.72		
	Low	-23.31		
$56.04 + 35.45 + 81.37 + 114.09 + 147.89 + 220.24 + 44.90 = 699.98$ Total Utility Ranges				

**Figure 6.1** How Attribute Importance Weights are calculated. The range between the parts-worth of an attribute are calculated and summed. An attributes parts-worth range is then divided by the total utility range, giving the importance weight.

### 6.3. Results

#### 6.3.1. Predicting Conjoint Scores

Hierarchical regression models were constructed to assess whether CBC importance scores could be predicted by the points allocated to partner characteristics under different budgetary constraints and the preference ratings for participant characteristics (Level 2 of the model), and women's own characteristics (mate value, gender ideology, and status;

Level 1 of the model). This model was repeated with CBC ‘importance weights’ of each of the 7 characteristics as the criterion variable. The importance scores for the point allocation and the CBC were converted into percentages. The mean importance scores for the different measures are presented in Table 6.2, along with standard deviations.

**Table 6.2 Mean importance scores for preference method (SD in parentheses)**

	35-Point		14-Point		3-point		CBC		Ratings	
Financial Stability/ Income	12.39	(-7.16)	10.81	(-7.95)	9.31	(-16.13)	9.25	(-8.24)	4.64	(-1.25)
Social Level/ Dominance	8.32	(-6.37)	7.24	(-6.83)	2.45	(-8.76)	5.64	(-5.35)	4.78	(-1.29)
Similarity	14.96	(-7.67)	13.99	(-9.16)	11.27	(-15.89)	11.09	(-8.04)	6.32	(-0.79)
Physical Attractiveness	13.11	(-7.84)	13.49	(-7.82)	11.27	(-15.89)	14.87	(-9.09)	5.02	(-1.50)
Emotional Investment/Stability	20.42	(-7.78)	22.42	(9.39)	32.84	(-23.39)	21.97	(-9.25)	6.43	(-0.69)
Kindness	22.94	(-8.23)	24.5	(-9.80)	30.88	(-19.37)	32.11	(-10.78)	4.38	(-1.46)
Creativity/non-work-related talents	7.86	(5.87)	7.54	(-5.86)	1.96	(-1.96)	5.07	(-4.44)	3.84	(-1.57)

### 6.3.1.1. Financial Stability/Income

In models predicting participants' Conjoint Analysis scores for Financial Stability/Income, the first model containing the 'participant characteristics' was significant,  $R^{2adj} = .07$ ,  $F(6,97) = 2.25$ ,  $p = .045$ . When the 'participant preference' variables were entered in the second level, the model remained significant,  $R^{2adj} = .51$ ,  $F(10,93) = 11.80$ ,  $p < .001$ . The F-change was also significant,  $F^{change}(4,93) = 23.05$ ,  $p < .001$ . The participants' gender significantly predicted the CA scores for Financial Stability/Income ( $\beta = 0.33$ ,  $p = .001$ ) indicating that women had a stronger preference for this attribute. However, the significance was lost in the full model ( $\beta = .68$ ,  $p = .618$ ). In the full model, the percent of points allocated in the 14-point condition significantly predicted the CA scores ( $\beta = 0.37$ ,  $p = .002$ ) so that the more points allocated in the 14-point condition the higher the CA score. See Table 6.4 for correlations and Table 6.3 for full details on each model

**Table 6.3 Hierarchical linear regression models for preference for Financial Stability/Income extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	5.30	1.60	0.33	3.33	.001*	0.68	1.36	0.04	0.50	.618
Mate Value Factor	- 0.51	0.82	-0.07	-0.63	.533	-0.50	0.60	-0.07	-0.83	.409
Benevolent Sexism	- 0.57	0.81	-0.09	-0.70	.484	-0.88	0.61	-0.13	-1.44	.153
Hostile Sexism	0.25	0.74	0.04	0.34	.733	-0.62	0.56	-0.10	-1.11	.270
Current Social Status	0.84	0.79	0.13	1.06	.292	0.55	0.58	0.09	0.95	.346
Future Social Status	- 0.18	0.78	-0.03	-0.23	.820	-0.30	0.59	-0.05	-0.50	.616
Attribute Rating						0.70	0.50	0.14	1.39	.167
Percent of 35 points						0.23	0.14	0.22	1.61	.112
Percent of 14 points						0.38	0.12	0.37	3.19	.002*

Percent of 3 points		0.07	0.05	0.13	1.41	.163
Adj-R2	.07			.51		
F	2.25			11.80		

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\* $p \leq .05$



**Table 6.4 Pearson Correlations between Participant Characteristics and Preference Scores for Financial Stability/Income**

	CA Income Score	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Income Score	-										
Gender	-.33**	-									
Mate Value Factor	-.04	.01	-								
Benevolent Sexism	-.09	.11	.10	-							
Hostile Sexism	.03	-.06	-.03	.59**	-						
Current Social Status	.03	.14	.49**	.10	.08	-					
Future Social Status	.02	-.27*	.49**	-.18*	-.15	-.46**	-				
Attribute Rating	.50**	-.49**	.14	.16*	.17*	.15	.16	-			
Percent of 35 points	.66**	-.41**	.01	.11	.29**	.03	.01	.62**	-		
Percent of 14 points	.67**	-.27*	-.01	.14	.23*	-.01	.05	.52**	.79*		
Percent of 3 points	.55**	-.25*	.08	.02	.13	.07	-.05	.42**	.63**	.61**	-

\*p≤.05, \*\*p≤.001

### 6.3.1.2. Social Level and Dominance

In models predicting participants' Conjoint Analysis scores for Social Level and Dominance, the first model containing the 'participant characteristics' was not significant,  $R^{2adj} = -.03$ ,  $F(6,97)=0.44$ ,  $p=.849$ . When the 'participant preference' variables were entered in the second level, the model became significant,  $R^{2adj} = .31$ ,  $F(10.93) = 5.65$ ,  $p < .001$ . The F-change was significant, with  $F^{change}(4,93) = 13.14$ ,  $p < .001$ . In the full model, the 3-point condition significantly predicted the CA scores ( $\beta = 0.39$ ,  $p < .001$ ) so that the more points allocated in the 3-point condition the higher the CA score. Participants scores on the Current Social Status measure also significantly predicted CA scores ( $\beta = -0.25$ ,  $p = .025$ ). See Table 6.5 for full details on each model and Table 6.6 for correlations.

**Table 6.5 Hierarchical linear regression models for preference for Social Level/Dominance extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	-0.32	1.11	-0.03	-0.29	.772	0.07	0.47	0.02	0.15	.879
Mate Value Factor	0.08	0.57	0.02	0.13	.895	0.19	0.43	0.05	0.44	.662
Benevolent Sexism	-0.26	0.57	-0.06	-0.46	.648	-1.05	0.46	-0.25	-2.27	.025*
Hostile Sexism	0.46	0.52	0.11	0.89	.376	0.53	0.44	0.13	1.19	.236
Current Social Status	-0.77	0.55	-0.18	-1.39	.167	-0.37	0.37	-0.09	-0.99	.326
Future Social Status	0.44	0.54	0.11	0.81	.418	0.13	0.09	0.16	1.44	.152
Attribute Rating						0.12	0.10	0.15	1.17	.243
Percent of 35 points						0.23	0.06	0.39	3.70	<.001*
Percent of 14 points						0.07	0.47	0.02	0.15	.879
Percent of 3 points						0.19	0.43	0.05	0.44	.662
Adj-R2										0.31
F										5.65

\* $p \leq .05$ ,

**Table 6.6 Pearson Correlations between Participant Characteristics and Preference Scores for Social Level/Dominance**

	CA Dominance Score	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Dominance Score	-										
Gender	.02	-									
Mate Value Factor	-.03	-.01	-								
Benevolent Sexism	-.01	-.11	.10	-							
Hostile Sexism	.06	.06	-.03	.59**	-						
Current Social Status	-.11	-.14	.49**	.10	.08	-					
Future Social Status	.01	.12	.49**	-.08	-.05	.55**	-				
Attribute Rating	-.10	-.15	.35**	.11	-.08	.09	.14	-			
Percent of 35 points	.41**	.18**	-.06	.04	.14	-.01	-.03	-.04	-		
Percent of 14 points	.44**	.07	.01	-.05	.03	.13	.07	.07	.63**	-	
Percent of 3 points	.54**	.03	.05	-.06	.00	.05	.04	-.10	.43**	.59**	-

\*p&lt;.05, \*\*p&lt;.001

### 6.3.1.3. Similarity

In models predicting participants' Conjoint Analysis scores for a mate's Similarity, the first model containing the 'participant characteristics' was not significant, with  $R^{2adj} = .04$ ,  $F(6,97) = 0.28$ ,  $p = .948$ . When the 'participant preference' variables were entered in the second level, the model became significant, with  $R^{2adj} = .49$ ,  $F(10,93) = 10.89$ ,  $p < .001$ . The F-change was significant, with  $F^{change}(4,93) = 26.39$ ,  $p < .001$ . In the full model, the percent of points allocated in the 35-point condition ( $\beta = 0.37$ ,  $p = .006$ ) as well as the percent of points allocated in the 14-point condition ( $\beta = 0.27$ ,  $p = .014$ ) significantly predicted the CA scores so that the more points allocated in each condition the higher the CA score. See Table 6.6 for correlations and Table 6.7 for full details on each model.

**Table 6.7 Hierarchical linear regression models for preference for Similarity extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	0.37	0.88	0.05	0.42	.679	-0.69	1.25	-0.04	-0.55	.583
Mate Value	0.03	0.88	0.00	0.03	.974	-0.24	0.63	-0.03	-0.37	.711
Factor										
Benevolent	-0.37	0.80	-0.06	-0.46	.644	0.24	0.62	0.04	0.39	.701
Sexism										
Hostile	0.41	0.86	0.06	0.48	.634	-0.19	0.56	-0.03	-0.33	.741
Sexism										
Current Social	-0.50	0.84	-0.08	-0.60	.551	-0.15	0.61	-0.02	-0.24	.810
Status										
Future Social	0.37	0.88	0.05	0.42	.679	0.09	0.60	0.01	0.15	.883
Status										
Attribute						0.05	0.64	0.01	0.08	.933
Rating										
Percent of 35						0.37	0.13	0.35	2.84	.006*
points										
Percent of 14						0.27	0.11	0.29	2.50	.014*
points										
Percent of 3						0.08	0.04	0.18	1.91	.059
points										
Adj-R2										.49
F										10.89

\* $p \leq .05$

**Table 6.8 Pearson Correlations between Participant Characteristics and Preference Scores for Similarity**

	CA Similarity	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Similarity	-										
Gender	-.09	-									
Mate Value Factor	.05	-.01	-								
Benevolent Sexism	-.01	-.11	.10	-							
Hostile Sexism	-.05	.06	-.03	.59**	-						
Current Social Status	.05	-.14	.49**	.10	.08	-					
Future Social Status	-.02	.12	.49**	-.08	-.05	.55	-				
Attribute Rating	-.04	.28*	.15	-.13	-.06	-.08**	.20*	-			
Percent of 35 points	.69**	-.03	.15	.01	-.05	.12	.02	-.03	-		
Percent of 14 points	.67**	-.05	.09	-.07	-.05	.10	-.02	-.05	.79**	-	
Percent of 3 points	.57**	-.13	.00	-.03	-.05	.03	-.02	-.03	.62**	.57**	-

\*p≤.05, \*\*p≤.001

### 6.3.1.4. Physical Attractiveness

In models predicting Conjoint scores for Physical Attractiveness, the first model containing the ‘participant characteristics’ was significant, with  $R^{2adj} = .10$ ,  $F(6,97) = 2.94$ ,  $p = .011$ .

When the ‘participant preference’ variables were entered in the second level, the model remained significant,  $R^{2adj} = .52$ ,  $F(10,93) = 12.27$ ,  $p < .001$ . The F-change was significant,  $F^{change}(4,93) = 22.38$ ,  $p < .001$ . In the first model, participants’ gender significantly predicted the CA scores for Physical Attractiveness ( $\beta = -0.27$ ,  $p = .007$ ) indicating that men had a stronger preference for this attribute, however, the significance was lost in the full model ( $\beta = -0.01$ ,  $p = .904$ ). In the full model, self-perceived mate value predicted their CA score ( $\beta = 0.20$ ,  $p = .026$ ) so that those who perceived themselves as having higher mate value expressed greater preference for Physical Attractiveness on the Conjoint task.

Additionally, the percent of points allocated in the 3-point condition ( $\beta = 0.43$ ,  $p < 0.001$ ) and the 35-point condition ( $\beta = 0.27$ ,  $p = .021$ ) predicted CA scores in that the more points allocated, the higher the CA score. Conversely, a negative relationship emerged ( $\beta = -0.15$ ,  $p = .045$ ) between the rating of the importance of physical attractiveness and CA scores. See Table 6.10 for correlations and Table 6.9 for full details on each model.

**Table 6.9 Hierarchical linear regression models for preference for Physical Attractiveness extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	-5.44	1.99	-0.27	-2.73	.007*	0.19	1.60	0.01	0.12	.904
Mate Value	2.89	1.02	0.32	2.82	.006*	1.76	0.78	0.20	2.25	.026*
Factor										
Benevolent Sexism	-0.52	1.01	-0.06	-0.52	.607	-1.20	0.76	-0.14	-1.58	.117
Hostile Sexism	0.33	0.93	0.04	0.36	.722	0.48	0.68	0.06	0.70	.483
Current Social Status	-1.15	0.99	-0.14	-1.16	.251	-1.07	0.73	-0.13	-1.46	.147
Future Social Status	0.67	0.97	0.08	0.69	.490	0.36	0.73	0.04	0.49	.626
Attribute Rating						-0.97	0.48	-0.15	-2.03	.045*
Percent of 35 points						0.32	0.14	0.27	2.34	.021*

Percent of 14 points		0.10	0.14	0.09	0.71	.480
Percent of 3 points		0.24	0.05	0.43	4.41	<.001*
Adj-R2	.10			.52		
F	2.94			12.27		

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\*p≤.05

**Table 6.10 Pearson Correlations between Participant Characteristics and Preference Scores for Physical Attractiveness**

	CA Physical Attractiveness	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Physical Attractiveness	-										
Gender	-.23*	-									
Mate Value Factor	.29**	-.01	-								
Benevolent Sexism	.01	-.11	.10	-							
Hostile Sexism	-.04	.06	-.03	.59**	-						
Current Social Status	.10	-.14	.49**	.10	.08	-					
Future Social Status	.14	.12	.49**	-.08	-.05	.55**	-				
Attribute Rating	-.12	.09	.12	-.15	-.08	.01	-.09	-			
Percent of 35 points	.63**	-.35**	.18*	.05	-.05	.15	.06	-.04	-		
Percent of 14 points	.59**	-.41**	.18*	.19*	.04	.12	.06	-.12	.78**	-	
Percent of 3 points	.67**	-.33**	.25*	.13	.01	.16	.06	.02	.65**	.65**	-

\*p≤.050, \*\*p≤.001



### 6.3.1.5. Emotional Investment/Stability

In models predicting participants' Conjoint Analysis scores for a mate's Emotional Investment/Stability, the first model containing the 'participant characteristics' was not significant, with  $R^{2adj} = -.05$ ,  $F(6,97) = 0.23$ ,  $p = .968$ . When the 'participant preference' variables were entered in the second level, the model became significant,  $R^{2adj} = .36$ ,  $F(10.93) = 6.81$ ,  $p < .001$ . The F-change was significant, with  $F^{change}(4,93) = 16.47$ ,  $p < 0.001$ . In the full model, the percent of points allocated in the 14-point condition ( $\beta = 0.46$ ,  $p = .003$ ) significantly predicted the CA scores so that the more points allocated in each condition the higher the CA score. See Table 6.12 for correlations and Table 6.11 or full details on each model.

**Table 6.11 Hierarchical linear regression models for preference for Emotional Investment/Stability extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	0.58	2.14	0.03	0.27	.788	-0.14	1.75	-0.01	-0.08	.938
Mate Value Factor	-0.38	1.10	-0.04	-0.34	.732	-0.41	0.88	-0.05	-0.47	.642
Benevolent Sexism	-0.37	1.09	-0.04	-0.34	.732	0.18	0.87	0.02	0.21	.837
Hostile Sexism	0.59	1.00	0.08	0.59	.556	0.67	0.78	0.09	0.86	.391
Current Social Status	0.24	1.06	0.03	0.23	.821	0.84	0.85	0.10	1.00	.322
Future Social Status	0.66	1.04	0.08	0.63	.527	0.08	0.82	0.01	0.10	.918
Attribute Rating						-0.39	0.98	-0.03	-0.40	.691
Percent of 35 points						0.12	0.17	0.09	0.72	.471
Percent of 14 points						0.51	0.17	0.46	3.00	.003*
Percent of 3 points						0.07	0.05	0.16	1.45	.150
Adj-R2										.36
F										6.81

\* $p \leq .05$ , \*\* $p \leq .01$

**Table 6.12 Pearson Correlations between Participant Characteristics and Preference Scores for Emotional Stability/Investment**

	CA Emotional Investment/Stability	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Emotional Investment/Stability	-										
Gender	.04	-									
Mate Value Factor	.01	-.01	-								
Benevolent Sexism	-.01	-.11	.10	-							
Hostile Sexism	.05	.06	-.03	.59	-						
Current Social Status	.05	-.14	.49**	.10	.08	-					
Future Social Status	.08	.12	.49**	-.08	-.05	.55	-				
Attribute Rating	.00	.25**	.17	-.09	-.05	-.04	.09				
Percent of 35 points	.50**	-.03	.01	-.05	-.09	-.10	.01	.07	-		
Percent of 14 points	.62**	.10	-.01*	-.17	-.12	-.06	.07	.07	.78*	-	
Percent of 3 points	.49**	.17*	.05	-.04	.02	-.07	.10	.07	.46*	.66*	-

\*p&lt;.050, \*\*p&lt;.001

### 6.3.1.6. *Kindness*

In models predicting participants' Conjoint Analysis scores for a mate's Kindness, the first model containing the 'participant characteristics' was not significant, with  $R^{2adj} = .04$ ,  $F(6,97) = 1.64$ ,  $p = .143$ . When the 'participant preference' variables were entered in the second level, the model remained significant, with  $R^{2adj} = 0.40$ ,  $F(10,93) = 7.94$ ,  $p < 0.001$ . The F-change was significant, with  $F^{change}(4,93) = 15.86$ ,  $p < 0.001$ . In the full model, the percent of points allocated in the 35-point condition ( $\beta = .29$ ,  $p = .018$ ) and the 3-point condition ( $\beta = 0.30$ ,  $p = .009$ ) significantly predicted the CA scores so that the more points allocated in each condition the higher the CA score. Similarly, the importance participants rated the attribute ( $\beta = 0.20$ ,  $p = .011$ ) significantly predicted their CA score so that the more important the participants rated Kindness, the higher their CA score. See Table 6.14 for correlations and Table 6.13 for full details on each model.

**Table 6.13 Hierarchical linear regression models for preference for Kindness extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	2.24	2.24	0.10	1.00	.321	1.80	1.79	0.08	1.01	.317
Mate Value	-2.05	1.15	-0.21	-1.78	.079	-0.20	0.95	-0.02	-0.21	.832
Factor										
Benevolent	0.66	1.14	0.07	0.57	.567	-0.07	0.91	-0.01	-0.08	.937
Sexism										
Hostile	-0.45	1.05	-0.05	-0.43	.669	1.09	0.85	0.13	1.28	.203
Sexism										
Current	-0.02	1.12	0.00	-0.02	.986	0.28	0.89	0.03	0.32	.753
Social Status										
Future	-1.07	1.09	-0.12	-0.98	.332	-1.40	0.90	-0.16	-1.56	.122
Social Status										
Attribute						1.58	0.61	0.20	2.61	.011*
Rating										
Percent of						0.40	0.17	0.29	2.41	.018*
35 points										
Percent of						0.09	0.13	0.08	0.69	.494
14 points										
Percent of 3						0.17	0.06	0.30	2.67	.009*
points										
Adj-R2			.04					.40		
F			1.64					7.94		

\* $p \leq .05$ , \*\* $p \leq .01$

**Table 6.14 Pearson Correlations between Participant Characteristics and Preference Scores for Kindness**

	CA Kindness	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Kindness	-										
Gender	.08	-									
Mate Value Factor	-.27*	-.01	-								
Benevolent Sexism	.02	-.11	.10	-							
Hostile Sexism	.01	.06	-.03	.59*	-						
Current Social Status	-.18*	-.14	.49**	.10	.08	-					
Future Social Status	-.22*	.12	.49**	-.08	-.05	.55**	-				
Attribute Rating	.27*	-.05	-.07	-.01	-.11	-.07	-.12	-			
Percent of 35 points	.53**	.03	-.19*	-.14	-.22*	-.14	.04	.13	-		
Percent of 14 points	.48**	.13	-.09	-.04	-.10	-.08	.03	.08	.69	-	
Percent of 3 points	.57**	.01	-.32**	-.03	-.12	-.19*	-.19*	.07	.63**	.63**	-

\*p≤.050, \*\*p≤.001

### 6.3.1.7. Creativity/non-work-related talents

In models predicting participants' Conjoint Analysis scores for a mate's Kindness, the first model containing the 'participant characteristics' was not significant, with  $R^{2adj} = .03$ ,  $F(6,97) = 1.46$ ,  $p = .201$ . When the 'participant preference' variables were entered in the second level, the model became significant, with  $R^{2adj} = .11$ ,  $F(10,93) = 2.23$ ,  $p = .022$ . The F-change was significant, with  $F^{change}(4,93) = 3.20$ ,  $p = .017$ . In the full model, the participant's Benevolent Sexism significantly predicted the CA scores ( $\beta = 0.28$ ,  $p = .022$ ) so that the more participants expressed Benevolent Sexist ideology the greater the higher their CA score. See Table 6.15 for full details on each model and Table 6.16 for correlations

**Table 6.15 Hierarchical linear regression models for preference for Creativity/non-work-related talents extracted from Conjoint Analysis**

	Model 1					Model 2				
	B	SE B	$\beta$	t	p	B	SE B	$\beta$	t	p
Gender	-1.24	1.00	-0.13	-1.24	.220	-0.49	1.03	-0.05	-0.47	.637
Mate Value Factor	-0.40	0.52	-0.09	-0.77	.446	-0.28	0.50	-0.06	-0.55	.581
Benevolent Sexism	1.04	0.51	0.25	2.04	.044*	1.16	0.50	0.28	2.34	.022*
Hostile Sexism	-0.81	0.47	-0.22	-1.74	.085	-0.85	0.45	-0.22	-1.88	.064
Current Social Status	0.44	0.50	0.11	0.89	.376	0.62	0.49	0.16	1.25	.213
Future Social Status	-0.03	0.49	-0.01	-0.06	.952	0.26	0.48	0.07	0.53	.594
Attribute Rating						-0.31	0.31	-0.11	-1.01	.314
Percent of 35 points						0.12	0.10	0.15	1.17	.244
Percent of 14 points						0.17	0.10	0.23	1.72	.090
Percent of 3 points						-0.01	0.06	-0.01	-0.14	.890
Adj-R2			.03					.12		
F			1.46					2.23		

\* $p \leq .05$

**Table 6.16 Pearson Correlations between Participant Characteristics and Preference Scores for Creativity/non-work related talents**

	CA Creativity	Gender	Mate Value Factor	Benevolent Sexism	Hostile Sexism	Current Social Status	Future Social Status	Attribute Rating	Percent of 35 points	Percent of 14 points	Percent of 3 points
CA Creativity	-										
Gender	-.18	-									
Mate Value Factor	-.01	-.01	-								
Benevolent Sexism	.14	-.11	.10	-							
Hostile Sexism	-.06	.06	-.03	.59	-						
Current Social Status	.09	-.14	.49**	.10	.08	-					
Future Social Status	-.01	.12	.49**	-.08	-.05	.55	-				
Attribute Rating	-.10	.28	.18	.17	.18	.26	.19	-			
Percent of 35 points	.27	-.14	-.15	-.02	.03	-.08	-.19	.01	-		
Percent of 14 points	.30	-.11	-.21	.02	.02	-.22	-.31	-.11	.66	-	
Percent of 3 points	.08	.01	-.11	.01	.07	.02	.02	.15	.29	.30	-

\*p≤.050, \*\*p≤.001

### 6.3.2. Preference between Attractiveness and Income

A mixed ANOVA was conducted to examine the magnitude of the trade-off between men's and women's preference for physical attractiveness and income/financial stability. The importance weight/percent of points allocated to the Income attribute were subtracted from the importance weights/percent of points allocated to the Physical Attractiveness attribute. This was done so that a positive score would indicate a preference for physical attractiveness and larger numbers would indicate a smaller trade-off. Between subjects effects demonstrated a significant difference in the magnitude of the trade-off between genders,  $F(1,102)=30.65$ ,  $p<.001$ ,  $\eta_p^2=.231$ . A test of within-subjects effects found a main effect of method, with  $F(2.10, 207.89) = 4.92$ ,  $p = .007$ ,  $\eta_p^2=.046$ . The interaction of gender and method type was significant,  $F(2.10,207.89)=4.41$ , $p=.012$ ,  $\eta_p^2=.041$ . Huynh-Feldt corrected degrees of freedom are reported. The magnitude of the trade-off from the CBC was significantly smaller ( $M= 5.61$ ,  $SD = 12.36$ ) compared to the 35-point condition ( $M= 0.71$ ,  $SD = 11.23$ ).

To examine whether women valued a mate's income/financial stability more compared to the mate's attractiveness, a series of paired t-tests were conducted for each method used (see Table 6.2 for means and SD). In all the methodologies used, attractiveness was preferred over income, however, not all methods produced a significant difference. Only the conjoint methodology produced a significant preference for attractiveness over income,  $t(67) = -3.45$ ,  $p < .001$  (Bonferroni correction significance level of  $p = 0.0125$ ). The importance weight/percent for physical attractiveness and income/financial stability are presented in Figure 6.3.

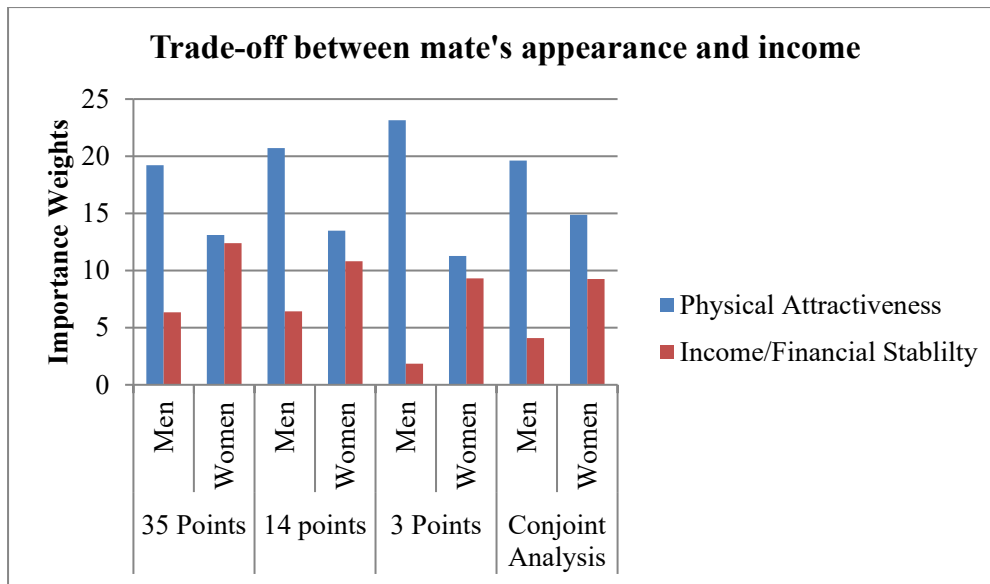


Figure 6.2 illustrates the importance weights allocated to a mate's physical attractiveness and income. Both groups considered physical attractiveness more important compared to income, men consistently contributed more weight of importance to a mate's physical attractiveness compared to women. The magnitude of the sex differences (i.e. the difference between preferences) were the largest in the 3-point condition and the smallest in the conjoint condition.

#### 6.4. Discussion

The present study demonstrates the sensitivity of Choice-Based Conjoint (CBC) Analysis in examining mate preferences. The importance of some attributes over others was comparable to previous work. For example, Kindness and Emotional investment/stability emerged as the most important attributes in a mate for all methods used (Buss et al., 2001; Buss & Barnes, 1986). Overall, the correlations presented with each regression demonstrate that the CBC scores are positively related to the point allocation conditions. Further, the regressions demonstrate comparable results to previous research. The regressions were able to predict the CBC scores for financial stability/income and physical attractiveness. Gender predicted the importance placed on financial stability/income and physical attractiveness, replicating previous results demonstrating women prioritise mate's resources more than men (e.g. Buss, 1989a). Mate value predicted the importance placed on physical attractiveness, in that those who perceived themselves with a higher mate value placed greater emphasis on the attribute, replicating previous results as well (e.g. Edlund & Sagarin, 2010). Within each of the seven attributes, CBC emerged as a middle ground between the different budgetary conditions, demonstrating preference under non-extreme (high or low) conditions. This perhaps makes it the best approach in most situations, as such extremes are generally less common and reflective of a considerably smaller percentage of the overall population and the conditions under which they choose mates.



Mate value predicted conjoint preference for physical attractiveness in that those with higher mate values placed more priority on a mate who was physically attractive. Additionally, mate value was positively correlated with points allocated to the physical attractiveness attribute under different budgetary constraints. Mate value was not related to the participants' rating of the importance of physical attractiveness but was positively correlated with participants' perceptions of their social status. The results do not differentiate between the men and women in the study, and it is possible that the results are driven by the larger proportion of female participants. This would mean the results relate to Social Role Theory (Eagly & Wood, 1999). As women increase in mate value so does their status and their preference for attractiveness. It is possible that women feel their status is tied to their mate value, in that those with high value feel high in status rather than those with high status feel their value increases. Women have historically acquired their status indirectly via their appearance and the value placed on feminine beauty (Davis, 1990; Dion & Stein, 1978; Rudd & Lennon, 1999). This would reflect the results found by Buss and Shackelford (2008) where women with higher levels of physical attractiveness have higher expectations about their partners, including males physical attractiveness. Conjoint analysis then demonstrates itself to be sensitive to this individual variation in mate preference trade-offs.

Previous research suggests men's mate value is mostly unrelated to their preferences (Regan (1998). Regan (1998) also found that the higher their self-assessed social status, the less willing men were to compromise on a woman's status. One potential reason why mate value predicts preference for physical attractiveness and no other attributes may be the result of alternative mating strategies. Jonason and Buss (2012) found that men's mate value was positively associated with behaviours used to avoid becoming entangled in long term commitments. Furthermore, men with higher mate values have greater success in short term mating, which can influence their optimal mating strategy (Penke & Denissen, 2008). It may therefore be that men with higher mate values are less concerned with a mate's kindness and more concerned with their physical attractiveness due to reduced investment in longer term mating.

The present study also investigated sex differences and whether the extent to which the sexes are different has been potentially exaggerated in existing research because of methodological issues. It was predicted that men would express a greater preference for physical

attractiveness compared to women but that this difference would be affected by the methodology used. This hypothesis was supported. Sex differences were found to predict conjoint scores on financial stability/income and physical attractiveness, replicating previous work. Furthermore, the magnitude of the sex difference differed under the different methodologies. The conjoint scores significantly differed from the 35-point condition in the extent of preference for a mate's financial Stability/Income over physical attractiveness. Gangestad and Simpson (2000) suggest that a trade-off must be made between a mate's direct benefits (income as a necessary resource) and their indirect benefits (physical attractiveness as cue for quality genes). The present study subtracted the preference weights of Income from Physical Attractiveness to examine the extent of this preference/trade-off. The results demonstrated that women's preferences as extracted from the CBC condition was more "male typical", expressing a greater preference for physical attractiveness compared to the other conditions. These results are similar to Moore et al. (2006) where both sexes exhibited a stronger preference for physical attractiveness over income, as well as other studies (e.g. Buss, 1989) which demonstrate that men have a stronger preference compared to females. The significance of the present study demonstrates that the magnitude of this sex difference, however, has potentially been over-estimated as a result of the methodologies used. Though women may not express as much preference for physical attractiveness as men, women select mates based on their appearance more than they indicate, demonstrating the inconsistencies previously found in stated vs. act-on mate preferences (Eastwick & Finkel, 2008).

#### **6.4.1. Limitations and Future Directions**

There are several limitations to the present study; however, these limitations do not detract from the value of the results presented. The first limitation are the attributes examined. The attributes included in the present study may not be the most influential attributes. For example, intelligence was not included as an attribute though previous research has demonstrated that intelligence is highly valued by both men and women in prospective mates. This was intentional as intelligence is difficult to disentangle as either a direct (material resources) or indirect (genetic quality) benefit in mate selection (Prokosch et al., 2009). Additionally, although physical attractiveness was included as an attribute, from an evolutionary perspective it also has the issue of signalling both direct and indirect benefits. Physical attractiveness is associated with better health (e.g. Rhodes et al., 2003; Thornhill & Gangestad, 2006) and genetic inheritability, however, it is also associated with higher incomes (Hume & Montgomerie, 2001; Judge et al., 2009). Similar to intelligence,

participants may be able to bypass the trade-off suggested by Gangestad and Simpson (2000) between direct (resource) and indirect (genetic) benefits. By presenting mate profiles that distinctly contain different levels of each attribute that may not naturally co-occur (.g. high attractiveness but low income), conjoint is better able to disentangle trade-offs than ratings or point allocations, though still limited by the attributes themselves.

Similarly, another notable attribute missing from the mating profiles was gender role ideology. The conjoint scores were not predicted by gender role ideology as measured by the ambivalent sexism inventory subscales. Previous research has demonstrated that benevolent sexism ideology predicts women's preference for traditional gender roles within relationships and partners with comparable attributes (Johannesen-Schmidt & Eagly, 2002). Furthermore, previous studies have demonstrated that as women's hostility increased, their preference for 'warm partner' and 'romantic partner' decreased (Lee, Fiske, Glick, & Chen, 2010). These results, though, were based on rating scales. The correlations demonstrated that gender role ideology related to the rating and point allocations for the 35-point and 14-point conditions for the financial stability/income attribute. This relates to Li et al (2002) concept of necessity versus luxury, as well as the discrepancy for preference versus actual choice. Gender role ideology may only influence mate preferences when the level of mate attributes meet the requisite level for desirability. The levels of attributes within the conjoint method limited the scope of variability of each attribute to high, medium, or low, whereas ratings and point-allocation offer a greater range of variability. Furthermore, assortative mating leads to people partnering with mates who are similar to themselves on many attribute (e.g. Kalmijn 1991, 1994). The lack of the inclusion of gender role ideology as a mate factor means that mate choice under CBC may not be influenced by gender role ideologies. Future studies may wish to include ideology as an attribute, along with intelligence

The second limitation is that only seven attributes were used in the present trade-off study whereas previous studies have used 10 or more (e.g. Edlund & Sagarin, 2010; Li et al., 2002). Including more attributes beyond six or seven, however, also increases difficulty for participants; this results in them resorting to simplification strategies to deal with the difficulty of the task (Orme, 2002). In the future, further studies could make use of Adaptive Choice-Based Conjoint (ACBC). ACBC is a more advanced methodology that first asks participants to outline their preferences along several attributes, followed by a binary choice

(acceptable/unacceptable) of several profiles, and then the standard CBC task. An advantage of ACBC is that it can accommodate more attributes by examining an individual's preference values and focusing on those attributes. This also has the advantage of obtaining strong individual-level estimates. The variation and adaptability of Conjoint methodology is a clear advantage over the point-allocation methodology.

Edmund & Sagarin (2010) suggest budgeted tasks are valuable for assessing how individual differences impact priorities, however, previous work has also found that a discrepancy exists between stated mate preference and mate choice. Conjoint Analysis provides a method in which preference are extracted directly from choice, thus removing the pre-existing discrepancy. This makes Conjoint Analysis a superior methodology. Conjoint Analysis is more ecologically valid to utilize over other methods such as budgeted tasks, as it is an approximate replication of the processes that occur in mate choice. Further, it lacks the cognitive burden of point allocation methodologies that require participants to perform arithmetic and understand the abstract value of a point per attribute. The future direction is to examine whether the results of Conjoint can be manipulated.

## **Chapter 7. Study 6: Meta-Stereotypes and Conjoint Analysis**

### **7.1. Introduction**

The study in this chapter addresses methodological limitations of studies presented earlier in this thesis. The first is in the implementation of Wakefield et al.'s (2012) manipulation of meta-stereotype awareness as a means of altering women's perceptions of their status in society, and the second is to utilise Conjoint Analysis as a means of examining trade-offs between several attributes.

In Study 4, it was argued that women's perception of their ability to live independently and their meta-stereotype awareness would affect the magnitude of the trade-offs they made between partner's resource attributes and their physical attractiveness. This was tested by adapting methodology from Wakefield, Hopkins, and Greenwood (2012) who found that female participants' behaviour changed with the awareness that men may stereotype women as dependent. In Study 4, however, there were no differences in partner preference between conditions. This may have been due to methodological complications such as the manipulation being delivered to groups of up to 15 participants at a time. This may have reduced the impact of the manipulation as it relies on the participant overhearing a sham telephone call, and possibly the personal interaction that occurs between the female experimenter and female participant. The present study rectifies this by reducing numbers to one or two participants at a time. This allows for a more natural and intimate interaction between the participant(s) and the experimenter, thus increasing the saliency of stereotype expectations and how women may navigate situations in which they are faced with benevolent sexism (e.g. either embracing the sexism as a means to accomplish goals or confrontation). This is intended to force the participants to consider how they would manage a similar problem and how the men in their lives may respond.

Furthermore, this study seeks to improve on Study 4's results in another way. As discussed in Study 4, the method of analysis of partner preference trade-offs was limited by only allowing assessment of a trade-off between two variables. As discussed in both Study 4 and 5, preferences and mate values are a function of several attributes that can weigh differently and some attributes may only be considered relevant after other attributes have reached a sufficient level, or a very high level of one attribute may compensate for inadequacy in

another (Edlund & Sagarin, 2014; Li et al., 2002). Conjoint analysis allows for the consideration of several attributes at different levels.

Furthermore, the increments used in the isocline methodology may lack sensitivity. The minimum income used in the isocline method was £20,000 which is close to the median income of £21,300 (Reuben & Yau, 2014). As the minimum was still close to the median income, the participants may not have fully recognized the disparity between salary levels because the minimum still met the level the participants perceived as the minimum necessary threshold for consideration (Li et al., 2002). In addition, the analysis examined the trade-offs made between each level of attractiveness and then these trade-offs were averaged together. Accordingly, differences that emerged between the different levels may have been unintentionally suppressed.

In Study 5, the conjoint method was restricted to general identifiable terms (e.g. high, medium, low) which clearly represent different socioeconomic levels and lifestyles. As previously discussed, there is a discrepancy between stated and actual mate preferences (Eastwick et al., 2011; Eastwick & Finkel, 2008). In Study 5, Conjoint Analysis was demonstrated to be a superior method of examining the trade-offs made between multiple attributes outside of the most extreme ranges because it was more sensitive to women's preferences. The present study repeated the manipulation from Study 4, using a modified version of Wakefield et al.'s (2012) paradigm to manipulate how competent a female participant feels in order to see whether this acts as an accurate measure of status, which then affects her mate preferences. Unlike Study 4, the study presented in this chapter will utilize Conjoint Analysis, as Conjoint is a more sensitive method.

## **7.2. Purpose and Hypotheses**

The present study examines how meta-stereotype awareness affects women's mate preferences with three hypotheses. The first hypothesis is that presenting the participants with a situation in which a woman is either a) benefiting from a man's benevolent sexism or b) commenting on the sexism exhibited by a man will increase or decrease the participants' own sexism, respectively. Similarly, as benevolent sexism is associated with women's lower status in society and hostile sexism seeks attempts to punish the women who attempt to disrupt the status quo (Fiske et al., 2002; Peter, Glick & Fiske, 1996; Gowaty, 1992), it is predicted that women's subjective social status will be affected by meta-stereotype

awareness. Lastly, it is predicted that women's mate attribute trade-offs will change with an increase in awareness.

### **7.3. Methods**

#### **7.3.1. Participants**

One hundred and nineteen participants took part in phase one online portion of the experiment. Fifty-two participants completed the second phase of the experiment (mean age = 20.62, SD = 5.20). Data from non-heterosexuals were excluded (n = 5). Forty-two of the participants were from the UK, 4 were from Europe and 1 was from the United States. Fourteen of the participants were in a serious relationship, 4 were in a casual relationship and 26 were single; this did not significantly differ between the two experimental conditions,  $\chi^2(2) = 0.151, p < 0.927$ .

#### **7.3.2. Materials**

##### **7.3.2.1. *Meta-Stereotype Awareness Manipulation Check***

Items were taken from Wakefield et al. (2012) as a stereotype awareness manipulation check, as this was the manipulation check used in the original study that the studies in Study 4 and 6 are based on. The participants were given four items that asked about the extent to which men endorse a meta-stereotype. Participants were asked to rate on a scale of 1 (not at all) to 7 (very much) the extent to which they agree that men believe the following statements apply to women: a) women often have to depend on men for help, b) women's most distinguishing trait is their neediness, c) women seem to struggle to do anything without men's help and d) it is common for women to have to rely on men to get things done. The mean scores of these four items were calculated to create a composite measure of stereotype awareness such that higher scores indicated heightened awareness.

##### **7.3.2.2. *Competence Perceptions Measure***

A replication of the competence check used in Study 4 (see section 5.2.2.5) which examined whether the manipulation affected participants' sense of competence and independence.

##### **7.3.2.3. *MacArthur Scale of Subjective Social Status***

The MacArthur Scale of Subjective Social Status scale (Goodman et al., 2001) was used as a measure of the participants status. See Chapter 3, section 3.2.2.2.1 for a complete description.

#### 7.3.2.4. *Ambivalent Sexism Inventory*

The Ambivalent Sexism Inventory (ASI: Glick & Fiske, 1996) was used as a measurement of the participants' gender ideology. See Chapter 2, section 2.2.2.3 for a complete description. The scale is presented in Appendix 3.

#### 7.3.2.5. *Mate Attribute Preferences*

##### 7.3.2.5.1. 13-item partner preference task

Mate attribute preferences were measured by participants rating 13 mate attributes on their desirability/importance taken from on a scale from 1- Extremely unimportant or undesirable to 7- Extremely important or desirable. See chapter 4, section 4.3.3.3 for further description.

##### 7.3.2.5.2. Conjoint Analysis

The Choice-Based Conjoint (CBC) Analysis previously used in Study 5 was utilized in this study (see section 6.2.2.4.3). Participants were told that prospective mates had been previously rated on the seven attributes as either high, medium or low compared to the general public. Definitions of the attributes were provided. Participants were asked to select one profile as a long-term romantic partner from a choice of five, which was repeated 19 times with different sets of choices.

### 7.3.3. Manipulation

The manipulation was the same as used in Study 4 (see section 5.2.3). Two weeks after completing the online version of the study, participants were brought into the lab. Once all the participants had provided consent, they began to fill out the survey they previously completed online; however, this process was disrupted when the experimenter's phone began to ring. The experimenter claimed it is her landlord and asked the participant to stop for a moment while she took the call. The experimenter recited one of two possible scripts acting as the different condition primers. One script had the experimenter upset and explain to the participant that the landlord is sexist, and believes that women are unable to do certain tasks (e.g. unclog a drain), while another script had the experimenter express gratitude for what her landlord did as she would not be able to do it herself. These act as the "High Competence" and "Low Competence" conditions, respectively.



#### **7.3.4. Procedure**

Participants completed the first phase of testing via a web link which brought them to the online survey. The survey asked participants to include a personal email address to provide consent. The email address was later used to match the data to the participant between the two testing phases. The survey then continued with a battery of questionnaires.

Under the pretext of the online system having lost their data, participants were contacted via email and invited to come into the lab to repeat the experiment approximately two weeks after completing the online survey for additional course credit. They were told that the study was moved into the lab to ensure that the data saved properly. Participants were tested in either individually or in pairs. The participants completed the same online survey, starting with several demographic questions (which were interrupted with the phone call priming) and then continued with the rest of the online survey. After finishing the original online survey portion was completed, participants answered the manipulation check items that assessed their level of stereotype awareness and how competent/independent they felt.

### **7.4. Results**

#### **7.4.1. Meta-Stereotype Awareness Manipulation Check**

The manipulation requires for the participants to be aware of the nature of the experimenter's phone call in order to be effective. Therefore, the participants were reminded that the experimenter took a call at the start of the study and presented several options. Participants who correctly identified who had called and the experimenter's response were included in the analysis ( $n=41$ ). From the stereotype awareness manipulation check, participants in the Low Competence condition perceived men as endorsing the dependency-related stereotype of women ( $n=18$ ,  $M=3.03$ ,  $SD=1.69$ ) compared to women in the High Competence condition ( $n=23$ ,  $M=2.78$ ,  $SD=1.49$ ), however this was not a significant difference,  $t(39)=-.49$ ,  $p=.625$ .

#### **7.4.2. Competence Perception Measure**

To check whether there was an effect of the manipulation on participant's perceived level of their own competence, the items assessing the participants' perception of their competence were put into a factor analysis. One factor emerged (Eigenvalue = 1.90). There were no significant differences between the High Competence condition ( $M=.01$ ,  $SD=1.11$ ), and the Low competence condition ( $M=-.08$ ,  $SD=.80$ ) on the competence factor,  $t(39)=.31$ ,  $p=.756$ .

### 7.4.3. MacArthur Scale

A mixed ANOVA was used to examine whether participants' current subjective perception of their status changed as a function of the time point (pre- and post-manipulation) and manipulation (high- versus low-competence). Tests of within-subjects effects found a significant change over time,  $F(1,36)=7.81$ ,  $p=0.008$ ,  $\eta_p^2=0.178$ , observed power=.776. Tests of between-subjects effects tests revealed no significant differences between the two experimental conditions,  $F(1,36)=2.45$ ,  $p=.126$ ,  $\eta_p^2=.064$ , observed power=.332. There was no significant interaction between time and condition,  $F(1,36)=2.02$ ,  $p=.164$ ,  $\eta_p^2=.053$ , observed power=.282.

A mixed ANOVA examined the participants' self-perceived future subjective status. There was no main effect of time,  $F(1,36)=2.88$ ,  $p=.098$ ,  $\eta_p^2=.074$ , observed power=.379. There was also no main effect of experimental condition,  $F(1,36)=.57$ ,  $p=.454$ ,  $\eta_p^2=.016$ , observed power=.114. Lastly, no interaction was found between time and conditions,  $F(1,36)=1.31$ ,  $p=.260$ ,  $\eta_p^2=.035$ , observed power=.200.

### 7.4.4. Ambivalent Sexism Inventory

A mixed ANOVA was used to examine whether participants' sexism changed as a function of time and manipulation. The means for participants' scores are presented in Table 7.1. The first mixed ANOVA examined participants Benevolent Sexism (within-subjects 2 levels: time) between the two conditions. The within-subjects effects did not produce a significant difference between pre-test and post-test,  $F(1,37)=1.42$ ,  $p=.214$ ,  $\eta_p^2=.038$ , observed power=.213. The between-subjects effects did not produce a significant effect,  $F(1,36)=.42$ ,  $p=.522$ ,  $\eta_p^2=.011$ , observed power=.096. There was, however, a significant interaction between the participants time and condition,  $F(1,36)=4.39$ ,  $p=.043$ ,  $\eta_p^2=.103$ , observed power=.532, such that those in the Low Competence condition scored lower on the ASI scale from Time 1 to Time 2, whereas the High Competence condition scored higher on the ASI from Time 1 to Time 2.

The second mixed ANOVA examined participants Hostile Sexism (within-subjects 2 levels: time) between the two conditions. Tests of within-subjects effects found a significant difference in participants' Hostile Sexism between time 1 and time 2,  $F(1,36)=9.34$ ,  $p=.004$ ,  $\eta_p^2=.206$ , observed power=.844. There was no significant difference found in tests of between subjects effects,  $F(1,36)=.61$ ,  $p=.440$ ,  $\eta_p^2=.017$ , overserved power=.118. Lastly,

there was no interaction between condition and time,  $F(1,36)=.31, p=.584, \eta_p^2=.008$ , observed power=.084.

**Table 7.1 Mean (SD) Ambivalent Sexism Scores for High and Low Competence conditions are Time 1 and Time 2**

	Benevolent Sexism		Hostile Sexism	
	Time 1	Time 2	Time 1	Time 2
Low Competence	3.26 (1.22)	3.00 (1.00)	2.75 (0.93)	2.42 (0.63)
High Competence	2.83 (1.41)	2.90 (1.29)	2.99 (1.35)	2.76 (1.40)
Mean	3.01 (1.33)	2.94 (1.16)	2.89 (1.18)	2.62 (1.14)

#### 7.4.5. Mate Attribute Ratings

To reduce the number of items used for analysis, the approach as outlined by Edlund and Sagarin (2010) was followed. Thus, 13 mate attribute ratings were combined into three themes. The first theme was Abstract Attributes included: *Kindness & Understanding, Sociability, Dependable Character, Emotional Stability & Maturity, Mutual Attraction & Love, and Exciting Personality* (Cronbach's alpha =.67). The second theme was Direct Benefits, which constituted attributes that indicate a mate's status and potential for resource investment: *Refinement & Neatness, Good Financial Prospects, and Ambition & Industriousness* (Cronbach's alpha =.66). The third theme was Indirect Benefits, which reflect good genes included *Good Health and Good Looks & Attractiveness* (Cronbach's alpha =.66). The attributes *Desire for Home & Children* and *Education & Intelligence* were excluded from the analysis due to as they did not fit clearly into one theme. The attribute items were averaged together to create the theme scores. The mean scores are presented in Table 7.2.

A mixed ANOVA was conducted that examined the participants' rating of the three attribute themes changed as a function of time and manipulation. The attribute preferences differences were examined (within-subjects: 3 levels) along with the time points (within-subjects 2 levels: time) between the two conditions. A significant difference was found in preference within the three attribute themes,  $F(2,35)=31.32, p<.001, \eta_p^2=.472$ , overserved power=1.00). There was no significant difference in the preference ratings within the two time periods, ( $F(1,35)=3.19, p=.083, \eta_p^2=.084, \eta_p^2=.412$ ). There was no significant difference between the experimental conditions, ( $F(1,35)=0.26, p=.661, \eta_p^2=.007, \eta_p^2=.079$ ). No significant interactions were found between the attributes and the experimental conditions ( $F(2,35)=2.83, p=.101, \eta_p^2=.075, \eta_p^2=.373$ ), the time periods and the call conditions ( $F(2,35)=0.03, p=.860, \eta_p^2=.001, \eta_p^2=.053$ ).

**Table 7.2 Mean Scores (SD) for Mate Attribute Ratings**

Attribute	Time 1		Time 2	
	High Competence	Low Competence	High Competence	Low Competence
Abstract Attributes	6.20 (0.51)	5.97 (0.58)	5.98 (0.47)	5.87 (0.53)
Direct Benefits	5.06 (1.10)	4.91 (1.11)	4.47 (1.06)	4.73 (1.06)
Indirect Benefit	4.79 (1.20)	5.52 (0.86)	4.98 (0.86)	5.28 (0.71)

#### 7.4.6. Conjoint Trade-Offs

A mixed multivariate ANOVA was used to examine the trade-offs made under the Conjoint, with the preference weightings for the 7 mate attributes compared at the two times of testing points and across the 2 conditions.

There was no main effect of time,  $F(1,35)=.28, p=.604, \eta_p^2=.008$ , observed power=.080, There a main effects a significant difference among the attributes,  $F(4.40,154.15)=36.87, p<.001, \eta_p^2=.513$ , observed power=1.000. Women weighed a mate's Kindness as the most important attribute and pairwise comparison tests revealed this to be significantly higher ( $p<.005$ ) compared to all other attributes except Emotional Investment/Stability ( $p=.410$ ). Emotional Investment/Stability was weighted as the second most important attribute and was significantly different compared to the remaining attributes ( $p<.007$ ) except for a mate's level of Similarity ( $p=1.000$ ). Similarity was the third most important attribute was not found to be significantly different compared to Physical Attractiveness ( $p=.699$ ) but weighed significantly more in participant decision making compared to other attributes. Physical Attractiveness was the fourth most important attribute but was not significantly different from Financial Stability/Income ( $p=1.000$ ). Financial Stability/Income was not significantly different from the importance give to Social Leve/Dominance ( $p=.195$ ) and Creativity/non-work-related talents ( $p=.087$ ). Social Level Dominance was not significantly more important compared to Creativity/non-work-related talents ( $p=1.000$ ).

There was no significant interaction between time and experimental condition ,  $F(1,35)=2.33, p=.136, \eta_p^2=.062$ , observed power=.312.

There was no significant interaction between attributes and experimental condition,  $F(4.40, 154.15) = .45, p = .505, \eta_p^2 = .013$ , observed power = .160. There was a significant interaction between the participants' preference weights and the time of collection,  $F(5.39, 188.71) = 2.81, p = .015, \eta_p^2 = .074$ , observed power = .849.

There was no significant interaction between time, attributes and experimental condition,  $F(6, 188.71) = .92, p = .73, \eta_p^2 = .26$ , observed power = .154 (Huynh-Feldt corrected degrees of freedom are reported). A series of pairwise comparisons were made to investigate the interaction of time and attribute. Each attributes importance weight was compared between the two collection times. Women's preference for a potential mate's Physical Attractiveness significantly differed between the two time periods,  $t(37) = -3.01, p = .005$  with a Bonferroni corrected significance level of  $p = .007$ , with women a weaker preference for the attribute at the first phase of testing ( $M = 11.03\%$ ,  $SD = 7.75\%$ ) compared to the second phase of testing ( $M = 14.51\%$ ,  $SD = 8.01\%$ ).

**Table 7.3 Mean Conjoint Importance Scores (SD)**

Attribute	Time 1		Time 2	
	High Competence	Low Competence	High Competence	Low Competence
Financial Stability/ Income	9.97 (6.52)	10.49 (8.55)	9.63 (6.87)	10.04 (7.35)
Social Level/ Dominance	7.40 (4.06)	8.16 (6.17)	5.39 (3.59)	5.26 (4.72)
Similarity	17.68 (9.17)	18.05 (9.37)	16.79 (8.52)	16.10 (7.42)
Physical Attractiveness	10.57 (7.67)	11.23 (8.15)	15.45 (8.01)	12.91 (7.76)
Emotional Investment/ Stability	20.01 (8.22)	21.67 (8.92)	19.65 (7.77)	22.75 (9.78)
Kindness	27.97 (11.04)	24.88 (11.69)	29.03 (10.21)	25.84 (9.03)
Creativity/non- work-related talents	6.42 (5.80)	5.53 (3.63)	4.07 (4.46)	7.10 (5.77)

## 7.5. Discussion

It was hypothesised that women would alter their mate preferences when their meta-stereotype awareness increased, and that conjoint analysis would be sensitive to this alteration. The results of the experiment, however, indicate that women's meta-stereotype awareness does not impact the trade-offs made between a potential mates' attributes despite more sensitive methodologies. Similarly, women did not rate their preference for a potential mates' attributes differently, nor did their perceptions of status not ambivalent sexism change

between the conditions. However, given that the manipulation check demonstrated no significant effects on most variables, this seems more likely to reflect the study methodology than of the underlying variables.

Though the manipulation checks used in the present study (both the original from Wakefield et al.'s 2012 study and the items created to check for women's general independence) did not result in significant differences between the two groups, the participants in the Low Competence condition perceived men as endorsing the dependency-related stereotype more than the participants in the High Competence condition. The lack of significant difference may be the result of low participant numbers, which has further implications on the remaining results of the present study. Taken with the similar failure in Study 4, however, it may simply reflect the inadequacy of this experimental procedure. Although the procedure was drawn from the existing literature, the present study was carried out in a different setting and it is simply possible that the attempt to prime participants to the different conditions was inadequate for that task.

One of the key differences from the original manipulation described by Wakefield et al. (2012) was the lack of a neutral condition (in which the experimenter disregarded the call and continued the experiment without comment) and the inclusion of a positive condition where the experimenter was grateful for the benefiting from benevolent sexism. Participants who witnessed the experimenter complain about one sexist man perceived men as a group to endorse stereotypes less and felt they were more capable of living independently. This is an unexpected result and may indicate a sort of derision (or backlash) toward the female researcher for complaining about sexism in a situation where it was not clearly evinced. In this way, participants may be seeking to distance themselves from the feminist group identity represented by the female researcher. Navigating every day social interactions can be difficult as situations may be vague, and each interaction requires an understanding of the intent and motivations of others. These intentions and motivations can be hard to predict. Though some women embrace the benefits associated with benevolent sexism (Kilianski & Rudman, 1998), other women may not embrace the benefits but are also not inclined toward confrontation. Reasons for avoiding confrontation can include normative pressures to not respond, social pressures to be polite, and concern about retaliation (Swim & Hyers, 1999). When a person claims another has acted in a discriminatory fashion, that person will often be perceived less

favourably and as “a complainer” (Kaiser & Miller, 2001). This is particularly true when the situation or intention is vague. The participants in the present study may not have perceived the situation as explicitly sexist in nature, and therefore assumed the female experimenter was overly stating the sexism of the man and the responses in the manipulation check may be an “over-correction”.

Though the manipulation was meant to manipulate the participants’ meta-stereotype awareness, it is possible that the participants’ focus was on the experimenter rather than the man on the phone. Future studies may present a more explicit sexism prime. Dodd, Giuliano, Boutell, and Moran (2001) conducted a study in which participants read a conversation between two men and a woman making plans for a camping trip. In one condition, a man makes a clearly sexist remark to the woman suggesting “Since you’re the woman, why don’t you take care of the cooking”. However, in the other condition the level of sexist intent is ambiguous as he suggests “I’ll take care of the tent; why don’t you handle the cooking”. The woman would then either confront or dismiss the remark. Female participants respected the woman the most when she confronted the explicated sexist comment and the least when she confronted the ambiguous comment. The study in the present chapter may not be as explicitly sexist as the explicit condition in Dodd et al. (2001), and thus, the female participants may not have viewed the examiner as favourably as they would if the sexism had been clearer. However, the study by Dodd et al. (2001) did not examine a) the participants’ own endorsement of sexism before or after the experiment nor b) the participants’ perception of the men in the transcript. It may then be better to use a manipulation such as that used by Hitlan, Pryor, Hesson-McInnis, and Olson (2009) who presented a 12-minute long segment from the movie *Show Girls* in which a male producer makes degrading comments about the female performers’ appearances to male participants. The study found that both personal and situational factors are important to sexist behaviour and attitudes. The sexism prime increased the number of sexist questions the male participants asked a female confederate, particularly those low on sexism measures than those with high sexism. As explicit sexism elicits stronger reactions, and therefore future focus should be on the perpetrator of the sexism rather than the “victim” of it.

Though women’s preferences did not differ between the two experimental conditions, women’s mate preferences as found in both the rating measures and in the Conjoint Analysis

were found to have shifted between the two time conditions. When women were brought into the lab two weeks after the first collection phase, they expressed a significantly greater preference for a mate's physical attractiveness in the Conjoint task. Though the ranking task produced generally non-significant effects, it is worth noting that the attributes that significantly differ were the attributes typically associated with women's mate trade-offs (Good Looks & Attractiveness, Ambition & Industriousness, Good Health). It is possible that there was either a regression to the mean, an impact of environmental factors (home vs lab), or that the magnitude of women's preferences can fluctuate naturally.

One explanation for the lack of results may have to do with the participants' expectations about their lives. The present study attempted to tap into women's self-efficacy about their ability to live independently. Women's self-efficacy about their ability to live independently may explain the conflicting results in which women who are more educated have less of a preference for men's income increases of educational equality and education itself is positively related to the preferences for physical attractiveness (Eagly & Wood, 1999; Kasser & Sharma, 1999; Lottes & Kuriloff, 1994) whereas female income/wealth is positively related to preference for male resource-acquisition traits (Kalmijn, 1991, 1994; Townsend, 1989; Wiederman & Allgeier, 1992). It is also possible that a relatively insignificant event such as the experimental condition could not affect such outcomes because more educated women may be more likely to have more solidified existing expectations.

Self-efficacy allows a person to adjust and plan what they believe they can accomplish in the future. Eagly, Eastwick and Johannensen-Schmidt (2009) asked participants to imagine their life in the future in which they are married with children under the age of five and the role they would play within the family. Participants were instructed to either imagine themselves as the main provider of the family with full-time employment, a secondary provided with part-time employment, or as a stay-at-home parent, or was freely allowed to imagine their role. When familial roles were assigned, men and women expressed similar preferences for mate's resource trait. However, when they allowed to freely imagine, significant sex differences emerged with women expressing much stronger preferences for mate's resource traits. The significant sex differences in the free imagining condition demonstrates internalized or default marital roles.



## Chapter 8. General Discussion

### 8.1. Summary of key findings

The main aim of this thesis was to examine how different measures of women's status relate to sex-differentiated mate preferences and the examination of the trade-offs made in mate preferences. Investigating how different measures of women's status relate to mate preferences allows for testing between two key theories: The Evolutionary Psychology (EP) approach and Social Role Theory (SRT).

In Study 1, age, educational backgrounds, gender role ideology and financial independence were expected to shape the trade-offs women made in their mate preferences. The results indicated that preference for intelligence and status were related to women's own education level. The results of this study are consistent with previous research supporting evolutionary accounts, which demonstrated an increase in women's educational attainment relates to higher preference for men's resource acquisition traits (Kalmijn, 1991, 1994; Townsend, 1989; Wiederman & Allgeier, 1992). Furthermore, preference for partner's personality appeared to run along a continuum (i.e. fun vs loving) that was related to participant age. This demonstrates a consistent preference for relationship investment and satisfaction. The form of relationship investment, however, may change with age (i.e. moving from a fun relation to a loving relationship). There was no factor related to preference for masculinity, suggesting that women prioritise resources and relationships, over physical appearance.

In Study 2, women's senses of objective and subjective status were manipulated by placing them in a rigged competitive system. The results demonstrated that participants in the low status condition rated physical attractiveness as more important/desirable compared to high status females, which was in opposition to much of the previously discussed research. The study was unable to provide evidence for Social Role Theory. It was therefore argued that women exhibit highly flexible mating strategies that are dependent on a variety of factors, and that the manipulation of Study 2 tapped into strategies associated with low paternal investment.

In Study 3, the use of isoclines was introduced to examine the equivalency trade-offs. It was examined whether gender role engagement was associated with status and the trade-offs between mate attributes. There was no relation between the measures of status (measured via

perceptions of power and prestige), and gender role engagement, for both male and female participants. Gender role engagement was related to gender role endorsement for male participants only. Measures of status, gender role engagement and ideology did not predict the extent that participants exhibited preference for physical attractiveness over resources, for both male and female participants. In examining the isoclines, power as measured by financial independence, predicted the magnitude of the trade-off women made between a mate's physical attractiveness and income. This was not the case, however, for male participants. It was argued that isoclines were not sensitive to individual variation, due to the limited ability to effectively calculate isoclines at the individual level. Many participants rated a face of a certain level of attractiveness as consistently desirable, regardless of the income attached. There were no significant differences between men's trade-offs and women's trade-offs, demonstrating that men and women exhibit comparable equivalency trade-offs. The lack of difference, however, only demonstrated an equivalency in value but not an equivalency in choice.

Study 4 examined how women's sense of status and mate preferences might change when their meta-stereotype awareness was increased. The study did not produce significant differences in ratings of status or in the equivalency trade-offs. It was unclear if the lack of significance was the result of an insensitivity of the isocline methodology or if the manipulation itself was not effective. For this reason, the isocline methodology was not used for further studies, and the manipulation was re-visited in Study 6 with improvements on the methodological procedure.

In Study 5, Conjoint Analysis was piloted to examine trade-offs and demonstrated that mate value predicted women's preference for physical attractiveness. Mate value appeared to be an effective measure of holistic status. Mate value was not related to the participants' rating of the importance of physical attractiveness but was positively correlated with participants' perceptions of their social status. Conjoint analysis produced similar findings regarding mate preference trade-offs in comparison to other methods of analysis. In comparison to the point-allocation methodology that was also utilised, only the conjoint analysis produced significant preference for attractiveness over income for women. Conjoint Analysis was deemed sensitive to both individual variations as well and was demonstrated to be useful for between-group comparisons.

Study 6 addressed some of the limitations that were present in Study 4. Study 6 replicated the manipulation from Study 4, however Conjoint Analysis replaced Isoclines. Meta-stereotype awareness did not impact mate preference trade-off. Though there were no significant differences between the two manipulation groups, mate preference differences were found within participants. The results were possibly due to a small sample size, though the direction of the results suggested a potential backlash against the female experimenter.

## **8.2. The relation of power and mate preferences**

The first objective was to examine the effects of women's perceptions of their power on sex-differentiated mate preference trade-offs. Power was examined via financial independence, education and income. It was hypothesised that participants who felt they had greater power would express greater preference for physical attractiveness compared to those with less financial control. Though efforts were made to broaden the participant pool, the income measure could not be used as many participants were enrolled in higher education or did not provide an assessable measure of income. For example, some participants stated they received student loans but not the amount, whereas other participants provided their annual income, or salary per hour and excluded the number of hours they worked. The data collected about income then could not be assessed. For this reason, income was not used for most studies. Similarly, education as a measure of power is limited by the age of participants as younger participants are more likely to take part in studies but have also had limited time to complete their education. Thus, the best measure of power was the participants self-perception of their financial independence.

Though education may not be the best measure of power, it does provide insight into the mechanisms of mating preferences. In examining education in Study 1, that participants' education related to preferences for status and intelligence, but not masculinity. This result is in opposition to Social Role Theory and studies that demonstrated increases of education measures positively related to the preferences for physical attractiveness (Carmalt, Cawley, Joyner, & Sobal, 2008; Eagly & Wood, 1999; Kasser & Sharma, 1999). Instead, this result is most like studies that support evolutionary theory such as Townsend (1989) and Kalmijn (1991, 1994). Social Role Theory would suggest instead that women would find a complimentary mate rather than an assortative mate. Complimentary mates under SRT would contribute an alternative attribute (e.g. a masculine roles and resources, with women's roles

and attractiveness). Thus, as women's education increases there should be a reduce their demand for men's education. Evolutionary accounts do not diminish the influence of cultural or social factors on mate preferences. Evolutionary accounts suggest that women will select mates to improve evolutionary fitness. As women's education increases, they can demand mates who are their assortative match. The assortative matching allows them to demand mates of the highest quality, relative to their own mate value. The results of Study 1 do not demonstrate the effects expected from the various social influences and ideological changes the women were expected to represent. Instead, the study further provides evidence that does not support the "structural powerless model" as suggested by SRT.

It may be that previous results that demonstrate education leading to women's exhibiting more male typical mate preferences were tapping into alternative psychological phenomena, such as participants' expectations for their future, financial independence and self-efficacy. Education provides access to better paying jobs and is associated with greater financial independence (Xiao et al., 2014), thus participants may have different expectations for their life depending on level of educational attainment. There may have also been a unique component to the samples under review, as many studies have re-analysed the data from Buss (1989). As discussed in Chapter 2, higher education rates for women increased through the 20th century, however, was still culturally novel in the 1980s (Goldin, 2006). The women from these studies then may have had greater sense of financial independence or self-efficacy, with personalities that to match the more "masculine role" they were filling. As educational attainment became more normal, women's role become redefined to include access to this resource. It then could be argued that the impact of social factors in mating behaviour decreases as gender roles adapt within a culture. This could explain part of the conflicting results in examining how women's status impacts mate preferences as discussed in the introduction. SRT can provide a distal explanation for behaviour, but one that is still fairly short from an evolutionary perspective. This then leaves the evolutionary approach with greater explanatory power for the overarching origins for mating patterns that are consistently demonstrated.

As stated, previous studies that present evidence for Social Role Theory point to educational levels and financial independence that lead to women's exhibiting more male typical mate preferences. In examining financial independence, in Study 2, financial independence itself

did not predict preference for the mate attributes examined. Attempts at manipulating perceptions of financial independence were not successful in Studies 2, 4 and 6 nor did financial independence seem to be related to gender role engagement as examined in Study 5. In Study 3, women's financial independence was a significant predictor of the extent of preference for physical attractiveness over resources on a rating task. These results should be interpreted tentatively. The financial independence predictor in Study 3 suggests that the more financial independence women have, the less they exhibit preference for physical attractiveness over resources. This result goes against previous results by Moore et al. (2006) and Moore et al. (2010). Moore's research examined current financial control and suggests that as women increase in power, they exhibit greater preference for physical attractiveness over resources (i.e. more male typical preference), providing support for SRT. However, the results of the thesis include a measure of future financial independence and suggest that as financial independence is either not a factor, or preferences become more female-typical. As demonstrated in Eagly et al., (2009) a person's vision for the future affects mate preferences. It is possible then, that the inclusion of future thinking may over-ride the influence of current factors. Thus, the results do not provide support for SRT.

Financial Independence has previously been demonstrated to be linked to women's preference for men's physical attractiveness over his financial prospects (Moore et al., 2006) whereas income alone predicts preference for financial prospects (Townsend, 1989; Wiederman & Allgeier, 1992). It was proposed that the conflicting results of women's economic position's impact on mate preferences reflect differences in the measures used, as wealth is not equivalent to power, and neither are equivalent to personal attitudes (Gangestad & Simpson, 2000a). Throughout this thesis, financial independence did not produce consistent results. Financial independence was not related to gender role engagement, nor did it predict mate preferences as examined in Study 3. A possible explanation for the lack of significant relation found between financial independence and mate preference trade-offs could be due to the ambiguity of what it means to be financially independent; for example, two individuals may be at opposing ends of an income scale but both have full control over how their income is spent. Due to the influences of their social spheres, it is unlikely they would express preference for the same mate, even though they may rate attribute preferences similarly.

### **8.3. The relation of subjective status and mate preference trade-offs**

The second objective was to examine how subjective status impacts mate preference trade-offs. This was examined using a subjective status scale throughout the thesis. Social Role Theory would suggest there is a relationship between subjective status and mate preferences, as a subjective status does not explicitly relate to education nor income, but women's broader sense of status within a community. The results, of this thesis however, generally failed to provide support for SRT. Overall, subjective status does not appear to relate to mate preferences – or at least- not relate to mate preferences independently from financial independence. Subjective status was intended as a measure of prestige, i.e. how the participant felt they were viewed within their community. Measures of subjective status are moderately correlated with objective measures which suggested that the subjective dimensions of status were likely to independently predict status-related outcomes (Adler, Epel, Castellazzo, & Ickovics, 2000; Goodman et al., 2001). Within this thesis, however, this was not generally found to be the case with one notable exception.

In Study 2, female participants were allocated to high or low status societal roles to manipulate their subjective status. Though there were no significant differences on the measures between the two groups on the MacArthur Scale of Perceived Social Status (Goodman et al., 2001), the gender perception factors revealed that the high status group felt that women were lower in social power, and felt that their gender would be a benefit to their careers, compared to the low status group. Conversely, the lower status group felt their gender hindered their performance in the study and rated physical attractiveness as more important/desirable compared to high status females. The results of Study 2 contradict studies that demonstrate those high in status are less sensitive to systemic issues of power and are less engaged with others, possibly due to their higher levels of independence (Oakes & Rossi, 2003; Piff et al., 2010). However, the results support previous research where those with high status attribute their relative success to internal characteristics, whereas those with low status attribute their position to societal constraints (Kraus et al., 2009). The results of Study 2 also contradict previous research that demonstrated a positive relation between women's economic position and their demand for physically attractive partners (Carmalt et al., 2008; Gangestad, 1993; Swami, Furnham, et al., 2007; Tovee et al., 2007). This suggests that women have flexible mating strategies which change depending on their subjective status rather than their financial status. Status, in this way, is related to mate preferences however,

notably in a direction that is in opposition to the Social Role Theory. Instead, the result more closely resembles the “sexy sons” hypothesis of the evolutionary approach, suggesting that females’ preferences for attractiveness are propagated because they are likely to mate with attractive males, thereby passing on both their mate’s attractiveness and their preference for the attribute (Cameron, Day, & Rowe, 2003). Thus, the results support the evolutionary account over the social role account, suggesting that biological pressures influence mating behaviour over socio-cultural.

Though subjective status produced results in Study 2, the use of the scale through the rest of the thesis were not as fruitful. In Study 3, subjective measures of status were not found to predict or relate to the other variables under review. In Study 4 and Study 6, attempts were made to manipulate participants’ sense of status. These manipulations did not significantly alter subjective measures of status nor did they significantly impact mate preference trade-offs. In these two studies, the sense of status originated from gender related hierarchies in society whereas Study 2 made use of a financial and occupational hierarchy. Though subjective status can be manipulated, as seen in the work of Kraus and colleagues, the results of this thesis demonstrate that subjective status are more strongly tied to financial status than gender. This may be due to the saliency of the role of finances and occupation in a relatively egalitarian society. Reflecting on the measure used for subjective status, it is possible that the participants misinterpreted the item. Rather than view the subjective status scale as a measure of their place within society, they defaulted to relating their socioeconomic status. It is interesting to note that the two manipulations used in the present thesis did not produce similar results. It is possible then that subjective status can relate to mate preferences, when the nature of subjective status as it relates to gender is made fully salient. However, this would require gendered status to be made salient to such an extent that would be out of place in relatively egalitarian societies.

#### **8.4. Gender roles and status**

The third objective of the present thesis was to examine the effects of status and the endorsement of traditional gender roles on mate preference trade-offs. The endorsement of traditional gender roles acts a measure of an individual’s beliefs about the position of men and women in society, as traditional gender roles places men in the provider (high status) position and women in the homemaker (lower status) position. This was assessed through the Ambivalent Sexism Inventory (ASI, Glick & Fiske, 1996) used throughout this thesis.

In Study 1, it was anticipated that differences would emerge between age groups on ambivalent sexism scores and mate preferences. Though differences were found, there were in the opposite direction than anticipated. The 18-24-year olds expressed greater sexist ideologies than the older age cohorts. Closer inspection of the data revealed that most participants between 18-24 did not respond to the ASI, suggesting that there may be a confounding variable between this age cohort and older cohorts. It is possible that this age cohort is leading a fourth wave of feminism with the growing internet culture (e.g. Munro, 2013). It is difficult then to generalise the results or predict whether those currently 18-24 will come to express comparable gender ideology and mate preferences as they grow older. A larger scale or longitudinal study would be beneficial in exploring whether the results are an effect of age or a change in zeitgeist in the younger age cohorts.

If SRT were supported as a theory, there should be a complimentary effect of gender roles in men as is argued to exist in women. Study 3 examined the relations of gender role engagement, gender role ideology, and different types of status (financial independence and social status). All these factors were then examined in relation to mate preferences and trade-offs. Overall, the results demonstrated a minimal relation between gender roles and status and did not support Social Role Theory. The strongest result was the greater men's gender role engagement and the more they expressed sexist ideologies. As previously discussed, hostile sexism stems from competition between the sexes and benevolent sexism views women as inferior and incompetent (Christopher & Mull, 2006; Glick & Fiske, 1996, Glick et al., 2000). Both forms of sexism are used to justify a status quo hierarchy that keep women in a lower status within society. Males who engage in traditional masculine gender roles hold the conflicting views of both feeling threatened by and wanting to protect women. Sexism and gender role engagement were positively correlated with the status measures, (though not significantly). This would suggest then that men who low in status relative to other men, may rely more on gender roles a means of maintaining a hierarchy by suggesting a legitimacy of the status quo. Conforming to gender expectations helps maintain social hierarchies (Rudman, et al, 2012), which places them in a position of power.

Women, on the other hand, would hypothetically benefit from not conforming to gender roles and sexist ideologies. Within Study 3, however, the lack of a significant relations between all the measures suggests that though women may be benefitting from less restricted roles, they



are not expressing the ideologies. Further, the lack of relations also suggests that women may not be feeling restricted in their access to resources and status. The results of the present thesis are not suggesting that women have indeed reached parity with men, but instead, that women are not consistently sensitive to how status is often discussed in the extant of the literature. As previously discussed, Conroy-Beam et al., (2015) argued that their extrapolated data suggests that a society with perfect equality between the sexes would result in greater sex differences. Men's mating preferences were not significantly influenced by their status measures, or gender role measures. Though there is a status associated with gender in society, it does not appear to motivate mating behaviour as it relates to gender roles itself. Overall, there does not appear to be a strong link between status, gender role engagement and gender role ideology. Though sexism has been found to be related to mate preferences in previous research (see section 1.3.5.1) the results of Study 3 did not demonstrate a direct link between gender role ideology and mate preferences, nor gender role engagement and mate preferences.

In Study 5, measures of preference trade-offs under the high (35) and medium (14) point allocation conditions for financial stability/income were positively related to hostile sexism; benevolent sexism was negatively related to future perceptions of status and positively related to rating preference of financial stability/income. Previous research has demonstrated that benevolent sexism ideology predicts women's preference for relationships and partners with traditional gender roles, in this case men with good earning potential (Johannesen-Schmidt & Eagly, 2002). Furthermore, previous studies have demonstrated that as women's hostility increased, their preference for a 'warm partner' and 'romantic partner' decreased (Lee et al., 2010). The results of Study 5 support this previous research. Women who believe they will be low status in the future adapt to this expectation by adopting a preference for men who can be relied upon to provide financial stability.

Studies 4 and 6 attempted to manipulate women's perceptions of gender-based status. They made use of meta-stereotypes; however, it is not clear if manipulate was effective. The existence of stereotypes about different types of women (e.g. housewives and feminists) suggest there is a status associated with these groups (Fiske, Cuddy, Glick, and Xu, 2002). The results of the study, however, do not seem to make salient the status differences that exist between genders. Women in Study 6 did view men as endorsing sexist ideologies more, but this is not the same as feeling that women are lower in status. In navigating mating

behaviours, the results do not suggest that it is women's relative position in society that drives their choices. Instead, though women may still, as a group, be lower in status relative to men, their mate selection criteria are not impacted by this factor. The results demonstrate that the evolutionary explanation offers a more robust account of mate preferences.

### **8.5. Methodological considerations**

Participants were recruited via online surveys advertised across social media (Study 1, 3, and 5) in order to obtain a more diverse sample and avoid relying solely on a local undergraduate sample. This was mostly successful, although it did somewhat bias the results toward North America and the UK instead. As detailed in Chapter 2, the US and UK experienced a significant cultural shift within the 20<sup>th</sup> century, so the results of the studies presented in this thesis may not replicate cross-culturally. Though the results tend to lend support for the evolutionary approach, the limited national representation within the sample limits the generalisability of the results. The online studies were relatively successful in recruiting participants who were on average older than the typical undergraduate student, with large standard deviations. Other than in study 2, where a concerted effort was made to recruit participants of the widest age range possible, the participants ages ranged from approximately 18-40 years old. While not entirely inclusive, the age range does span a large portion of female reproductive capability. As evolutionary theory focuses on reproductive efforts, the sample is representative of a population seeking to reproduce. The studies that were conducted in laboratory settings were limited to those in higher education, specifically enrolled at The University of Dundee, and thus tended to be younger. Further, as they were enrolled in higher education, the participants may not be representative of a larger human population both culturally and historically. Education has been linked to reproductive behaviours (Newson et al., 2007; Stewart & Winter, 2015; Twenge, 2001), and has not been accessible to populations through history (see section 2.1.1). The data collected from the participants in this thesis, however, does reflect similar samples from other studies (e.g. Wierdeman & Allgeier, 1992) and thus the results can be compared.

A further methodological issue was the use of scales that do not tap into appropriate psychological phenomena, and the use of scales where the value between one rating and ranking is not equivalent between each position on the scale. Due to the labour involved in creating and validating measures, many researchers find themselves restricted to using scales that may be outdated or inaccurate/unreliable. To address this issue, measures not common in

mate preference research were used such as the MacArthur Scale of Perceived Social Status (Goodman et al., 2001). Similarly, in Study 3, women were given the Masculine Behaviour Scale (MBS; Snell, 1989) whereas men were given the Gender Role Conflict Scale (GRCS, O'Neil et al., 1986). As argued in Study 3, the two scales both measure gender role engagement but one scale would not have suited both genders due to social pressures and emerging gender roles. Lastly, at times, novel scales were created (Chapter 2) as pre-existing measures would not capture the psychological elements under examination.

Another common methodological issue in mate preference research is the use of self-assessed rating scales for preference. Rating scales are useful for assessing the extent of preference for individual attributes; however, they are insufficient for assessing preference trade-offs. To address the issue of rating scales, this thesis made use of several methods to measure trade-offs. Point allocation methods have been used in previous mate research (e.g. Edlund & Sagarin, 2010) and were used in Study 1 and 5. Additionally, the use of isoclines and conjoint analysis were introduced to the examination of mate preferences. Isoclines (Study 3 and 4) allowed for the direct comparison of desirability between two attributes in their value to participants. Although only two attributes were used with the isocline methodology in the present study, it is possible to develop more complicated formulas to allow for more attributes. Conjoint analysis (Study 5 and 6) allows for the comparison of multiple attributes across several levels simultaneously (e.g. high level of intelligence, low level of kindness, medium level of physical attractiveness). Conjoint analysis was demonstrated to be related to previous methods of trade-off analysis, while also having greater ecological validity as it relies on participants actively choosing mates just as they would in real life.

## **8.6. Limitations**

There were several limitations regarding both data collection and the ability to base conclusions on the data. These limitations have been discussed within each study, but many studies share the same limitation. These limitations raise the question of the quality of the data collected, and the interpretation of results. Many of the studies included in this thesis used online surveys, which can provide a large sample size, however, though efforts were made to be as inclusive as possible, online surveys can also be limiting in reaching a broad range of socio-economic levels. Online surveys contain risk as participants have the freedom to take part at their leisure and thus may lose focus or interest, resulting in either thoughtless or incomplete responses. In Study 4 and 6, participants were asked to complete an online

survey and then to come into a research lab for the second phase of testing. This resulted in a high rate of attrition as less than half of the participants would return for the second phase of testing. Both online surveys and lab-based research run the risk of having a biased sample of women with an interest in psychological research, or women with a high level of conscientiousness and focus to complete the surveys to the end.

The studies presented relied heavily on self-report data and rating scales, which may be prone to problems. Self-reported data may often be less accurate due to social desirability which can make examining the impacts of status on mate preferences difficult. Measures related to status may be particularly affected by this as people generally strive to obtain a high status. Furthermore, when rating or ranking mate attribute preferences, it is possible that the participants' scores do not reflect actual mate choices. Conjoint analysis was used in Study 5 and 6 as a means of using mate choice to measure preference in order to circumvent the issue of self-reported rating-based data. Rating scales were still necessary in order to assess status and gender ideology.

There is an inherent limitation that it is difficult to ascertain whether current behaviours and preferences are adaptive to modern environments. Longitudinal research is necessary in order to examine the effects of status and mate choice on reproductive success. In Study 1, online surveys were used to examine differences between different age groups of women, however, this research was cross sectional and thus it is difficult to disentangle whether preferences are the result of age, environment or societal norms that had been internalised.

In keeping with this limitation, there is the question of how lasting or consistent the mate preferences expressed by participants are. In Study 4 and 6, there were statistically significant differences between the expressed mate preferences at the two time frames. In Study 4, desirability ratings differed between the two testing phases, along with an interaction of condition. In Study 6 using conjoint analysis, women expressed a weaker preference for the attribute of Physical Attractiveness in the first testing phase, compared to the second phase of testing. These differences could simply be a statistical artefact of losing participants from the two times. Alternatively, it could also reflect an inherent instability in mate preferences over time, or an effect of the context in which the study was carried out—for example, at a university computer lab or at home in a more relaxed state. Ultimately, the number of

potential factors which might impose short-term effects on perceptions raises the question of how a researcher can know if they are measuring participants' mate preferences in a "reference frame," or what kind of reference frame is most appropriate if preferences are fluid.

Perhaps the most significant limitation are the two experimental studies described in Study 4 and 6. These studies were both heavily limited in that the results suggested that the experimental manipulations did not have the desired effect on participants. There are several potential reasons for this, most of which have been discussed. In Study 4, it was hypothesized that the large size of the experimental groups may have caused this failure, but the experiment still failed to manipulate participants in Study 6 after it was revised to include both smaller participant groups and an additional sexism primer. Another possible reason for this failure might be the ambiguity of the situation presented, wherein the sexism was only present through the researcher's assertions to the participants. This may have resulted in the researcher's perception of sexism being written off as simply baseless complaining.

Another possibility is simply that perceptions of women's status cannot be effectively manipulated in the sample used for the study, which involved university students for both experimental studies. The primer used in the experiments was relatively minor, and given the increasing awareness of sexism and gendered issues in today's environment, it is possible that the women who participated in the experiment had views that were already too strongly formed to be easily manipulated. Conversely, the course credit given to the undergraduate participants caused them to engage with the study only as a task and therefore not have a meaningful reaction to the primer. This would then have been perceived as an undesired interruption making the process last longer rather than an incident with any meaning. Regardless of the reason, this limitation means that the ultimate aims of the experimental studies cannot be said to have been strongly achieved. Therefore, future researchers may need to find a more effective means of manipulating sexism awareness.

Another limitation of the studies pertained to the isocline methodology utilized in Study 3. This approach seemed promising but ultimately proved less valuable than hoped because of a lack of linearity in the data. The limitations of this methodology were thoroughly discussed in Chapter 4 and Chapter 5. The limitations of the method led to its abandonment as a means of

assessing mate preference trade-offs. The isoclines major flaws consistent of the assumed linearity of data, assumed trade-offs made between attributes, and the inability to calculate trade-offs when linearity was not present. The isoclines could only be calculated for a small subset of the participants. This raises the question of whether results were achieved in the studies were meaningful given that they extended onto to that limited subset of participants who produced linear data. This limitation might be addressed in the future by finding some methodology like isoclines that is more capable of accepting nonlinear data.

In some cases, the instrumentation limited the study. For example, the Ambivalent Sexism Inventory may have come full circle and reached the same obsolescence of the earlier measure that it was designed to replace. This is because cultural norms regarding gendered expectations have shifted such a way that the Ambivalent Sexism Inventory items may not evoke the reactions they were designed to. This limitation casts some doubt upon any of the results that were obtained with the use of the ASI, in the sense that it is not clear whether the ASI measures the intended underlying constructs in the current sociocultural context.

### **8.7. Future Research**

Several issues arose from the results of this thesis that provide direction for future research. The results from the present thesis did not generally find that financial status related to mate preferences in the way predicted by SRT. There was, however, a relation between mate preferences and educational attainment in a limited sample. Previous research has found relations between mate preferences and financial independence (e.g. Moore, Cassidy, & Perrett, 2010) and educational attainment (Eagly & Wood, 1999; Kasser & Sharma, 1999; Lottes & Kuriloff, 1994). It is possible that these studies indirectly measured psychological phenomena that are associated with status but are not direct measures of status themselves. Future research may benefit from examining the role of self-efficacy on mate preferences. Self-efficacy is related to future planning and how one envisions their life. The biosocial model predicts people will choose mates in order to optimise potential outcomes. Self-efficacy may play a role in mate preferences as a means of choosing a mate that will enable people to pursue the life, they imagine for themselves.

The manipulations used in Study 4 and 6 attempted to increase the saliency of societal status differences of men and women, however the manipulations did not appear to be successful. A study by Moore & Cassidy (2010) attempted to manipulate women's perceptions of their

status by asking individual participants to list either the positive or negative aspects of being a woman. Though the manipulation did not influence women's perceptions of their individual status, it did prime the participants into considering women's positions at a societal level. A comparable mixed methods approach, with qualitative research component, may provide insight into women's attitudes towards their status in society as well as their individual status. By asking a group of women to discuss the positive and negative aspects of women's position in society, saliency of status differentials between the sexes may be increased. Similarly, skewing the sex ratio of men and women in this group may also increase gendered social identity in order to assess whether status is a function of the individual or the group.

Overall, future research needs to find better experimental methodologies for manipulating status variables or determining if this is even possible. Due to the failure of the manipulations in Study 4 and 6, the results did not determine whether competence conditions and meta-stereotyping significantly changed women's mate preferences. This may be a fruitful line of inquiry for future researchers. Alternately, if manipulation continues to be unfeasible, these questions could be examined through a correlational lens while controlling for other factors. Although this would produce weaker results, it would also eliminate the need to be concerned with whether or not a manipulation had worked—and, even if it had, whether or not a momentary manipulation could be said to have meaningful effects on true longer-term goals and expectations.

With respect to isoclines, this approach seemed to show promise but then fell short. This suggests a possibility of developing or finding an approach with a similar functionality to isoclines, but which can apply to nonlinear data. The Conjoint Analysis in the later studies sought to replace the isoclines but as it is functionality different in many ways, this does not displace the potential benefits that might result from a more appropriate isocline-style analysis. Isoclines provide the ability to capture a specific trade-off point, much like delayed discounting methodologies within cognitive literature. If a means of effectively utilising this method can be ascertained for non-linear data, it may demonstrate to be useful in examining the equivalency trade-offs as they relate to personality attributes (e.g. sociosexual orientation).

Conjoint Analysis was effective in examining the trade-offs made within and between attributes. This suggests strong interdisciplinary possibilities going forward by applying the marketing-inspired CA approach to the psychological field of mate selection. Future studies may wish to continue to apply CA, testing whether its apparent sensitivity is robust. CA may be utilised in several ways, for example, in presenting sexually dimorphic along with mate attributes. This would allow researched to examine whether information presented in faces and conflicting information presented in profiles has a greater influence on mate preferences. Furthermore, applying CA in a case where the experimental manipulation was more successful might yield results more along the lines of those expected. CA has begun to be used within mating research (e.g. Mogilski et al., 2014) but is still underutilised.

Another key direction for future research may be to look further at the function of financial independence. Throughout this thesis, financial independence did not produce consistent results, and these conflicting results point to a need for further research to examine the true effect of becoming more financially independent on mate preferences. In this regard, it might behove future researchers to take more qualitative approaches to research under consideration. Although there is a distinction between stated and actual preferences in some existing research, this research itself relied primarily on quantitative indicators of both rather than asking participants to qualitatively describe their feelings on attraction to certain characteristics and how other factors, such as their current level of financial independence, may or may not affect that.

Lastly, new measures to assess gender role ideology may need to be created. As discussed in Chapter 2, the Ambivalent Sexism Inventory was created to replace outdated measures that did not reflect modern attitudes towards women. Though it is difficult for social measures to keep pace with cultural evolution, it may be ineffective to continue to use old measures that no longer reflect the current understanding and attitudes of gender role ideology.

## **8.8. Conclusion**

This thesis explored two origin theories of sex differentiated mate preferences: Evolutionary Psychology's (EP) sexual strategies theory and Biosocial Psychology's Social Role Theory (SRT). The results presented provide further insight into the relationship between women's status and sex differentiated mate preferences. Overall, the findings suggest that women's



status can relate to mate preferences but do not provide support for the biosocial account over the evolutionary account. Instead, the result supports evolutionary views such as those expressed by Buss and Shackelford (2008). For example, women with higher status, whether via education, financial independence, or physical attractiveness, are able to make higher demands of men with regard to his resource acquisition ability and his physical attractiveness. There are clear social factors that can influence mate preferences, such as education or sexist ideologies, however, they do not appear to be the driving force behind mate preferences.

The evolutionary account does not dismiss the influence of culture on variation within sex differences and mate preferences (Gangestad et al., 2006). It does, however, provide a clear and powerful explanation for consistent patterns. Social Role Theory, on the other hand, offers an attractive alternative explanation by pointing systemic patterns. Further, SRT provides a line of enquiry that links with egalitarian ideologies and social reform. Unfortunately, the evidence required to provide sufficient support for SRT has not been found within this thesis. Women's status, access to resource, and gender roles can impact mate preferences, but not as SRT predicts in a consistent manner. Gender roles do exist and can be flexible in response to the demands placed on men and women. They are, however, not the source of gender differences. Instead, they reflect evolved psychological differences between men and women.

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## Appendices

### Appendix 1. Measures of Status for Study 1

What is your maximum level of education?

<b>Primary School</b>	<b>Secondary School</b>	<b>College</b>	<b>University Undergraduate</b>	<b>University Postgraduate</b>
-----------------------	-------------------------	----------------	---------------------------------	--------------------------------

What is your mother's maximum level of education?

<b>Primary School</b>	<b>Secondary School</b>	<b>College</b>	<b>University Undergraduate</b>	<b>University Postgraduate</b>
-----------------------	-------------------------	----------------	---------------------------------	--------------------------------

What is your father's maximum level of education?

<b>Primary School</b>	<b>Secondary School</b>	<b>College</b>	<b>University Undergraduate</b>	<b>University Postgraduate</b>
-----------------------	-------------------------	----------------	---------------------------------	--------------------------------

How Financially Independent are you?

<b>Completely dependent on others</b>						<b>Completely independent</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**Appendix 2. Single-Item Mate-Value**

How attractive do you consider yourself to be?

Not at all

Completely

Attractive

Attractive

1

2

3

4

5

6

7

### Appendix 3. Ambivalent Sexism Inventory (ASI: Glick & Fiske, 1996)

Below is a series of statements concerning men and women and their relationships in contemporary society. Please indicate the degree to which you agree or disagree with each statement using the following scale: 0 = disagree strongly; 1 = disagree somewhat; 2 = disagree slightly; 3 = agree slightly; 4 = agree somewhat; 5 = agree strongly.

B(1) 1. No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman.

H 2. Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality."

B(P)\* 3. In a disaster, women ought not necessarily to be rescued before men.

H 4. Most women interpret innocent remarks or acts as being sexist.

H 5. Women are too easily offended

B(I)\* 6. People are often truly happy in life without being romantically involved with a member of the other sex.

H\* 7. Feminists are not seeking for women to have more power than men.

B(G) 8. Many women have a quality of purity that few men possess.

B(P) 9. Women should be cherished and protected by men.

H 10. Most women fail to appreciate fully all that men do for them.

H 11. Women seek to gain power by getting control over men.

B(I) 12. Every man ought to have a woman whom he adores.

B(1)\* 13. Men are complete without women.

H 14. Women exaggerate problems they have at work.

H 15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash.

H 16. When women lose to men in a fair competition, they typically complain about being discriminated against.

B(P) 17. A good woman should be set on a pedestal by her man.

H\* 18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances.

B(G) 19. Women, compared to men, tend to have a superior moral sensibility.

B(P) 20. Men should be willing to sacrifice their own well-being in order to provide financially for the women in their lives.

H\* 21. Feminists are making entirely reasonable demands of men.

B(G) 22. Women, as compared to men, tend to have a more refined sense of culture and good taste.

Note. H = Hostile Sexism, B = Benevolent Sexism, ( P ) = Protective Paternalism, (G) = Complementary Gender Differentiation, (I) = Heterosexual Intimacy, \* = reverse scored item.

#### Appendix 4. Point Allocation Task for Study 1

You have been allocated 35 partner points to split between 7 categories of partner characteristics. You should decide how important each set of characteristics is to you in a potential long-term romantic partner and allocate points accordingly. For example, if the only characteristic that matters to you is commitment, you should allocate all 35 points to the "Pleasant personality and committed to the relationship" category. It's likely, however, that you'll want to split the points up between several categories. Please do so by allocating the points in accordance with how important the characteristic is to you.

Masculine personality and appearance	
Pleasant personality and committed to the relationship	
Fun and adventurous	
Compatible with you and loving	
Talented	
Intelligent	
Good values and status	



### Appendix 5. Measure of Gendered Perceptions

The following questions probe your feelings and attitudes along several dimensions. Think about the game you have just finished played and the feelings you had during and after play. Please rate your responses on the following statements on a scale of 1 (Not at all) to 7 (Extremely). Please try to not overthink your answers and go with your first instinct. Your answers will be kept completely anonymous so please answer honestly.

1. Do you feel your gender had an impact on your performance?

Not at all						Completely
1	2	3	4	5	6	7

2. Did you feel your gender benefited your performance?

Not at all						Completely
1	2	3	4	5	6	7

3. Did you feel your gender was a hindrance?

Not at all						Completely
1	2	3	4	5	6	7

4. At any point in the study, did you feel self-aware of your gender?

Not at all						Completely
1	2	3	4	5	6	7

5. How strongly do you identify with your gender?

Not at all						Completely
1	2	3	4	5	6	7

6. How typical of your gender do you feel?

Not at all						Completely
1	2	3	4	5	6	7

7. How much do you believe your gender impacts your sense of self?

Not at all						Completely
1	2	3	4	5	6	7

8. How much do you believe your gender dictates your personality?

Not at all						Completely
1	2	3	4	5	6	7

9. How much do you believe your gender impacts others' perceptions of you?

Not at all Completely

1            2            3            4            5            6            7

10. I am very much like other people in my gender

Not at all Completely

1            2            3            4            5            6            7

11. I am very much NOT like other people in my gender

Not at all Completely

1            2            3            4            5            6            7

12. The world perceives my gender as being of lower power.

Not at all Completely

1            2            3            4            5            6            7

13. The world perceives my gender as being of higher power

Not at all Completely

1            2            3            4            5            6            7

14. The world perceives my gender as being of lower status

Not at all Completely

1            2            3            4            5            6            7

15. The world perceives my gender as being of higher status

Not at all Completely

1            2            3            4            5            6            7

16. I feel my career options are limited due to my gender

Not at all Completely

1            2            3            4            5            6            7

17. At this moment, I am financially independent (e.g. from parents or partners?)

Not at all Completely

1            2            3            4            5            6            7

18. I believe I will be financially independent

Not at all Completely

1            2            3            4            5            6            7

19. It is very important to me to be the main financial provider for my family

Not at all Completely

1            2            3            4            5            6            7

20. I believe it is a man's duty to be the main financial support for his family

Not at all Completely

1            2            3            4            5            6            7

21. I believe it is a woman's duty to be the main financial support for her family

Not at all Completely

1            2            3            4            5            6            7

22. Traditional gender roles are better for families

Not at all Completely

1            2            3            4            5            6            7

23. I would like to have final say over familial decisions (e.g. child rearing, religion, diet)

Not at all Completely

1            2            3            4            5            6            7

24. I believe the husband should have final say over familial decisions (e.g. child rearing, religion, diet)

Not at all Completely

1            2            3            4            5            6            7

25. I believe the wife should have final say over familial decisions (e.g. child rearing, religion, diet)

Not at all Completely

1            2            3            4            5            6            7

26. I believe the husband should have final say over how the family resources (e.g. time and money) should be spent

Not at all Completely

1            2            3            4            5            6            7

27. I believe the wife should have final say over how the family resources (e.g. time and money) should be spent

Not at all Completely

1            2            3            4            5            6            7

## Appendix 6. The MacArthur Scale of Perceived Social Status

Think of this ladder as representing where people stand in their communities.

People define community in different ways; please define it in whatever way is most meaningful to you. At the top of the ladder are the people who have the highest standing in their community. At the bottom are the people who have the lowest standing in their community.



Compared to other members of your community, where do you stand on this social ladder at this time?

<b>Bottom most rung</b>						<b>Topmost rung</b>
1	2	3	4	5	6	7

Compared to other members of your community, where will you stand on this social ladder in the future?

<b>Bottom most rung</b>						<b>Topmost rung</b>
1	2	3	4	5	6	7

Compared to other members of your community, how financially independent are you at this time?

<b>Bottom most rung</b>						<b>Topmost rung</b>
1	2	3	4	5	6	7

Compared to other members of your community, how financially independent do you think you will be in the future?

<b>Bottom most rung</b>						<b>Topmost rung</b>
1	2	3	4	5	6	7

### Appendix 7. Brief Mood Inventory

INSTRUCTIONS: Circle the response on the scale below that indicates how well each adjective or phrase describes your present mood.

Lively	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Happy	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Sad	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Tired	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Caring	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Content	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Gloomy	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Jittery	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Drowsy	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Grouchy	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Peppy	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Nervous	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Calm	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Loving	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Fed Up	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel
Active	Definitely do not feel	Do not feel	Slightly Feel	Definitely Feel

Overall, my mood is:

Very																			Very	
Unpleasant																			Pleasant	
-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10

## Appendix 8. Mate Attribute Items for Study 2

### Instructions

The following questions relate to your partner preferences. By “partner” we mean a romantic long-term partner (e.g. boyfriend or girlfriend, husband, or wife). Your answers are completely anonymous, so please be honest in your answer. Try to not take too long to answer any particular question or overthink your response. It is best to get your first reaction.

*Please fill in the spaces below with your answers.*

What age is *most ideal* for your partner to be? \_\_\_\_\_ *years old*

What is the *maximum* age acceptable for your partner? \_\_\_\_\_ *years old*

What is the *minimum* age acceptable for your partner? \_\_\_\_\_ *years old*

Please rate each character trait you would like your ideal partner to have, on a scale of 1 (least important/desirable) to 7 (most important/desirable).

#### 1. Sincerity

Least							Most
Important/Desirable							Important/Desirable
1	2	3	4	5	6		7

#### 2. Faithfulness

Least							Most
Important/Desirable							Important/Desirable
1	2	3	4	5	6		7

#### 3. Tenderness

Least							Most
Important/Desirable							Important/Desirable
1	2	3	4	5	6		7

#### 4. Reliability

Least							Most
Important/Desirable							Important/Desirable
1	2	3	4	5	6		7

#### 5. Communicative

Least							Most
Important/Desirable							Important/Desirable
1	2	3	4	5	6		7

6. Passion						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
7. Carefulness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
8. Amusing						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
9. Love for children						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
10. Self-confidences						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
11. Maturity						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
12. Intelligence						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
13. Kindness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

14. Tidiness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
15. Ability						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
16. Sociability						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
17. Optimism						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
18. Sense of humour						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
19. Good manners						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
20. Diligence						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
21. Capability to earn						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7



22. Physical attractiveness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
23. Independence						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
24. Educated						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
25. Enterprising						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
26. Beauty						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
27. Ambition						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
28. Youth						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
29. Success in job						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

30. Good taste in clothes						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
31. Courage						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
32. Good looks						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
33. Elegance						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
34. Attractiveness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
35. Seriousness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
36. Temperament						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
37. Talkativeness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

38. Thinness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
39. Talent for sports						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
40. Strength						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
41. Thriftiness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
42. Dominance						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
43. To have money						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
44. Interesting profession						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
45. Popularity						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

46. To have a car						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
47. Popularity among the opposite sex						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
48. Talent for arts						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
49. Jealousy						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
50. Fragility						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
51. Shyness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
52. Overweight						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
53. Introversion						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

54. Spoilt brat						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
55. Self-pity						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
56. Aggressiveness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
57. Fearfulness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
58. Insecurity						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
59. Selfishness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7
60. Conceitedness						
Least						Most
Important/Desirable						Important/Desirable
1	2	3	4	5	6	7

Of the 60 traits you just rated, please rank the top twenty (20) most important/desirable traits you would have in your ideal partner. The trait that is most desirable should be in spot 1 and the least desirable in spot 20.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_

## List of Attributes

Ability	Enterprising	Maturity	Sociability
Aggressiveness	Faithfulness	Optimism	Spoilt brat
Ambition	Fearfulness	Overweight	Strength
Amusing	Fragility	Passion	Success in job
Attractiveness	Good looks	Physical attractiveness	Talent for arts
Beauty	Good manners	Popularity	Talent for sports
Capability to earn	Good taste in clothes	Popularity among the opposite sex	Talkativeness
Carefulness	Independence	Reliability	Temperament
Communicative	Insecurity	Self-confidences	Tenderness
Conceitedness	Intelligence	Selfishness	Thinness
Courage	Interesting profession	Self-pity	Thriftiness
Diligence	Introversion	Sense of humor	Tidiness
Dominance	Jealousy	Seriousness	To have a car
Educated	Kindness	Shyness	To have money
Elegance	Love for children	Sincerity	Youth

### Appendix 9. 13-item partner preference task (Buss, 1989)

#### Instructions

The following questions relate to your partner preferences. By “partner” we mean a romantic long-term partner (e.g. boyfriend or girlfriend, husband, or wife). Try to not take too long to answer any particular question or over-think your response. It is best to get your first reaction. Please rate each character trait you would like your ideal partner to have, on a scale of 1 (extremely unimportant/undesirable) to 7 (extremely important/desirable).

#### 1. Kindness and Understanding

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7

#### 2. Sociability

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7

#### 3. Refinement, Neatness

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7

#### 4. Good Financial Prospect

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7

#### 5. Dependable Character

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7

#### 6. Emotional Stability & Maturity

Extremely							Extremely
Unimportant/Undesirable							Important/Desirable
1	2	3	4	5	6		7



## 7. Desire for home and children

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 8. Good looks, Attractiveness

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 9. Ambition &amp; Industriousness

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 10. Mutual Attraction - Love

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 11. Good Health

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 12. Education &amp; Intelligence

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

## 13. Exciting Personality

Extremely

Extremely

Unimportant/Undesirable

Important/Desirable

1

2

3

4

5

6

7

### Appendix 10. Masculine Behavioural Scale

OPINION INVENTORY INSTRUCTIONS: The items listed below inquire about some of your attitudes, beliefs, and opinions. As such, there are no right or wrong answers, only your responses. For each item you will be asked to indicate how much you agree or disagree with the statement listed in that item.

Use the following scale to indicate your degree of agreement/disagreement with each item:

A	B	C	D	E
Agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Disagree

The response that best describes your reaction to each statement is the one which you will select. Now, go ahead and respond to the statements. Be sure to answer every question, even if you are not sure. Also, please be honest in your responses

1. I spend a great deal of my time pursuing a highly successful career.
2. I don't usually discuss my feelings and emotions with others.
3. I don't devote much time to intimate relationships.
4. I try to be in control of everything in my life.
5. I am very ambitious in the pursuit of a success-oriented career.
6. I am not the type of person to self-disclose about my emotions.
7. I don't involve myself too deeply in loving, tender relationships.
8. I make sure that I "call all the shots" in my life.
9. I devote extensive time and effort to the pursuit of a professional career.
10. I don't often talk to others about my emotional reactions to things.
11. I don't become very close to others in an intimate way.
12. I don't take orders (or advice) from anybody.
13. I do whatever I have to in order to work toward job success.
14. In general, I avoid discussions dealing with my feelings and emotions.
15. I don't often tell others about my feelings of love and affection for them.
16. I don't let others tell me what to do with my life.
17. I work hard at trying to ensure myself of a successful career.
18. I don't often admit that I have emotional feelings.
19. I tend to avoid being in really close, intimate relationships.
20. I don't allow others to have control over my life.

## Scoring Instructions

The Masculine Behavior Scale (MBS) consists of four subscales, each containing five (5) separate items. The labels and items for each of these subscales are listed below:

### **Success Dedication Subscale (Self-Description)**

1. I spend a great deal of my time pursuing a highly successful career.
5. I am very ambitious in the pursuit of a success-oriented career.
9. I devote extensive time and effort to the pursuit of a professional career.
13. I do whatever I have to in order to work toward job success.
17. I work hard at trying to insure myself of a successful career.

### **Restrictive Emotionality Subscale (Self-Description)**

2. I don't usually discuss my feelings and emotions with others.
6. I am not the type of person to self-disclose about my emotions.
10. I don't often talk with others about my emotional reactions to things.
14. In general, I avoid discussions dealing with my feelings and emotions.
18. I don't often admit that I have emotional feelings.

### **Inhibited Affection Subscale (Self-Description)**

3. I don't devote much time to intimate relationships.
4. I don't involve myself too deeply in loving, tender relationships.
11. I don't become very close to others in an intimate way.
15. I don't often tell others about my feelings of love and affection for them.
19. I tend to avoid being in really close, intimate relationships.

### **Exaggerated Self-Reliance and Control Subscale (Self-Description)**

4. I try to be in control of everything in my life.
8. I make sure that I "call all the shots" in my life.
12. I don't take orders (or advice) from anybody.
16. I don't let others tell me what to do with my life.
20. I don't allow-others to have control over my life.

### *Coding Instructions for Items*

Each and every item is coded so that:

Agree	= +2
Slightly agree	= +1
Neither agree nor disagree	= 0
Slightly disagree	= -1
Disagree	= -2

The five items on each subscale are then summed, so that more extreme positive (negative) scores correspond to greater agreement (disagreement) that the items on the Masculine Behavior Scale are descriptive of oneself.

### **Appendix 11. Gender Role Conflict Scale**

Instructions: Please select, the number that most closely represents the degree that you Agree or Disagree with the statement. There is no right or wrong answer to each statement; your own reaction is what is asked for. Please indicate the degree to which you agree or disagree with each statement using the following scale: 1 = disagree strongly; 2 = disagree somewhat; 3 = disagree slightly; 4 = agree slightly; 5 = agree somewhat; 6 = agree strongly.

Factor 1--success, power, competition (13 items)

1. Moving up the career ladder is important to me.
5. Making money is part of my idea of being a successful man.
8. I sometimes define my personal value by my career success.
12. I evaluate other people's value by their level of achievement and success.
14. I worry about failing and how it affects my doing well as a man.
18. Doing well all the time is important to me.
21. I often feel that I need to be in charge of those around me.
23. Competing with others is the best way to succeed.
24. Winning is a measure of my value and personal worth.
28. I strive to be more successful than others.
32. I am often concerned about how others evaluate my performance at work or school.
34. Being smarter or physically stronger than other men are important to me.
37. I like to feel superior to other people.

Factor 2--restrictive emotionality (10 items)

2. I have difficulty telling others I care about them.
6. Strong emotions are difficult for me to understand.
9. Expressing feelings makes me feel open to attack by other people.
13. Talking (about my feelings) during sexual relations is difficult for me.
15. I have difficulty expressing my emotional needs to my partner.
19. I have difficulty expressing my tender feelings.
22. Telling others of my strong feelings is not part of my sexual behaviour
25. I often have trouble finding words that describe how I am feeling.
29. I do not like to show my emotions to other people.
30. Telling my partner my feelings about him/her during sex is difficult for me.

Factor 3--restrictive affectionate behaviour between men (8 items)

- 3. Verbally expressing my love to another man is difficult for me.
- 7. Affection with other men makes me tense.
- 10. Expressing my emotions to other men is risky.
- 16. Men who touch other men make me uncomfortable.
- 20. Hugging other men is difficult for me.
- 26. I am sometimes hesitant to show my affection to men because of how others might perceive me.
- 33. Being very personal with other men makes me feel uncomfortable.
- 35. Men who are overly friendly to me, make me wonder about their sexual preference (men or women).

Factor 4--conflicts between work and family relations (6 items)

- 4. I feel torn between my hectic work schedule and caring for my health.
- 11. My career, job, or school affects the quality of my leisure or family life.
- 17. Finding time to relax is difficult for me.
- 27. My needs to work or study keep me from my family or leisure more than I would like.
- 31. My work or school often disrupts other parts of my life (home, health, leisure).
- 36. Overwork, and stress, caused by a need to achieve on the job or in school, affects/hurts my life

## Appendix 12: Competence Perception Measure

Below is a list of tasks that previous participants believe are important to be able to complete in order to live independently. Please rate how confident you are in your ability to competently perform these tasks using the following scale:

<b>I would not be able to do this</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>I can definitely do this</b>
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1. Be able to keep a home clean and tidy
2. Be able to prepare and cook healthy meals
3. Be able to keep a job in order to financially support yourself
4. Be able to budget your money wisely, managing your income and spending, and paying your bills on time
5. Be able to change a light Bulb
6. Be able to drive a car
7. Be able repair your car including changing a tyre and the oil
8. Be able to repair items around the house including appliances
9. Be able to use tools such as a hammer, drill, or plunger
10. Be able to find housing for yourself
11. Be able to go on holidays, nights out, and/or to events without a companion
12. Be able to afford and maintain an interesting hobby
13. Be able to care for a pet
14. Be able to organize and manage your time wisely
15. Be able to make decisions and have goals without consulting others
16. Be able to remove insects and spiders from your home
17. Be able to learn new things

### Appendix 13: Estimates of Fixed Effects for Salary, Attractiveness, Testing Phase and Condition for Desirability Ratings

Parameter	95% Confidence Interval						
	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	4.05	0.32	43.00	12.79	.000	3.41	4.68
Time: Pre-Test	0.52	0.45	72.95	1.14	.258	-0.39	1.42
Time: Post-Test	0 <sup>b</sup>	0.00	.	.	.	.	.
Condition: "High competence"	-0.26	0.44	72.38	-0.6	.554	-1.15	0.62
Condition: "Low competence"	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 1	-1.43	0.39	77.12	-3.7	.000*	-2.2	-0.66
Attractiveness Level 2	-0.84	0.43	85.45	-1.95	.054	-1.7	0.015
Attractiveness Level 3	-0.17	0.43	85.54	-0.4	.694	-1.03	0.69
Attractiveness Level 4	-0.68	0.41	83.36	-1.65	.102	-1.5	0.14
Attractiveness Level 5	-1.60	0.37	72.75	-4.28	.000*	-2.35	-0.86
Attractiveness Level 6	0.64	0.43	85.56	1.47	.145	-0.23	1.5
Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Salary Level 1	-1.19	0.38	74.95	-3.14	.002*	-1.95	-0.46
Salary Level 2	-0.83	0.39	76.96	-2.15	.035*	-1.6	-0.06
Salary Level 3	-0.47	0.42	83.88	-1.12	.266	-1.3	0.36
Salary Level 4	-0.32	0.42	84.74	-0.75	.453	-1.16	0.52
Salary Level 5	-0.31	0.41	83.77	-0.74	.462	-1.13	0.52
Salary Level 6	-0.16	0.43	85.37	-0.37	.712	-1.01	0.69
Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence"	0.43	0.64	147.08	0.66	.508	-0.84	1.7
Pre-Test * "Low competence"	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence"	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence"	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 1	-0.67	0.55	131.31	-1.22	.226	-1.77	0.42
Pre-Test * Attractiveness Level 2	-1.54	0.60	144.64	-2.56	.011*	-2.72	-0.35
Pre-Test * Attractiveness Level 3	-1.24	0.63	144.13	-1.98	.050*	-2.48	0
Pre-Test * Attractiveness Level 4	-0.58	0.60	141.34	-0.96	.341	-1.77	0.62
Pre-Test * Attractiveness Level 5	0.66	0.62	122.36	1.08	.283	-0.55	1.88
Pre-Test * Attractiveness Level 6	-1.26	0.65	138.87	-1.94	.055	-2.54	0.03
Pre-Test * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Salary Level 1	0.18	0.57	132.03	0.31	.754	-0.94	1.3
Pre-Test * Salary Level 2	-0.11	0.57	134.01	-0.19	.848	-1.24	1.02
Pre-Test * Salary Level 3	-0.38	0.59	142.01	-0.65	.517	-1.55	0.78
Pre-Test * Salary Level 4	-0.24	0.61	143.72	-0.4	.689	-1.44	0.95
Pre-Test * Salary Level 5	0.02	0.61	141.80	0.03	.975	-1.18	1.22
Pre-Test * Salary Level 6	0.16	0.64	141.47	0.25	.803	-1.1	1.42
Pre-Test * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.

Post-Test * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 1	0.09	0.55	131.35	0.16	.873	-1	1.17
"High competence" * Attractiveness Level 2	-0.19	0.60	143.87	-0.32	.750	-1.37	0.99
"High competence" * Attractiveness Level 3	-0.28	0.62	141.66	-0.45	.651	-1.51	0.95
"High competence" * Attractiveness Level 4	0.01	0.58	140.32	0.02	.986	-1.13	1.15
"High competence" * Attractiveness Level 5	0.06	0.53	125.28	0.1	.918	-1	1.11
"High competence" * Attractiveness Level 6	-0.18	0.65	134.58	-0.28	.778	-1.47	1.1
"High competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Salary Level 1	0.54	0.56	131.01	0.96	.337	-0.57	1.64
"High competence" * Salary Level 2	0.42	0.56	133.10	0.75	.453	-0.69	1.54
"High competence" * Salary Level 3	0.18	0.60	140.94	0.31	.757	-0.99	1.36
"High competence" * Salary Level 4	0.16	0.60	142.41	0.27	.788	-1.02	1.35
"High competence" * Salary Level 5	0.23	0.61	139.31	0.38	.707	-0.97	1.43
"High competence" * Salary Level 6	0.11	0.60	143.67	0.19	.853	-1.08	1.31
"High competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 1 * Salary Level 1	0.65	0.47	140.48	1.37	.173	-0.29	1.58
Attractiveness Level 1 * Salary Level 2	0.57	0.48	144.41	1.18	.239	-0.38	1.52
Attractiveness Level 1 * Salary Level 3	0.26	0.51	150.07	0.52	.607	-0.74	1.26
Attractiveness Level 1 * Salary Level 4	0.20	0.52	156.34	0.39	.697	-0.83	1.24
Attractiveness Level 1 * Salary Level 5	0.20	0.52	155.98	0.4	.693	-0.82	1.23
Attractiveness Level 1 * Salary Level 6	0.07	0.53	155.71	0.13	.898	-0.98	1.11
Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.



Attractiveness Level 2 * Salary Level 1	0.44	0.53	155.30	0.84	.405	-0.6	1.49
Attractiveness Level 2 * Salary Level 2	0.26	0.54	160.40	0.48	.632	-0.81	1.34
Attractiveness Level 2 * Salary Level 3	0.11	0.56	166.23	0.2	.841	-1	1.23
Attractiveness Level 2 * Salary Level 4	0.28	0.58	169.22	0.49	.624	-0.86	1.43
Attractiveness Level 2 * Salary Level 5	0.26	0.58	169.24	0.45	.652	-0.88	1.4
Attractiveness Level 2 * Salary Level 6	0.03	0.59	170.19	0.06	.954	-1.13	1.19
Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 3 * Salary Level 1	0.14	0.53	153.82	0.26	.797	-0.91	1.18
Attractiveness Level 3 * Salary Level 2	0.07	0.53	155.07	0.13	.898	-0.98	1.12
Attractiveness Level 3 * Salary Level 3	-0.05	0.56	165.20	-0.08	.936	-1.16	1.06
Attractiveness Level 3 * Salary Level 4	-0.01	0.57	167.60	-0.02	.984	-1.14	1.12
Attractiveness Level 3 * Salary Level 5	0.08	0.57	168.01	0.14	.890	-1.05	1.21
Attractiveness Level 3 * Salary Level 6	-0.02	0.59	170.22	-0.04	.969	-1.18	1.14
Attractiveness Level 3 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 4 * Salary Level 1	0.27	0.50	150.23	0.54	.589	-0.72	1.27
Attractiveness Level 4 * Salary Level 2	0.30	0.52	156.34	0.57	.568	-0.73	1.32
Attractiveness Level 4 * Salary Level 3	0.08	0.54	162.92	0.15	.884	-0.99	1.15
Attractiveness Level 4 * Salary Level 4	0.00	0.55	163.81	0	.999	-1.08	1.08
Attractiveness Level 4 * Salary Level 5	0.17	0.55	164.61	0.31	.756	-0.91	1.25
Attractiveness Level 4 * Salary Level 6	0.07	0.57	168.51	0.12	.905	-1.06	1.2
Attractiveness Level 4 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 5 * Salary Level 1	0.66	0.46	137.39	1.42	.158	-0.26	1.58
Attractiveness Level 5 * Salary Level 2	0.63	0.47	141.60	1.32	.189	-0.31	1.56
Attractiveness Level 5 * Salary Level 3	0.36	0.50	146.75	0.73	.468	-0.62	1.35
Attractiveness Level 5 * Salary Level 4	0.20	0.51	148.14	0.4	.688	-0.8	1.21
Attractiveness Level 5 * Salary Level 5	0.25	0.50	148.25	0.5	.619	-0.74	1.24
Attractiveness Level 5 * Salary Level 6	0.15	0.52	150.30	0.29	.776	-0.88	1.17
Attractiveness Level 5 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 6 * Salary Level 1	0.08	0.54	156.76	0.15	.882	-0.98	1.14
Attractiveness Level 6 * Salary Level 2	0.00	0.55	160.41	0	.999	-1.08	1.08
Attractiveness Level 6 * Salary Level 3	-0.13	0.57	167.87	-0.22	.827	-1.25	1
Attractiveness Level 6 * Salary Level 4	-0.09	0.58	168.86	-0.16	.875	-1.23	1.05
Attractiveness Level 6 * Salary Level 5	0.01	0.58	169.23	0.02	.984	-1.13	1.16
Attractiveness Level 6 * Salary Level 6	0.10	0.59	170.51	0.17	.863	-1.06	1.29
Attractiveness Level 6 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Attractiveness Level 1	0.32	0.79	264.48	0.4	.687	-1.2303	1.87
Pre-Test * "High competence" * Attractiveness Level 2	0.68	0.83	276.45	0.82	.412	-0.95	2.31
Pre-Test * "High competence" * Attractiveness Level 3	0.55	0.88	282.99	0.62	.534	-1.18	2.28
Pre-Test * "High competence" * Attractiveness Level 4	0.34	0.84	283.07	0.4	.690	-1.32	2
Pre-Test * "High competence" * Attractiveness Level 5	0.41	0.85	261.27	0.48	.634	-1.27	2.09
Pre-Test * "High competence" * Attractiveness Level 6	0.56	0.92	272.52	0.61	.542	-1.24	2.36

Pre-Test * "High competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Attractiveness Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Salary Level 1	-0.50	0.82	275.00	-0.61	.543	-2.12	1.12
Pre-Test * "High competence" * Salary Level 2	-0.27	0.83	278.54	-0.33	.742	-1.9	1.38
Pre-Test * "High competence" * Salary Level 3	0.21	0.85	287.10	0.25	.807	-1.47	1.88
Pre-Test * "High competence" * Salary Level 4	0.02	0.86	288.45	0.02	.981	-1.67	1.78
Pre-Test * "High competence" * Salary Level 5	-0.16	0.88	289.15	-0.19	.854	-1.9	1.57

Pre-Test * "High competence" * Salary Level 6	-0.25	0.90	289.71	-0.27	.784	-2.01	1.52
Pre-Test * "High competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "Low competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "High competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * "Low competence" * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 1 * Salary Level 1	0.03	0.70	243.41	0.05	.961	-1.35	1.42
Pre-Test * Attractiveness Level 1 * Salary Level 2	-0.01	0.70	245.47	-0.01	.991	-1.4	1.38
Pre-Test * Attractiveness Level 1 * Salary Level 3	0.36	0.73	258.30	0.5	.621	-1.07	1.79
Pre-Test * Attractiveness Level 1 * Salary Level 4	0.33	0.75	264.03	0.44	.664	-1.15	1.8

Pre-Test * Attractiveness Level 1 * Salary Level 5	0.11	0.75	261.31	0.15	.880	-1.37	1.59
Pre-Test * Attractiveness Level 1 * Salary Level 6	-0.04	0.78	256.95	-0.05	.961	-1.58	1.5
Pre-Test * Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 2 * Salary Level 1	0.21	0.76	268.75	0.27	.785	-1.29	1.71
Pre-Test * Attractiveness Level 2 * Salary Level 2	0.36	0.77	274.45	0.47	.641	-1.16	1.88
Pre-Test * Attractiveness Level 2 * Salary Level 3	0.43	0.78	280.97	0.55	.581	-1.11	1.97
Pre-Test * Attractiveness Level 2 * Salary Level 4	0.11	0.80	285.04	0.14	.891	-1.47	1.69
Pre-Test * Attractiveness Level 2 * Salary Level 5	0.06	0.82	286.23	0.07	.945	-1.55	1.66
Pre-Test * Attractiveness Level 2 * Salary Level 6	-0.05	0.84	281.89	-0.06	.953	-1.7	1.6
Pre-Test * Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 3 * Salary Level 1	0.26	0.79	263.89	0.33	.743	-1.29	1.8
Pre-Test * Attractiveness Level 3 * Salary Level 2	0.45	0.79	266.22	0.57	.573	-1.12	2.01
Pre-Test * Attractiveness Level 3 * Salary Level 3	0.59	0.82	278.91	0.72	.472	-1.02	2.21
Pre-Test * Attractiveness Level 3 * Salary Level 4	0.28	0.83	282.57	0.34	.733	-1.35	1.92
Pre-Test * Attractiveness Level 3 * Salary Level 5	0.24	0.85	281.47	0.28	.778	-1.42	1.9
Pre-Test * Attractiveness Level 3 * Salary Level 6	-0.10	0.87	281.91	-0.11	.910	-1.81	1.61
Pre-Test * Attractiveness Level 3 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 4 * Salary Level 1	0.05	0.75	257.72	0.06	.952	-1.44	1.53
Pre-Test * Attractiveness Level 4 * Salary Level 2	-0.17	0.76	262.20	-0.23	.819	-1.67	1.32
Pre-Test * Attractiveness Level 4 * Salary Level 3	0.18	0.78	274.65	0.23	.820	-1.36	1.72
Pre-Test * Attractiveness Level 4 * Salary Level 4	-0.05	0.80	276.41	-0.06	.955	-1.62	1.53
Pre-Test * Attractiveness Level 4 * Salary Level 5	-0.31	0.80	276.27	-0.38	.703	-1.89	1.28
Pre-Test * Attractiveness Level 4 * Salary Level 6	-0.34	0.85	278.79	-0.4	.687	-2.01	1.32
Pre-Test * Attractiveness Level 4 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 5 * Salary Level 1	-0.27	0.80	226.67	-0.33	.741	-1.84	1.31
Pre-Test * Attractiveness Level 5 * Salary Level 2	-0.20	0.81	228.42	-0.25	.805	-1.8	1.4
Pre-Test * Attractiveness Level 5 * Salary Level 3	0.23	0.83	234.65	0.27	.785	-1.41	1.87

Pre-Test * Attractiveness Level 5 * Salary Level 4	0.17	0.85	239.23	0.21	.837	-1.49	1.84
Pre-Test * Attractiveness Level 5 * Salary Level 5	-0.02	0.85	237.37	-0.03	.979	-1.69	1.65
Pre-Test * Attractiveness Level 5 * Salary Level 6	-0.09	0.88	238.95	-0.1	.921	-1.82	1.64
Pre-Test * Attractiveness Level 5 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 6 * Salary Level 1	0.12	0.82	258.34	0.14	.887	-1.5	1.74
Pre-Test * Attractiveness Level 6 * Salary Level 2	0.45	0.85	259.41	0.54	.592	-1.22	2.12
Pre-Test * Attractiveness Level 6 * Salary Level 3	0.59	0.86	268.44	0.69	.492	-1.11	2.3
Pre-Test * Attractiveness Level 6 * Salary Level 4	0.17	0.86	275.11	0.19	.846	-1.52	1.86
Pre-Test * Attractiveness Level 6 * Salary Level 5	0.14	0.88	274.05	0.16	.873	-1.59	1.87
Pre-Test * Attractiveness Level 6 * Salary Level 6	-0.33	0.91	272.19	-0.36	.717	-2.12	1.46
Pre-Test * Attractiveness Level 6 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * Attractiveness Level 7 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.

Post-Test * Attractiveness Level 2 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 3 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 4 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 5 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.

Post-Test * Attractiveness Level 6 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 6 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
Post-Test * Attractiveness Level 7 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 1 * Salary Level 1	-0.29	0.69	243.30	-0.42	.679	-1.66	1.08
"High competence" * Attractiveness Level 1 * Salary Level 2	-0.32	0.71	249.24	-0.45	.653	-1.71	1.07
"High competence" * Attractiveness Level 1 * Salary Level 3	-0.23	0.74	257.20	-0.31	.757	-1.69	1.23
"High competence" * Attractiveness Level 1 * Salary Level 4	-0.16	0.75	264.52	-0.21	.834	-1.64	1.32
"High competence" * Attractiveness Level 1 * Salary Level 5	-0.16	0.76	257.90	-0.21	.835	-1.65	1.33
"High competence" * Attractiveness Level 1 * Salary Level 6	-0.01	0.76	265.35	-0.01	.994	-1.49	1.48
"High competence" * Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 2 * Salary Level 1	-0.13	0.75	265.61	-0.17	.862	-1.61	1.35
"High competence" * Attractiveness Level 2 * Salary Level 2	-0.04	0.77	273.82	-0.06	.956	-1.56	1.48
"High competence" * Attractiveness Level 2 * Salary Level 3	0.07	0.80	280.08	0.09	.927	-1.5	1.65
"High competence" * Attractiveness Level 2 * Salary Level 4	-0.24	0.81	284.77	-0.29	.771	-1.84	1.37
"High competence" * Attractiveness Level 2 * Salary Level 5	-0.25	0.82	281.78	-0.3	.765	-1.86	1.37
"High competence" * Attractiveness Level 2 * Salary Level 6	0.04	0.82	286.89	0.05	.957	-1.57	1.66
"High competence" * Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.

"High competence" * Attractiveness Level 3 * Salary Level 1	-0.11	0.80	259.46	-0.13	.896	-1.68	1.47
"High competence" * Attractiveness Level 3 * Salary Level 2	0.01	0.80	260.83	0.01	.990	-1.57	1.59
"High competence" * Attractiveness Level 3 * Salary Level 3	0.08	0.84	272.17	0.09	.927	-1.57	1.73
"High competence" * Attractiveness Level 3 * Salary Level 4	-0.05	0.85	274.16	-0.06	.952	-1.72	1.62
"High competence" * Attractiveness Level 3 * Salary Level 5	-0.14	0.85	274.77	-0.17	.867	-1.82	1.53
"High competence" * Attractiveness Level 3 * Salary Level 6	0.04	0.86	278.01	0.05	.964	-1.66	1.73
"High competence" * Attractiveness Level 3 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 4 * Salary Level 1	-0.27	0.73	258.00	-0.37	.709	-1.71	1.17
"High competence" * Attractiveness Level 4 * Salary Level 2	-0.28	0.75	266.37	-0.38	.708	-1.75	1.19
"High competence" * Attractiveness Level 4 * Salary Level 3	-0.14	0.78	273.18	-0.18	.855	-1.67	1.39
"High competence" * Attractiveness Level 4 * Salary Level 4	-0.06	0.79	276.19	-0.08	.937	-1.61	1.48
"High competence" * Attractiveness Level 4 * Salary Level 5	-0.25	0.79	272.63	-0.31	.754	-1.81	1.31
"High competence" * Attractiveness Level 4 * Salary Level 6	-0.05	0.81	282.69	-0.07	.948	-1.65	1.54
"High competence" * Attractiveness Level 4 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 5 * Salary Level 1	-0.22	0.68	235.03	-0.33	.744	-1.56	1.11
"High competence" * Attractiveness Level 5 * Salary Level 2	-0.34	0.69	241.13	-0.5	.618	-1.7	1.01
"High competence" * Attractiveness Level 5 * Salary Level 3	-0.18	0.72	247.30	-0.25	.807	-1.59	1.24
"High competence" * Attractiveness Level 5 * Salary Level 4	-0.16	0.73	251.85	-0.22	.829	-1.59	1.28
"High competence" * Attractiveness Level 5 * Salary Level 5	-0.20	0.73	245.70	-0.28	.782	-1.65	1.24
"High competence" * Attractiveness Level 5 * Salary Level 6	-0.13	0.74	257.69	-0.18	.859	-1.59	1.33
"High competence" * Attractiveness Level 5 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 6 * Salary Level 1	-0.20	0.83	249.96	-0.25	.805	-1.84	1.43
"High competence" * Attractiveness Level 6 * Salary Level 2	-0.14	0.84	253.50	-0.17	.867	-1.79	1.51
"High competence" * Attractiveness Level 6 * Salary Level 3	0.11	0.88	261.43	0.13	.901	-1.62	1.83
"High competence" * Attractiveness Level 6 * Salary Level 4	0.06	0.88	261.73	0.07	.946	-1.68	1.8
"High competence" * Attractiveness Level 6 * Salary Level 5	-0.07	0.89	261.67	-0.08	.934	-1.83	1.69
"High competence" * Attractiveness Level 6 * Salary Level 6	-0.07	0.89	263.84	-0.08	.937	-1.83	1.69



"High competence" * Attractiveness Level 6 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"High competence" * Attractiveness Level 7 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3 * Salary Level 1	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3 * Salary Level 2	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3 * Salary Level 3	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3 * Salary Level 4	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 3 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.



"Low competence" * Attractiveness Level 7 * Salary Level 5	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 7 * Salary Level 6	0 <sup>b</sup>	0.00	.	.	.	.	.
"Low competence" * Attractiveness Level 7 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 1	-0.12	1.01	500.65	-0.11	.909	-2.1	1.87
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 2	0.06	1.02	508.07	0.06	.955	-1.95	2.07
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 3	-0.32	1.05	522.25	-0.31	.758	-2.4	1.75
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 4	-0.33	1.07	527.80	-0.31	.758	-2.42	1.77
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 5	-0.12	1.09	523.47	-0.12	.915	-2.25	2.02
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 6	-0.02	1.10	524.98	-0.02	.982	-2.19	2.14
Pre-Test * "High competence" * Attractiveness Level 1 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 1	-0.02	1.06	523.00	-0.02	.984	-2.11	2.06
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 2	-0.22	1.08	533.26	-0.21	.836	-2.34	1.9
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 3	-0.50	1.10	538.76	-0.45	.651	-2.66	1.66
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 4	0.03	1.11	543.35	0.03	.977	-2.16	2.22
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 5	0.06	1.15	549.66	0.05	.958	-2.19	2.31
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 6	0.05	1.15	544.77	0.04	.966	-2.22	2.32
Pre-Test * "High competence" * Attractiveness Level 2 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 1	-0.07	1.13	530.38	-0.06	.953	-2.29	2.15
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 2	-0.21	1.14	537.69	-0.19	.851	-2.45	2.03
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 3	-0.48	1.17	551.12	-0.41	.684	-2.78	1.83
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 4	-0.15	1.18	551.41	-0.13	.896	-2.48	2.17
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 5	-0.08	1.21	558.66	-0.06	.950	-2.45	2.3
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 6	0.17	1.23	558.19	0.14	.889	-2.24	2.58
Pre-Test * "High competence" * Attractiveness Level 3 * Salary Level 7	0 <sup>b</sup>	0.00	.	.	.	.	.
Pre-Test * "High competence" * Attractiveness Level 4 * Salary Level 1	0.09	1.07	527.49	0.08	.935	-2.02	2.19
Pre-Test * "High competence" * Attractiveness Level 4 * Salary Level 2	0.31	1.08	535.48	0.29	.772	-1.81	2.44
Pre-Test * "High competence" * Attractiveness Level 4 * Salary Level 3	-0.13	1.11	548.39	-0.12	.909	-2.31	2.05

Pre-Test * "High competence" *							
Attractiveness Level 4 * Salary Level 4	0.07	1.12	552.80	0.07	.947	-2.13	2.28
Pre-Test * "High competence" *							
Attractiveness Level 4 * Salary Level 5	0.40	1.15	554.79	0.34	.731	-1.86	2.66
Pre-Test * "High competence" *							
Attractiveness Level 4 * Salary Level 6	0.41	1.18	562.17	0.35	.726	-1.91	2.74
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 4 * Salary Level 7							
Pre-Test * "High competence" *	-0.04	1.11	489.32	-0.04	.972	-2.21	2.14
Attractiveness Level 5 * Salary Level 1							
Pre-Test * "High competence" *	0.06	1.12	493.25	0.06	.954	-2.14	2.26
Attractiveness Level 5 * Salary Level 2							
Pre-Test * "High competence" *	-0.44	1.15	503.16	-0.38	.704	-2.69	1.82
Attractiveness Level 5 * Salary Level 3							
Pre-Test * "High competence" *	-0.05	1.16	512.03	-0.05	.963	-2.34	2.23
Attractiveness Level 5 * Salary Level 4							
Pre-Test * "High competence" *	0.10	1.18	511.51	0.08	.934	-2.22	2.42
Attractiveness Level 5 * Salary Level 5							
Pre-Test * "High competence" *	0.18	1.20	514.15	0.15	.880	-2.18	2.55
Attractiveness Level 5 * Salary Level 6							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 5 * Salary Level 7							
Pre-Test * "High competence" *	0.09	1.18	518.29	0.07	.942	-2.23	2.4
Attractiveness Level 6 * Salary Level 1							
Pre-Test * "High competence" *	-0.23	1.20	521.31	-0.19	.852	-2.59	2.14
Attractiveness Level 6 * Salary Level 2							
Pre-Test * "High competence" *	-0.59	1.23	528.93	-0.48	.632	-3.01	1.83
Attractiveness Level 6 * Salary Level 3							
Pre-Test * "High competence" *	-0.08	1.23	531.07	-0.07	.948	-2.49	2.33
Attractiveness Level 6 * Salary Level 4							
Pre-Test * "High competence" *	-0.01	1.27	541.92	-0.01	.993	-2.5	2.47
Attractiveness Level 6 * Salary Level 5							
Pre-Test * "High competence" *	0.36	1.28	538.98	0.29	.776	-2.15	2.88
Attractiveness Level 6 * Salary Level 6							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 6 * Salary Level 7							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 1							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 2							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 3							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 4							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 5							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 6							
Pre-Test * "High competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 7							
Pre-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 1 * Salary Level 1							
Pre-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 1 * Salary Level 2							













Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 6 * Salary Level 5							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 6 * Salary Level 6							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 6 * Salary Level 7							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 1							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 2							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 3							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 4							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 5							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 6							
Post-Test * "Low competence" *	0 <sup>b</sup>	0.00	.	.	.	.	.
Attractiveness Level 7 * Salary Level 7							

b. This parameter is set to zero because it is redundant.

### Appendix 14. Mate-Value Scale (Edlund & Sagarin, 2014)

1. Overall, how would you rate your level of desirability as a partner on the following scale?

Extremely undesirable						Extremely desirable
1	2	3	4	5	6	7

2. Overall, how would members of the opposite sex rate your level of desirability as a partner on the following scale?

Extremely undesirable						Extremely desirable
1	2	3	4	5	6	7

3. Overall, how do you believe you compare to other people in desirability as a partner on the following scale?

Very much lower than average	Lower than average	Slightly lower than average	Average catch	Slightly higher than average	Higher than average	Very much higher than average
1	2	3	4	5	6	7

4. Overall, how good of a catch are you?

Very bad catch	Bad catch	Somewhat bad of a catch	Average catch	Somewhat good of a catch	Good catch	Very good catch
1	2	3	4	5	6	7