

MALE BISEXUALITY IN SAMOA

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Abstract

Western empirical studies of sexual orientation have primarily found that males are predominantly *gynephilic* (i.e., sexually attracted to adult females) or predominantly *androphilic* (i.e., sexually attracted to adult males), few are attracted to both males and females. However, in many non-Western cultures androphilic males are markedly feminine and they do not engage in sexual interactions with one another. Instead, they engage in sexual interactions with masculine men; men who's sexual orientation is, yet, unclear. To address this, my thesis has centred on investigating the sexual orientation of Samoan men who engage in sexual activity with feminine androphilic males (known locally as *fa'afafine*). The results indicate that the sexual partners of *fa'afafine* demonstrate bisexual patterns of sexual attraction. Thus, my thesis research suggests that, in some cultures, male sexual orientation may exist on a continuum, with gynephilia and androphilia anchored at opposite ends and with many gradients of bisexuality in between.

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CHAPTER ONE

Introduction

As the traveller who has once been from home is wiser than he who has never left his own doorstep, so a knowledge of one other culture should sharpen our ability to scrutinize more steadily, to appreciate more lovingly, our own.

- Mead (1928) *Coming of Age in Samoa*

Mead's Samoa

In her ethnography, *Coming of Age in Samoa*, Margaret Mead's (1928) described the sexual behaviour and attitudes among the inhabitants of the Samoan islands. This description ignited debate regarding the role that culture plays in influencing individuals' sexual practices. At the centre of this debate was Mead's allusion to the Samoan peoples unique propensity for "free lovemaking" (Freedman, 1983: p. 95). This depiction of casual sexual behaviour was particularly exemplified in Mead's second chapter, *A Day in Samoa*. This chapter was written as a vignette of a supposed typical day in the life of a Samoan; a day that begins with "lovers slip[ping] home from trysts beneath the palm trees" (p. 14) and ends with "the whispers of lovers" (p. 19). Although subsequent authors have challenged Mead's depiction of the Samoan culture¹, *Coming of Age in Samoa* fuelled Westerners' interest in the sexual mores of the Samoan people and their belief that the inhabitants of this Polynesian archipelago customarily engage in sexual practices that are distinct from those that are typical of Western people. More importantly,

¹ Freedman (1983) was the most notable critic of Mead's depiction of the Samoan culture. However, portions of Freedman's critique may have been unfounded and, at times, based on selective quotations that were unrepresentative of Mead's argument as a whole (Fienberg, 1988; Shankman & Boyer, 2009).

Mead's *Coming of Age in Samoa* brought to light the possibility that sexual behavioural norms may vary as a function of cultural context.

Male Sexual Attraction and Arousal

There is debate in the scientific literature as to whether male sexual orientation is categorical (bimodal) or whether it exists on a continuum. The categorical model of male² sexual attraction and arousal holds that males are, typically, either *gynephilic* (i.e., sexually attracted and aroused to adult females) or *androphilic* (i.e., sexually attracted and aroused to adult males). In contrast, very few males are believed to be non-monosexual (i.e. sexually attracted or aroused to members of both sexes). The continuum model of male sexual attraction and arousal holds that gynephilia and androphilia exist at two opposite extremes on a continuum with many gradients of bisexuality in between.

Studies conducted in Western settings have largely amassed support for the categorical model, not the continuum model, of male sexual orientation. Support for this model has been garnered from Western studies using self-report, with most males declaring a heterosexual or a homosexual sexual orientation identity, but not a bisexual one (Bailey, Dunne, & Martin, 2000; Diamond, 1993; Gangestad, Bailey, & Martin, 2000; Lauman, Gagnon, Michael, & Michaels, 1994). Additionally, studies that have examined sexual arousal, via measures of genital arousal, have found that most males display sexual arousal only to their preferred gender, and not to both genders (i.e., *category-specific sexual arousal*; Chivers, Rieger, Latty, & Bailey, 2004; Chivers, Seto, & Blanchard, 1997; Freund 1963; Suschinsky, Lalumière, & Chivers, 2009; Suschinsky & Lalumière, 2011). Similarly, studies that have examined sexual attraction, via

² The terms *male* and *female* refer to an individual's biological sex, regardless of the individual's gender role presentation as a boy/man, girl/woman, or otherwise.

measures of viewing time, have found that most males exhibit prolonged response time latencies only when attending to their preferred gender, and not when attending to both genders (i.e., *category-specific sexual attraction*; Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Israel & Strassberg, 2009; Lippa, 2012a; Lippa, Patterson, & Marelich, 2010; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996; Rullo, Strassberg, & Israel, 2010). Collectively, these studies furnish support for the assertion that male sexual orientation is, by and large, categorical.

Male bisexuality has been empirically documented so infrequently that its existence has been called to question. For example, after being unable to demonstrate a unique bisexual pattern of genital arousal among their sample of self-identified bisexual males, Rieger, Chivers, and Bailey (2005) stated, “with respect to sexual arousal and attraction, it remains to be shown that male bisexuality exists” (p. 582)³. However, it has since been shown that, when more stringent participant inclusion criteria⁴ were employed, some self-identified bisexual men did indeed demonstrate a unique bisexual pattern of physiological arousal, both via measures of genital arousal (i.e., penile tumescence: Rosenthal, Sylva, Safron, & Bailey, 2011; Rosenthal, Sylva, Safron, & Bailey, 2012) and via pupil dilation (Rieger & Savin-Williams, 2012). Furthermore, a unique bisexual

³ This statement was unfortunately misrepresented by the New York Times to suggest that all males were either gay or straight and that those claiming to be bisexual were lying to themselves and/or others (Carey, 2005). This suggestion resulted in a backlash from the bisexual community. However, this was, by no means, the first time that the existence of true bisexual sexual attraction and arousal among males had been called to question (see Rust, 2002 for a review the historical and cultural perspectives regarding the existence of male bisexuality).

⁴ To meet the inclusion criteria for these studies self-identified bisexual men must have 1) been involved in romantic relationships with both men and women that lasted over three months; 2) had engaged in sexual interactions with two or more men and two or more women; and 3) been over the age of 25.

pattern of sexual attraction has been demonstrated, via measures of viewing time, among self-identified bisexual males without employing such stringent recruitment criteria (Ebsworth & Lalumière, 2012; Lippa, 2012b). In sum, although it has been found that some Western men do demonstrate a bisexual pattern of sexual attraction and arousal, only a small subset of the population do so. Thus, although it is possible for men to demonstrate a bisexual pattern of sexual attraction and arousal, data collected in Western cultural settings indicates that a category specific pattern of sexual attraction and arousal (i.e., either androphilia or gynephilia) is primarily exhibited in males.

Bailey (2009) proposed that this category specific pattern of sexual attraction and arousal is a defining characteristic of male sexual orientation. He asserted that male sexual orientation could be understood through the metaphor of a compass. Like the needle of a compass, which cannot simultaneously point in two directions, males' sexual fantasies, attractions, and arousal are exclusively oriented toward members of one gender. This oriented partner preference is said to be the mechanism that motivates males to approach potential mates of one gender or the other and to pursue sexual interactions with them. Although Bailey's model fits well with data collected in Western cultural settings, it remains unclear as to whether this model can be generalized to non-Western settings. The generalizability of this model is uncertain because, to date, all of the studies examining patterns of sexual attraction and arousal underlying male sexual orientation were conducted in Western cultural settings where gendered categories of personhood are conceptualized as dichotomous and consisting of "men" versus "women."

Alternative Gender Categories and Male Sexual Orientation

Many cultures recognize gender categories of personhood beyond that of the “men” and “women” gender binary. In particular, numerous cultures recognize feminine males as belonging to alternative gender role categories that are distinct from those of “men” and “women”. Examples include, but are by no means limited to, the *bissu* of Sulawesi (Peletz, 2009), the *hijra* of India (Nanda, 1999), the *xanith* of Oman (Wikan, 1977), the *muxes* of Mexico (Chiñas, 1992), the *woubi* of the Ivory Coast (Bocahut & Brooks, 1998), and the *fa’afafine* of Samoa (Vasey & VanderLaan, 2014). These males are sometimes referred to in the academic literature as members of a “third gender” category (e.g., Herdt, 1994). Although such males are typically identified as belonging to an alternative or third gender category based on marked gender non-conforming behaviour (often during childhood) and not based on sexual partner preference, *per se*, these males are, nearly without exception, exclusively androphilic in adulthood.

Unlike masculine androphilic men (i.e., males whose gender identity status is consistent with their biological sex and who are sexually attracted and aroused to adult males; e.g., *gay* men) in Western cultures, feminine androphilic males do not engage in sexual interactions with each other. Instead they engage in sexual activity with masculine males who self-identify, and are identified by others, as “men” (Murray, 2000). Given this, the question arises as to what the sexual orientation is of the masculine men who engage in sexual activity with third-gender/feminine androphilic males.

Samoaan Feminine Androphilic Males

To help address this issue, my thesis has focused on examining the sexual orientation of masculine men who engage in sexual interaction with feminine androphilic

males in Samoa, who are known locally as *fa'afafine*. As is the case with most feminine androphilic males, *fa'afafine* are not sexually attracted to one another, nor do they engage in sexual relationships with one another. Instead, *fa'afafine* are almost exclusively attracted to masculine males who self-identify as “straight men” (Bartlett & Vasey, 2006; Mageo, 1992; Schmidt, 2003; Vasey, Pocock, & VanderLaan, 2007). Vasey et al.'s (2007) participants informed the researchers that, at some point in their lives, most straight men have engaged in sexual interactions with *fa'afafine*.

The term *fa'afafine* literally translates to mean “in the manner (or way) of a woman,” however, the extent to which *fa'afafine* dress and act like women varies (Bartlett & Vasey, 2006; Schmidt, 2003; Vasey et al., 2007). Although many *fa'afafine* choose to dress like women or to adopt female-typical gender roles, many adopt only certain female-typical aspects of appearance or behaviour, or provisionally adopt (or emphasize) certain feminine characteristics depending on the social context or stage of life. For example, one *fa'afafine* participant mentioned that, in her twenties, she would wear fake breasts when she was at nightclubs, but now that she is older she does not do so. A very small number of *fa'afafine* make little attempt to enhance their femininity in adulthood (Bartlett & Vasey, 2006; Vasey et al., 2007).

Most *fa'afafine* exhibit both masculine and feminine characteristics (or both male-typical and female-typical characteristics), although the extent to which this is true varies. For example, *fa'afafine* may adopt aspects of typical female gender role presentation but they may also retain markers indicating male morphology (e.g., male typical musculature, body fat distribution, jaw line, genitalia). As such, it is plausible that the masculine males

who engage in sexual interactions with *fa'afafine* exhibit substantial sexual attraction and arousal to *both* women and men. Such a pattern could accurately be described as bisexual.

Examining Patterns of Sexual Attraction of Samoan Males

Following on this idea, Study 1 (Chapter 2) investigated the possibility that Samoan masculine men who engage in sexual interactions with *fa'afafine* demonstrate a unique pattern of sexual attraction, relative to other Samoan males, one that could be considered bisexual. If these men do, indeed, demonstrate a bisexual pattern of sexual response than their response to men and to women should be less dissociated than that of 1) *fa'afafine* and 2) masculine men who only engage in sexual interactions with women. To assess this possibility I examined Samoan males' patterns of sexual attraction using a measure of viewing time. In using this method participants were asked to subjectively rate the attractiveness of stimuli images. While they were doing so, their response time latencies (i.e., the amount of time elapsed between the presentation of the stimulus and participant response) were covertly recorded. Consequently, this method afforded two measures of sexual attraction. The first was a measure of self-report, which provided a subjective rating of participants' sexual attraction to the images of men and women. The second was a response time measure, which provided a more objective measure of participants' sexual attraction to the images of men and women.

Variance Among Masculine Men Who Engage in Sexual Interactions with

Fa'afafine

Research conducted in India shows that masculine men who engage in sexual activity with *kothi* (feminine androphilic males) vary in their willingness to perform certain types of sexual behaviours (Asthana & Oostvogel, 2001; Ramanathan et al., 2013).

For example, some Indian men who are predominantly attracted to women (known locally as *panthi*), will adopt the insertive role during anal and oral intercourse with *kothi*. In contrast, other Indian men (known locally as *double-deckers*), will adopt both the insertive and receptive role during anal and oral intercourse with *kothi*, with *panthi*, and with each other.

Similarly, research conducted in the USA shows that men who demonstrate sexual interest in transgender women (i.e., individuals are biologically male and retain their male genitalia, but who present in a feminine manner and self-identify as women) vary in their willingness to perform certain types of sexual behaviours (Weinberg & Williams, 2010). One group in Weinberg & Williams' (2010) study reported that they were attracted to transgender women's feminine presentation and sexual prowess but were not attracted to their male anatomy. Not all of the men in this group were willing to engage in sexual activity with transgender women, but those who were often limited their sexual interactions to receiving fellatio from these partners. Conversely, the other group of men reported that they were attracted to the merger of feminine and masculine traits exhibited by transgender women. Men in this group reported that they were willing to receive fellatio from their transgender partners, and were also willing to perform it.

It may be the case that the masculine Samoan men who engage in sexual activity with *fa'afafine* also vary in their willingness to perform certain sexual activities. For example, there may be some masculine men who only receive fellatio from their *fa'afafine* partner(s), whereas others might receive *and* perform fellatio when with their *fa'afafine* partner(s). Furthermore, if such differences in willingness to perform certain sexual activities do exist, it is possible that they are related to underlying differences in

sexual orientation. To assess this possibility, Study 2 (Chapter 3) will examine whether masculine Samoan men who engage in sexual interactions with *fa'afafine* differ in their willingness to perform certain sexual activities and, if so, whether such differences are related to differences in sexual attraction. More specifically, I will investigate whether differences in sexual activity role during oral intercourse were related to differences in patterns of sexual attraction. To do so, I will utilize the same measure of viewing time described above.

Importance of Focusing on Non-Western Cultures

To date, our understanding of male sexual orientation has been garnered chiefly from studies conducted in Western cultures—a situation that is potentially problematic given the unrepresentative nature of these cultures (Henrich, Heine, & Norenzayan, 2010). Specifically, samples derived from Western cultures are largely composed of highly educated Caucasians living in rich, industrialized and democratic settings. These sociocultural characteristics are not typical of non-Western cultures worldwide. If we accept that culture influences human behaviour, then it stands to reason that we should exercise caution when making assumptions about the universality of certain traits if the supporting evidence for such universality is based solely on studies conducted in the West.

Additionally, research suggests that the feminine form of male androphilia, not the relatively masculine form, predominated in the human ancestral past (VanderLaan, Ren, & Vasey, 2013). Consequently, male sexual psychology likely evolved in an ancestral environment in which feminine androphilic males were present. The presence of such feminine androphilic males in the human ancestral environment may have acted as a

selective pressure, shaping the evolution of male sexuality in general. As such, research conducted in contemporary cultures, such as Samoa, where feminine androphilic males predominate can potentially further our understanding of the organization and structure of male sexual orientation.

CHAPTER TWO

Viewing Time Measures of Sexual Orientation in Samoan Men Who Engage in

Sexual Interactions with *Fa'afafine*

Abstract

The current study employed self-report and viewing time (response time latency) measures of sexual attraction to determine the sexual orientation of Samoan masculine men (i.e., males whose gender presentation and identity is concordant with their biological sex) who engage in sexual interactions with feminine androphilic males (known locally as *fa'afafine*) compared to: (1) Samoan masculine men who only engage in sexual interactions with women, and (2) *fa'afafine*. As expected, both measures indicated that masculine men who only engaged in sexual interactions with women exhibited a gynephilic pattern of sexual attraction (i.e., sexual attraction to adult females), whereas *fa'afafine* exhibited an androphilic pattern of sexual attraction (i.e., sexual attraction to adult males). In contrast, both measures indicated that masculine men who engaged in sexual interactions with *fa'afafine* demonstrated a bisexual pattern of sexual attraction. Most of the masculine men who exhibited bisexual viewing times did not engage in sexual activity with both men and women indicating that the manner in which bisexual patterns of sexual attraction manifest behaviourally vary from one culture to the next.

Keywords: male sexual orientation; bisexuality; viewing time; response latency; Samoa

Introduction

In many cultures, worldwide, more than two genders are recognized beyond the binary of “man” and “woman.” In particular, a preponderance of alternative gender roles exist cross-culturally for feminine males⁵. Examples include, but are by no means limited to, the *bissu* of Sulawesi (Peletz, 2009), the *hijra* of India (Nanda, 1999), the *xanith* of Oman (Wikan, 1977), the *muxes* of Mexico (Chiñas, 1992), the *‘yan dandu* of Nigeria (Gaudio, 2009), and the *fa’afafine* of Samoa (Vasey & VanderLaan, 2014). Alternative gender role categories, such as these, often mark feminine males being neither “men,” nor “women” within the context of their respective cultures. Consequently, such males are sometimes referred to in the academic literature as members of a “third gender” (e.g., Herdt, 1996).

These third gender males are, almost always, exclusively *androphilic* (i.e., sexually attracted to adult males). Although they are androphilic, feminine androphilic males do not typically engage in sexual activity with each other. Rather, they engage in sexual activity with masculine males (i.e., males whose gender presentation and identity is concordant with their biological sex) who self-identify, and are identified by others, as “men” (Murray, 2000).

From an emic perspective⁶, sexual interactions between feminine androphilic males and masculine males (i.e., “men”) are often not perceived as being “homosexual” because they are hetero-gendered. An individual’s emic understanding of sexuality can be an important determinate of their sexual behaviour and identity. Nevertheless, sexual

⁵ The terms *male* and *female* refer to an individual’s biological sex, regardless of the individual’s gender role presentation as a boy/man, girl/woman, or otherwise

⁶ An emic understanding of the world focuses on how people within a culture think (Kottak, 2006).

behaviour and sexual orientation identity (if one exists) are not necessarily concordant with an individual's sexual orientation⁷ (e.g., Rieger, Chivers, & Bailey, 2005; Tollison, Adams, & Tollison, 1979). Hence, the question arises as to what the underlying sexual orientation is of the masculine men who engage in sexual activity with feminine males, particularly in the numerous cultures where feminine male androphilia is the norm and sexual interactions between feminine androphilic males and masculine men are relatively common.

In many respects, feminine androphilic males represent an amalgamation of both masculine and feminine traits to a relatively greater degree than masculine males. For example, some feminine androphilic males may be feminine in terms of their outward appearance but may nonetheless retain their male genitalia. This renders tenable the possibility that the masculine men who are the sexual partners of feminine androphilic males are sexually attracted to both men and women. Indeed, many masculine men who have sex with feminine androphilic males engage in sexual activity with women as well (Whitam & Mathy, 1986). Consequently, it is possible that such men are *bisexual* with respect to their sexual orientation (i.e., substantially sexually attracted to both adult males and adult females). If, in those non-Western cultures where feminine male androphilia predominates, a substantial percentage of masculine men were shown to be bisexual, this would stand in stark contrast to studies conducted in Western cultures, which suggest that male bisexual orientation is rare. For example, in Western settings relatively few men

⁷ Bailey (2008) describes sexual orientation in men as a mechanism, analogous to a compass, that directs sexuality and that reflects sexual feelings/arousal/fantasy/attraction rather than other factors such as social constraints. Implicit to this compass metaphor is the assumption that sexual orientation in men is oriented in one direction, as opposed to multiple directions.

report substantial sexual feelings towards both men and women (Bailey, Dunne, & Martin, 2000; Diamond, 1993; Gangestad, Bailey, & Martin, 2000; Lauman, Gagnon, Michael, & Michaels, 1994). Similarly, in studies that employ measures of penile plethysmography, bisexual patterns of genital arousal have sometimes not been found, even among bisexually-identified men (e.g., Rieger et al., 2005; Tollison et al., 1979).

Alternatively, it is possible that the masculine men in question are truly *gynephilic* (i.e., sexually attracted to adult females), but they have sex with feminine androphilic males when they are unable to access adult women. Such a compromise may seem perplexing from a Western cultural perspective, however, in cultures where feminine male androphilia predominates, a substantial number of masculine men may prefer sex with women whenever they are given the choice, but may nevertheless exhibit relatively little sexual aversion to the idea of engaging in certain types of same-sex sexual interactions with feminine males if women unavailable (Whitam & Mathy, 1986). This may be because, to a certain extent, feminine androphilic males resemble their preferred sexual partners (i.e., adult women).

A third possibility is that some of the masculine men who engage in sexual interactions with feminine androphilic males may be androphilic themselves, but not feminine. Such men can be described as *masculine androphilic males* because their adult gender role expression more or less matches the gender they were assigned at birth. In short, the masculine men who are the sexual partners of feminine androphilic males could be bisexual, gynephilic, or androphilic.

Although a considerable body of literature exists on feminine androphilic males, very little research has been conducted on their sexual partners—save for a more

narrowly focused body of research on HIV contagion risk and prevention (e.g. Asthana & Oostvogels, 2001; Carballo-Diéguez, et al., 2011; Ramanathan, 2013). There are a number of reasons why additional and more diverse research would be desirable. First, in cultures where feminine male androphilia predominates, our understanding of male-male sexuality will be partial, at best, until research is conducted on the masculine men who are their sexual partners. Second in many cultures, sexual interactions between feminine androphilic males and masculine men may be a more ubiquitous feature of male sexuality than has previously been appreciated or acknowledged. Third, research indicates that the ancestral form of male androphilia was likely the feminine form (VanderLaan, Ren, & Vasey, 2013). Consequently, sexual interactions between feminine androphilic males and masculine men were a likely feature of ancestral human mating systems and could have potentially influenced evolutionary processes such as sexual selection via *inter*-sexual mate competition between feminine androphilic males and women to obtain sexual/reproductive opportunities with masculine men (Vasey, Leca, Gunst, & VanderLaan, 2014). Finally, there is currently debate in the sexology literature regarding the nature and prevalence of male bisexuality (cf. Bailey, Rieger, & Rosenthal, 2011; Cerny & Janssen, 2011; Janssen & Cerny, 2011; Rieger, Chivers, & Bailey, 2005; Rosenthal, Sylva, Safron, & Bailey, 2012). Specifically, do self-identified bisexual men have a unique pattern of sexual attraction and arousal compared to men who self-identify as homosexual or heterosexual? Furthermore, what qualifies as a unique pattern of bisexual attraction and arousal? Cross-cultural research on the masculine men who are sexual partners of feminine androphilic males could help to inform this debate.

In this study, I sought to characterize the sexual orientation of Samoan masculine men who engage in sexual interactions with Samoan feminine androphilic males (known locally as *fa'afafine*) by assessing sexual preferences via measures of self-report and viewing time. Viewing time is measured by asking participants to subjectively rate the attractiveness of stimuli images while covertly recording their response time latencies (i.e., the amount of time elapsed between the presentation of the stimulus and participant response). It has been repeatedly demonstrated that heterosexual and homosexual men and women attend to images of their preferred sex for a longer period of time than their non-preferred sex, thus indicating that viewing time is a reliable assay of an individual's sexual orientation (Imhoff, 2012; Israel & Strassberg, 2009; Lippa 2012a; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996; Rullo, Strassberg, & Israel, 2010). Furthermore, men who self-identify as bisexual exhibited response latencies to stimuli of men and women that were less dissociated from each other compared to those of both homosexual and heterosexual men (Ebsworth & Lalumière, 2012; Lippa, 2012b; Rieger & Savin-Williams, 2012). In other words, bisexually identified men exhibited a unique “bisexual” pattern of response latencies. Viewing time measures have also been shown to correlate with physiological measures of sexual orientation such as pupil dilation (Rieger & Savin-Williams, 2012), which have in turn been shown to correlate with genital arousal (Rieger et al., 2015).

If the Samoan masculine men who engage in sexual interactions with *fa'afafine* are sexually attracted to both men and women, then they should exhibit patterns of self-reported sexual attraction and response latencies to stimuli of both men and women that are less dissociated from each other compared to those of: (1) Samoan masculine men

who only engage in sexual interactions with women and (2) *fa'afafine*. Alternatively, if the masculine men who engage in sexual interactions with *fa'afafine* are gynephilic, then they should exhibit patterns of self-reported sexual attraction and response latencies that are similar to those of masculine men who only engage in sexual interactions with women. Finally, if the masculine men who engage in sexual interactions with *fa'afafine* are androphilic, then they should exhibit patterns of self-reported sexual attraction and response latencies that are similar to those of *fa'afafine*.

Methods

Ethics Statement

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. A Samoan Research Visa was obtained from Samoan Immigration under the auspices of the Samoan Ministry of Women, Community and Social Development. Participants were required to provide informed written consent prior to taking part in the study.

Participants

All participants were recruited from across the island of Upolu, the most highly populated island of Independent Samoa, using a network sampling procedure, which involved contacting initial participants who displayed qualities of interest (i.e., status as [a] a *fa'afafine*, [b] a masculine man who engages in sexual interactions with women exclusively, or [c] a masculine man who engages in sexual interactions with *fa'afafine*) then obtaining referrals from them to additional participants who, in turn, provided further referrals, and so on.

All *fa'afafine* participants self-identified as such, had only engaged in sexual

interactions with men, and had done so within the past year ($N = 21$). Participants who self-identified as “men” were categorized as “men who only engaged in sexual interactions with women” if they had engaged in sexual interactions exclusively with women throughout their lives, and had done so within the past year ($N = 27$). Participants who self-identified as “men” were categorized as “men who engaged in sexual interactions with *fa’afafine*” if they had engaged in sexual interactions with *fa’afafine* throughout their lives, and had done so within the past year ($N = 35$).

Men who engage in sexual interactions with *fa’afafine* varied in terms of their sexual partner profiles. For example, these men could engage in sexual interactions: (1) only with *fa’afafine*, (2) with *fa’afafine* and women, (3) with *fa’afafine* and men or (4) with *fa’afafine*, women and men. Table 2.1 contains information pertaining to the percentage of participants who fit into each of these groups relative to their entire lifespan and, more narrowly, in terms of the past year. The majority of participants in this group had engaged in sexual interactions with *fa’afafine* and women, but not men throughout their lives (60%; $n = 21$), and within the past year (74.3%; $n = 26$).

The age range of the *fa’afafine* participants was 19-43 ($M = 29$, $SD = 7.06$), that of men who engage in sexual interactions only with women was 20-46 ($M = 30.44$, $SD = 8.95$), and that of men who engage in sexual interactions with *fa’afafine* was 20-42 ($M = 25.03$, $SD = 5.06$). A one-way analysis of variance (ANOVA) indicated that age differed significantly as a function of group, $F(2, 80) = 4.94$, $p = .009$. Further analyses indicated that age was significantly correlated with length of response time to images of men by men who only engage in sexual interaction with women, $r = .13$, $p = .009$ and consequently, this was controlled for in subsequent viewing-time analyses. Age did not

correlate significantly with self-reports of sexual attraction (range of p values = .088 - .968) and consequently, was not controlled for in subsequent analysis of self-report. An independent chi-square test indicated religiosity (response options included: “not religious,” “somewhat religious,” “very religious”) did not differ significantly between groups, $\chi^2(4) = 6.23, p = .183$ (*fa’afafine*, men who only engage in sexual interactions with women, men who engage in sexual interactions with *fa’afafine*, respectively; highly religious: 23.8%, 33.3%, 8.6%; somewhat religious: 71.4%, 63.0%, 82.9%; not religious: 4.8%, 3.7%, 8.6%).

Measures

The study consisted of a viewing-time experiment followed by a brief biographic questionnaire. The text accompanying the viewing-time experiment and questionnaire were translated and back-translated by two Samoan-speaking research assistants. One of the Samoan research assistants (a *fa’afafine*) was present to provide instructions to all of the participants and to answer questions.

Prior to the actual experiment beginning, participants first viewed nine trial images of men and women to familiarize them with the task. Because some participants were unfamiliar with computers, if they did not understand the experiment following the first trial, a second trial was conducted. If, following a third trial, the participants did not understand the task, they were given payment and thanked for their time. This resulted in disqualification of five potential participants. The experiment proceeded following one, two, or three practice trials, if the participants (1) stated they understood the task, and (2) demonstrated that they understood the task.

The viewing-time portion of the study was conducted using Empirisoft's MediaLab viewing-time software. Participants were shown a series of images that included men's faces, women's faces, and neutral stimuli (i.e., neutral cartoon faces composed of a circle with two dots for eyes and a straight line for a mouth each of which varied slightly) and were told that the purpose of the experiment was to obtain their subjective sexual attraction ratings for these images. Participants were instructed to take as long as they needed to complete the task and to carefully appraise each photo before rating it. Examples of the stimuli are displayed in Appendix A. The experiment consisted of forty images.

The first image in the actual experiment was a neutral cartoon face image. Participants' response to this first neutral image was deleted from the analysis to remove any confounds associated with transitioning from the trial to the actual experiment. The remaining experiment was comprised of ten target images of women's faces, ten target images of men's face, and ten neutral cartoon face images, which were presented in a randomized order. As each image was displayed, participants were asked to respond to the question, which appeared at the top of the image: "How would you feel about having sex with this person?" Participants' responses were measured using a seven point Likert-type scale ranging from 1-"very unpleasant" to 7- "very pleasant." These response options appeared in a boxed column at the right of the image. Participants indicated their responses by clicking on the appropriate boxed number using a computer mouse.

Unbeknownst to the participants, as they were they providing their self-reported ratings of sexual attraction to the target images, the time between the presentation of the stimulus and participants' response was being simultaneously recorded. It is important to

note that this latent period, which is typically referred to as a “viewing time” reflects the time required to respond to the task of rating attraction (see Imhoff et al., 2010; Imhoff, Schmidt, Weiß, Young, Banse, 2012). However, for ease of comparison across studies, I will refer to this measure as *viewing time*. Viewing time response latencies provided a measure of participants’ sexual attraction to the target images that was less subjective than self-report.

The Samoan research assistant was present during the trial portion of the viewing-time experiment, but left prior to the actual experiment commencing. My thesis supervisor, Dr. Vasey was present throughout the entire period of data collection for every participant⁸. During the experiment he remained silent, did not move, did not look directly at the participants, and watched the computer screen out of the corner of his eye. The experiment was discontinued for any of the following non-exclusive reasons, including, if the participant: (1) looked away from the computer screen, (2) called out to someone, (3) lost control of the mouse, (4) moved rapidly through the images in a “machine-gun” fashion such that Dr. Vasey inferred that they were not actually looking at the images but rather rushing to complete the experiment, or (5) scored every one of the thirty-one experimental images the same, including the first neutral face image. This protocol resulted in incomplete viewing-time data from nine participants (3 *fa’afafine*, 3 men who engage in sexual interactions with *fa’afafine*, 3 men who only engage in sexual interactions with women), which was discarded.

⁸ Dr. Vasey and I believed that it would be culturally inappropriate for a woman to be present when participants responded to questions that were sexual in nature and our Samoan research assistant confirmed this.

Following the viewing-time experiment, the Samoan research assistant returned to help the participant complete the biographic questionnaire portion of the study. During the biographic questionnaire portion of the study, participants were asked to report their age, religiosity (“not religious,” “somewhat religious,” “very religious”) and whether they had had sexual interactions with men, women, and *fa’afafine* (1) at any point in their lives and (2) within the past year.

Upon completion of the questionnaire, participants were debriefed and invited to ask any questions they might have about the study. All participants, regardless of whether they completed the experiment or not, were thanked and given \$20 Western Samoan Tala as a gift to compensate them for their time.

Stimulus Construction

Twenty-four Samoan men (age range = 18-28 years, $M = 22.04$, $SD = 2.71$) and 24 Samoan women (age range = 18-27 years, $M = 21.67$, $SD = 2.76$) were photographed under standard lighting conditions posing with a neutral expression. Stimulus images were created using composite images of these Samoan male and female faces and the composite faces were then manipulated to render them more masculine or feminine. Prior to manipulating masculinity/femininity, twenty ‘base faces’ (10 men, 10 women) were constructed. The base faces were composite average faces that were constructed from two individual facial photographs in line with previous methods (Benson & Perrett, 1993; Little & Hancock, 2002; Tiddenman, Burt, & Perrett, 2001). Individual facial photographs were paired randomly from a pool of 40 face images (20 men, 20 women) that were, themselves, drawn randomly from the overall sample of Samoan men’s ($n = 24$) and women’s faces ($n = 24$). The composite base faces were then made symmetrical

prior to being transformed on a sexual dimorphism dimension using the shape linear difference between a composite of 50 men and an equivalent composite of 50 young adult women, in line with previous methods (Perrett, 1998). Transforms represented $50\% \pm$ the difference between these two composites, resulting in twenty faces that were $+50\%$ of the shape of the relevant sex (10 masculinized faces of men, 10 feminized faces of women; Appendix A). Composite faces are representative of the average traits of the faces within them, reducing idiosyncratic differences between faces. By following this procedure, the faces of men were transformed to be more masculine and the faces of women were transformed to be more feminine. Doing so ensured that the target images were clearly masculine or feminine, thereby eliminating any possibility that the images could have been viewed as androgynous.

Data Analysis

Mean self-reported sexual attraction and mean response time latencies were calculated for participants' response to the target images of men, as well as the target images of women. To directly compare individual participants' responses to the images of men versus the images of women, the discrepancy in their mean responses to both types of images were calculated. The discrepancies in *self-reported sexual attraction* and *response latencies* were calculated using the following formula: mean self-reported attraction rating (or response latency for images of men) – mean self-reported sexual attraction rating (or response latency for images of women) = discrepancy in self-reported sexual attraction ratings (or response latencies). A score greater than 0 indicated androphilic attraction; a score lower than 0 indicated gynephilic attraction.

Statistical Analysis

Analysis was conducted using IBM SPSS Statistics version 22. A one-way ANOVA, (with the alpha level set at $\alpha = .05$) was conducted to examine whether the mean discrepancies in self-reported sexual attraction to each stimuli category (i.e., men and women) differed as a function of group. A one-way ANCOVA (with the alpha level set at $\alpha = .05$) was conducted to examine whether the mean discrepancies in response latencies for each stimuli category (i.e., men and women) differed as a function of group, while controlling for age.

Following between-group analysis, within-group one sample t - tests were conducted to assess the extent to which participants' self-reported sexual attraction and response latencies differed from a theoretically idealized pattern of equal response to images of men and women (with the alpha level adjusted to $\alpha = .017$ to maintain a Type I Error rate of $\alpha = .05$ across multiple tests). To further characterize the precise pattern of sexual attraction exhibited by men who engage in sexual interactions with *fa'afafine*, additional independent sample t -tests were conducted to compare the two groups of masculine men (i.e., those who only engaged in sexual interactions with women vs. those who engaged in sexual interactions with *fa'afafine*) for their self-reported sexual attraction and their response latencies. The alpha level set at $\alpha = .05$ for these analyses.

Next, analyses were conducted to assess the possibility that participants were indiscriminately responding to all of the target images. Namely, within-group paired sample t -tests were conducted to assess whether participants differed in their self-reported sexual attraction ratings and response latencies to the neutral images, when

compared to the target images of men and images of women (with the alpha level set at $\alpha = .008$ to maintain a Type I Error rate of $\alpha = .05$ across multiple tests).

Finally, to examine the possibility that men who engage in sexual interactions with *fa'afafine* are composed of a mixture of androphilic and gynephilic men a Shapiro-Wilk test of normality was conducted (with the alpha level set at $\alpha = .05$).

Results

Mean and standard deviation values for participants' self-reported ratings of sexual attraction and viewing times response latencies are displayed in Table 2.2 by group.

Self-Reported Sexual Attraction Analysis

Calculations of the discrepancies in self-reported sexual attraction to images of men and images of women revealed a mean score of $M = 4.15$, $SD = 1.39$ for *fa'afafine*; $M = -3.23$, $SD = 1.55$ for men who only engage in sexual interactions with women; and, $M = -1.38$, $SD = 2.65$ for men who engage in sexual interactions with *fa'afafine*. A one-way ANOVA was conducted to determine whether the mean discrepancies in self-reported sexual attraction scores differed as a function of group. Group mean discrepancies in self-reported sexual attraction are displayed in Figure 2.1. Because Leven's test of homogeneity was significant, the Brown-Forsythe statistic is reported. This analysis indicated a significant main effect of group, $F(2, 73.60) = 95.41$, $p < .001$, $\eta_p^2 = .67$. Post hoc analysis using Dunnett T3 indicated that mean discrepancies in self-reported sexual attraction scores for *fa'afafine* were significantly higher than those of men who engage in sexual interactions with *fa'afafine* ($p < .001$, Cohen's $d = 2.61$), and men who only engaged in sexual interactions with women ($p < .001$, Cohen's $d = 5$).

Mean discrepancies in self-reported sexual attraction scores for men who engage in sexual interactions with *fa'afafine* were significantly higher than those of men who only engage in sexual interactions with women ($p = .003$, Cohen's $d = .85$).

A within group one-sample t -test was conducted to assess whether groups differed significantly from a theoretically idealized pattern of equal attraction to the images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0, $t(20) = 13.69$, $p < .001$, Cohen's $d = 6.12$. Men who only engaged in sexual interactions with women scored significantly lower than 0, $t(26) = -10.78$, $p < .001$, Cohen's $d = -4.23$. Men who engage in sexual interactions with *fa'afafine* also scored significantly lower than 0, $t(34) = -3.09$, $p = .004$, Cohen's $d = -1.06$.

Additional analyses were conducted to further hone in on the precise pattern of sexual attraction exhibited by men who engage in sexual interactions with *fa'afafine*. An independent sample t -test indicated that men who engage in sexual interactions with *fa'afafine* differed significantly from men who only engage in sexual interactions with women in terms of their discrepancies in self-reported sexual attraction scores, $t(56.42) = 3.42$, $p = .001$, Cohen's $d = .85$.

Viewing Time Analysis

A logarithmic transformation was conducted on the mean response latencies for images of women and men to ensure normality and avoid skew. Calculations of the mean discrepancies in response latency scores revealed a mean score of $M = .12$, $SD = .17$ for *fa'afafine*; $M = -.35$, $SD = .20$ for men who only engage in sexual interactions with women; and, $M = -.09$, $SD = .16$ for men who engage in sexual interactions with

fa'afafine. An analysis of covariance (ANCOVA) was conducted, with age as a covariate, to determine whether mean discrepancies in response latency scores differed as a function of group. Group mean discrepancies in response latency scores are displayed in Figure 2.2. This analysis indicated a significant main effect of group, $F(2, 79) = 42.12, p < .001, \eta_p^2 = .52$. There was no significant main effect of age, $F(1, 79) = 2.91, p = .092, \eta_p^2 = .04$. Post hoc pairwise comparisons, adjusted using Bonferroni correction, indicated that mean discrepancies in response latency scores for *fa'afafine* were significantly higher than that of men who engage in sexual interactions with *fa'afafine* ($p < .001$, Cohen's $d = 1.26$), and men who only engaged in sexual interactions with women ($p < .001, 2.56$). Mean discrepancies in response latency scores for men who engage in sexual interactions with *fa'afafine* were significantly higher than those of men who only engage in sexual interactions with women ($p < .001$, Cohen's $d = 1.46$).

A within group one-sample t -test was conducted to assess whether groups differed significantly from a theoretically idealized pattern of equal attraction to images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0, $t(20) = 3.32, p = .003$, Cohen's $d = 1.48$. Men who only engage in sexual interactions with women scored significantly lower than 0, $t(26) = -9.17, p < .001, -3.60$. Men who engage in sexual interactions with *fa'afafine* also scored significantly lower than 0, $t(34) = -3.17, p = .003$, Cohen's $d = -1.09$.

Additional analyses were conducted to further hone in on the precise pattern of sexual attraction exhibited by men who engage in sexual interactions with *fa'afafine*. An independent sample t -test indicated that men who engage in sexual interactions with *fa'afafine* differed significantly from men who only engage in sexual interactions with

women in terms of their discrepancies in response latency scores, $t(60) = 5.76, p < .001$, Cohen's $d = 1.46$.

Responses to the Target Images and Neutral Control Images

Within group, paired sample t -tests were conducted to assess whether participants differed in their response to the neutral images compared to the target images of men and women, as measured by self-reported sexual attraction and viewing time. Regarding self-reported sexual attraction, *fa'afafine* did not differ significantly in their ratings of the images of women and the neutral images, $t(20) = -1.91, p = .071$, Cohen's $d = -.58$, but they did rate the images of men as significantly more attractive than the neutral images $t(20) = 10.36, p < .001$, Cohen's $d = 3.1$. Men who only engaged in sexual interactions with women did not differ significantly in their ratings of the images of men and the neutral images, $t(26) = -1.85, p = .075$, Cohen's $d = -.48$, but they did rate the images of women as significantly more attractive than the neutral images, $t(26) = 8.90, p < .001$, Cohen's $d = 2.31$. Men who engage in sexual interactions with *fa'afafine* rated images of women as significantly more attractive than the neutral images, $t(34) = 5.81, p < .001$, Cohen's $d = 1.44$, but did not differ in their ratings of self-reported sexual attraction to the images of men and the neutral images given the adjusted alpha level, although the group differences trended towards significance in the expected direction, $t(34) = 2.50, p = .017$, Cohen's $d = .47$.

With respect to viewing time, *fa'afafine* did not differ significantly in their response latency duration when presented with images of women and neutral images, $t(20) = 1.93, p = .068$, Cohen's $d = .22$, but their response latencies were significantly longer when presented with images of men than when presented with neutral images, t

(20) = 3.73, $p = .001$, Cohen's $d = .69$. Men who only engage in sexual interactions with women did not differ significantly in their response latency duration when presented with images of men and the neutral images, $t(26) = -.13$, $p = .899$, Cohen's $d = -.02$, but their response latencies were significantly longer when presented with images of women than when presented with neutral images, $t(26) = 7.85$, $p < .001$, Cohen's $d = 1.17$. The response latencies of men who engage in sexual interactions with *fa'afafine* were significantly longer when presented with images of women than when presented with neutral images, $t(34) = 5.86$, $p < .001$, Cohen's $d = .69$, and were significantly longer when presented with images of men than when presented with neutral images, $t(34) = 3.33$, $p = .002$, Cohen's $d = .35$.

Distribution of Responses to Images of Men and Women

If half of the men who engage in sexual interactions with *fa'afafine* were androphilic and the other half were gynephilic, then distribution of frequencies for self-reported sexual attraction and response time latencies would be bimodal but the mean sexual attraction scores for this group would mistakenly indicate a bisexual pattern of sexual attraction. To assess this possibility, I examined the extent to which the two measures of sexual attraction for men who engage in sexual interactions with *fa'afafine* conformed to a normal distribution, in which case, a bimodal pattern cannot be inferred. Distribution for discrepancies in self-reported sexual attraction scores are displayed in Figure 2.3 and discrepancies in response latency scores are displayed in Figure 2.4. A Shapiro-Wilk test of normality was conducted on the discrepancies in self-reported sexual attraction and response latency scores for men who engage in sexual interactions with *fa'afafine*. For this analysis, mean discrepancies in participants' response latencies

for images of men and women, were calculated *without* logarithmically transforming the variables, so as not to impose normality on the scores. The mean and standard deviation discrepancies in self-reported sexual attraction scores for men who engage in sexual interactions with *fa'afafine* was $M = -1.38$, $SD = 2.65$. This analysis obtained significance, $W(35) = .932$, $p = .03$, indicating that discrepancies in self-reported sexual attraction scores of men who engage in sexual interactions with *fa'afafine* deviated from a normal distribution. In contrast, the mean and standard deviation discrepancies in response latency scores for of men who engage in sexual interactions with *fa'afafine* was $M = -1123.85$, $SD = 3149.94$. This analysis did not obtain significance, $W(35) = .983$, $p = .85$, indicating that discrepancies in response latency scores of men who engage in sexual interactions with *fa'afafine* did not deviate from a normal distribution.

Discussion

The current study employed measures of self-reported sexual attraction and viewing time to determine whether Samoan masculine men who engage in sexual interactions with *fa'afafine* exhibit a bisexual, gynephilic, or androphilic pattern of sexual attraction when compared to: (1) Samoan masculine men who only engage in sexual interactions with women, and (2) *fa'afafine*, themselves. All groups differed from each other in their patterns of sexual attraction. Both self reported sexual attraction and viewing-time response latencies indicated that Samoan masculine men who only engaged in sexual interactions with women exhibited a gynephilic pattern of sexual attraction, whereas *fa'afafine* exhibited an androphilic one. In comparison, Samoan masculine men who engaged in sexual interactions with *fa'afafine* demonstrated a pattern of sexual attraction that was intermediate between, and significantly different from: (1) equal

sexual attraction to the images of men and women, and (2) the more extreme pattern of gynephilic attraction exhibited by Samoan masculine men who only engage in sexual interactions with women.

Both self-reported sexual attraction and viewing time measures employed in this study indicate that masculine men who engaged in sexual interactions with *fa'afafine* exhibit: (1) significantly more sexual attraction to women than do *fa'afafine* and (2) significantly more sexual attraction to men than do masculine men who only engage in sexual interactions with women. Consequently, on the basis of these measures and this sample, Samoan masculine men who engage in sexual interactions with *fa'afafine* could be accurately described as exhibiting a bisexual pattern of sexual attraction. This bisexual pattern of sexual attraction was not characterized by perfectly equal sexual attraction to men and women but, it is important to note that such a theoretical ideal is rarely found in the real world (Diamond, 1993).

If half of the masculine men who engage in sexual interactions with *fa'afafine* were composed of men who exhibit androphilic attraction, and the other half were composed of men who exhibit gynephilic attraction, then the resulting mean sexual attraction score would mistakenly indicate a pattern of bisexual attraction for this group. Statistical analysis indicated that this type of bimodal group composition may account for the self-reported sexual attraction scores of the masculine men who engage in sexual interactions with *fa'afafine*. However, similar analysis indicated that this type of bimodal group composition does not characterize the pattern of viewing time response latency scores of masculine men who engage in sexual interactions with *fa'afafine*. Taken together, these findings suggest that the two measures of sexual attraction do not directly

map onto each other for masculine men who engage in sexual interactions with *fa'afafine*. Potential within-group variation exists in terms of these men's subjective reports of sexual feelings. In contrast, more objective measures of sexual preference (i.e., response latency scores) indicate more within group uniformity.

Fa'afafine and men who only engage in sexual interactions with women had prolonged response latencies when presented with images of their preferred sex compared to neutral images. Men who engaged in sexual interactions with *fa'afafine* had prolonged response latencies for images of both men and women. Their self-reported sexual attraction to images of men versus neutral images were not significantly different given the adjusted alpha levels, although there was a clear trend towards significance. Absence of a significant effect may reflect Type II Error, and might disappear if a larger sample size is employed. Regardless, the tendency of these men to exhibit relatively similar viewing times for images of men and women can not be explained in terms of a general tendency to respond indiscriminately to all images, regardless of their content.

The bisexual pattern of viewing-time exhibited by Samoan men who engage in sexual activity with *fa'afafine* is similar to that which has been reported for bisexually-identified men in Canada (Ebsworth & Lalumière, 2012) and the USA (Lippa, 2012b; Rieger & Savin-Williams, 2012). When viewed from a comparative perspective, a number of insights can be drawn from these studies. First, because the category "bisexual" is not one that the vast majority of Samoan men draw upon to construct their identities, the manifestation of a bisexual pattern of viewing-time is not contingent on the existence of a bisexual identity. Second, men that exhibit bisexual viewing-times appear to engage in markedly different patterns of sexual behaviour. In Canada, men who exhibit bisexual

viewing-times report engaging in appreciable sexual activity with both men and women (e.g., Ebsworth & Lalumière, 2012; *M*, *SD*, number of male sexual partners: 47.4, 153.6; number of female sexual partners, 14.1, 13.2). However, in Samoa, fully 77.1% of the men who exhibited bisexual viewing times (i.e., men who engage in sexual interactions with *fa'afafine*) did not engage in sexual activity with both men and women; rather, these men reported engaging in sexual activity with just *fa'afafine* (7.4%), just *fa'afafine* and men (14.3%) or just *fa'afafine* and women (75%). While it is true that *fa'afafine* are male-bodied, they do not look or act like masculine men. If we accept that bisexual viewing-times truly reflect patterns of sexual attraction then, on the basis of these studies, we must also accept that the manner in which bisexual patterns of sexual attraction manifest behaviourally vary from one culture to the next.

Table 2.1

<i>Sexual partner profiles of men who engage in sexual interactions with fa'afafine.</i>				
Number of Participants	Percent of Sample Category (%)	<i>Gender category of individuals with whom participants have engaged with sexually</i>		
		Men	Women	<i>Fa'afafine</i>
Throughout their lives:				
(<i>n</i> = 8)	22.9	✓	✓	✓
(<i>n</i> = 21)	60		✓	✓
(<i>n</i> = 4)	11.4	✓		✓
(<i>n</i> = 2)	5.7			✓
Within the past year:				
(<i>n</i> = 3)	8.6	✓	✓	✓
(<i>n</i> = 26)	74.3		✓	✓
(<i>n</i> = 2)	5.7	✓		✓
(<i>n</i> = 4)	11.4			✓

Table 2.2

Mean (\pm SD) values by group for self-reported sexual attraction ratings and response latencies (measured in milliseconds) for images of men, women, and neutral stimuli.

	<i>Fa'afafine</i>		Men who only engage in sexual interactions with women		Men who engage in sexual interactions with <i>fa'afafine</i>	
	<i>M</i>	SD	<i>M</i>	SD	<i>M</i>	SD
<i>Self-reported sexual attraction ratings to images of:</i>						
Women	1.21	.44	4.31	1.55	4.54	1.53
Men	5.36	1.43	1.09	.21	3.15	1.76
Neutral Stimuli	1.63	.92	1.39	.88	2.41	1.41
<i>Response latencies for images of:</i>						
Women	5768.83	5250.89	11513.23	9035.63	11629.39	7095.42
Men	6901.61	4134.63	5264.47	4296.02	10505.54	8322.69
Neutral Stimuli	5225.02	4708.11	5539.41	4891.02	8389.58	7105.29

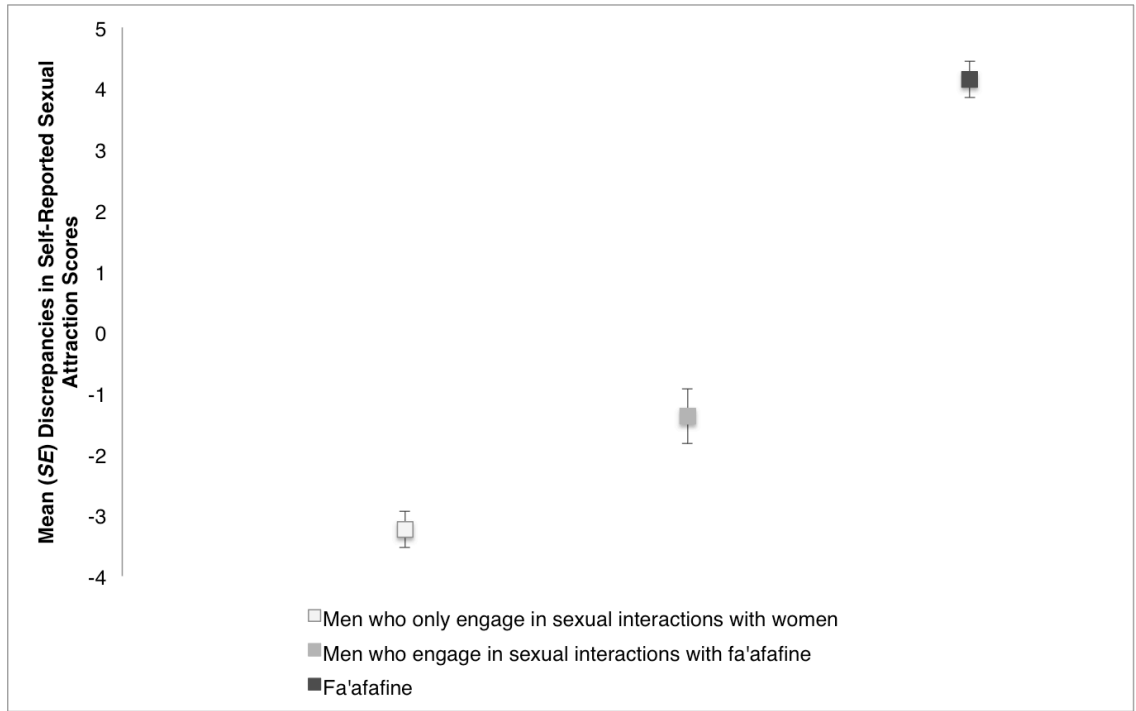


Figure 2.1. Mean discrepancies in self-reported sexual attraction to images of men versus images of women for *fa'afafine*, men who engage in sexual interactions with *fa'afafine*, and men who only engage in sexual interactions with women.

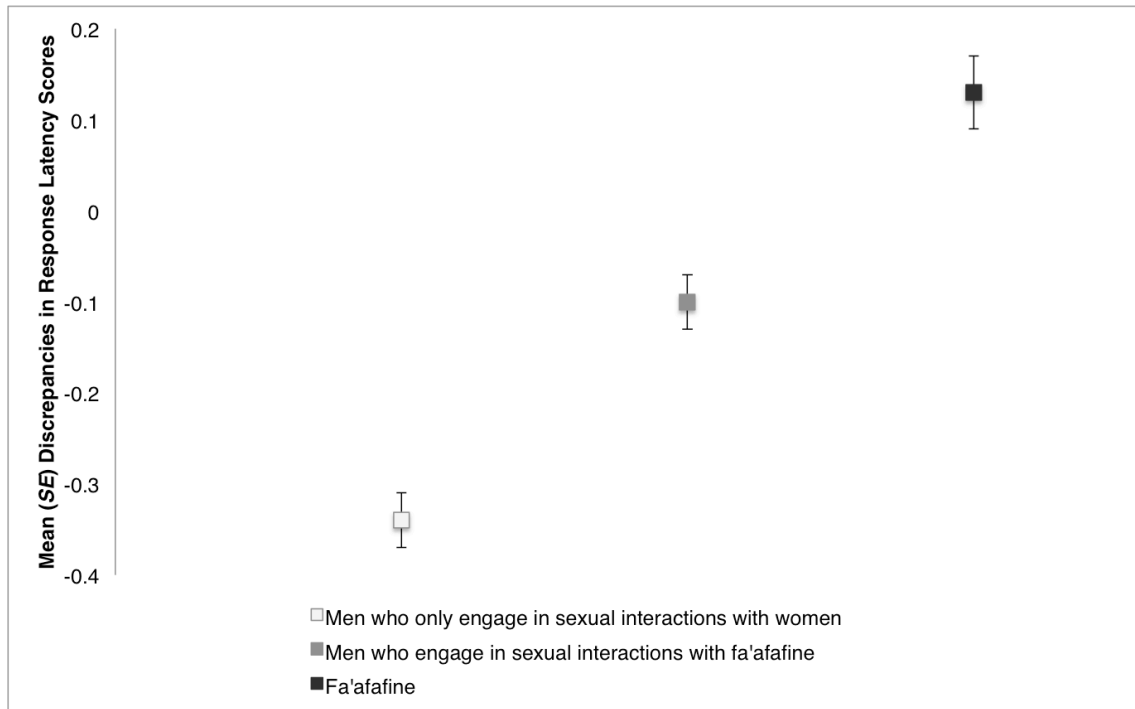


Figure 2.2. Mean discrepancies in response latencies for images of men versus images of women for *fa'afafine*, men who engage in sexual interactions with *fa'afafine*, and men who only engage in sexual interactions with women.

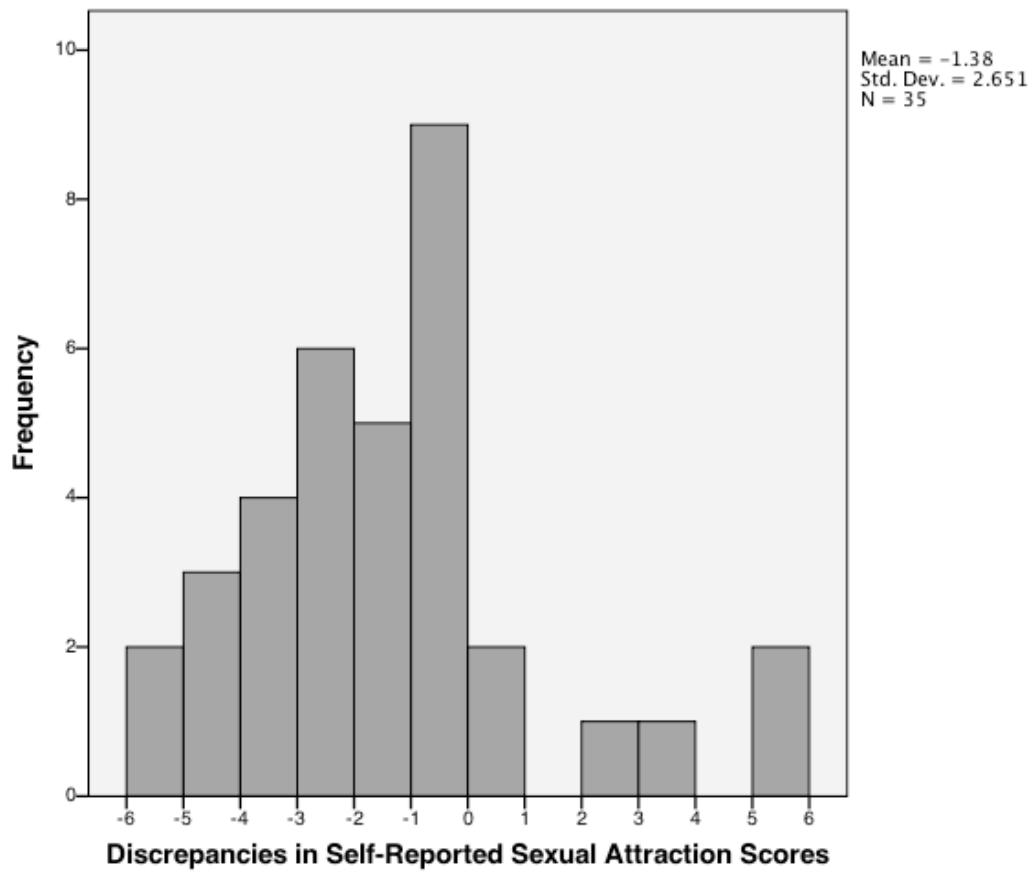


Figure 2.3. Distribution of discrepancies in self-reported sexual attraction scores for images of men and images of women for men who engage in sexual interactions with *fa'afafine*.

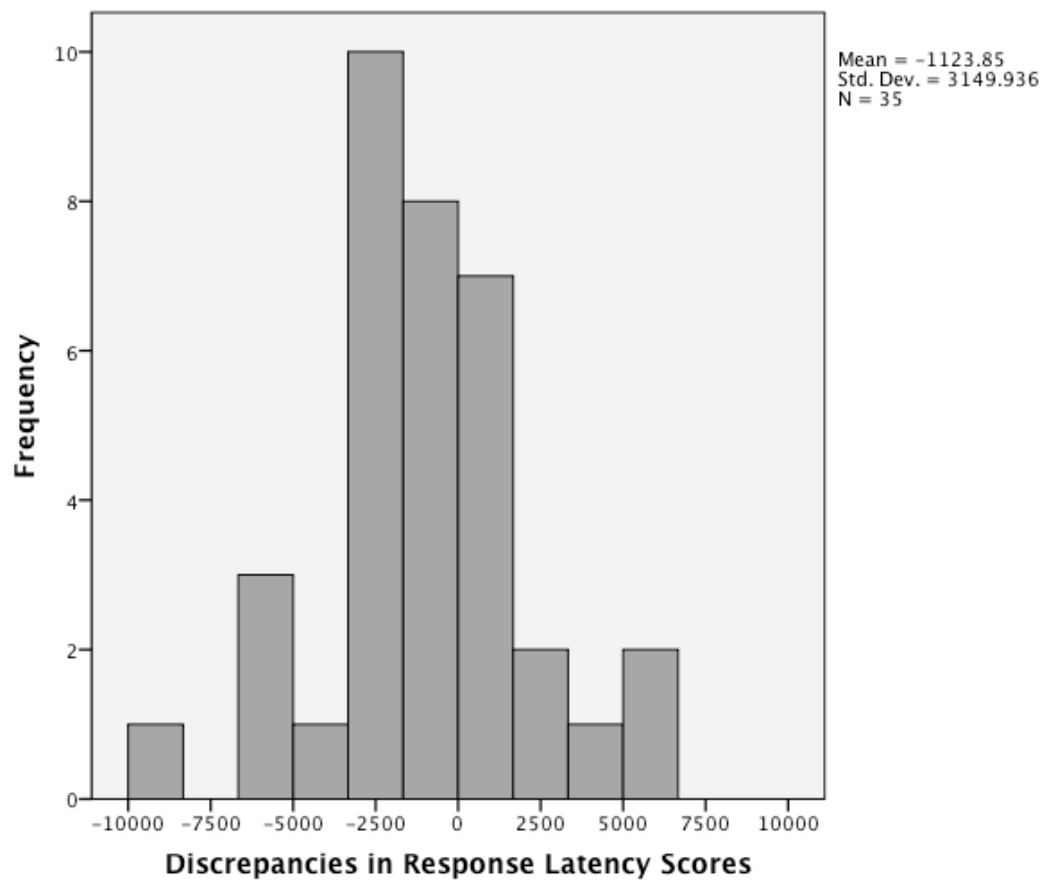


Figure 2.4. Distribution of discrepancies in response latency scores for images of men and images of women for men who engage in sexual interactions with *fa'afafine*.

CHAPTER THREE

Viewing Time Measures of Sexual Attraction and Sexual Activity Role in Samoan

Men Who Engage in Sexual Interactions with *Fa'afafine*

Abstract

In many non-Western cultures, feminine same-sex attracted males are recognized members of a “third” gender. These feminine males engage in sexual activity with masculine men whose sexual orientation remains the subject of debate. Using a Samoan sample, the current study employed self-report and viewing time measures to examine differences in patterns of sexual attraction among: (1) men who only engage in sexual interactions with women, (2) men who engage in sexual activity with feminine males (known locally as *fa'afafine*) but only receive fellatio, (3) men who both preform and receive fellatio with their *fa'afafine* sexual partner(s), and (4) *fa'afafine*, themselves. My results indicate that these groups are distributed on a scale of sexual attraction ranging from primarily attracted to women to primarily attracted to men, respectively. These results suggest that male sexual orientation is a continuous trait, not a categorical one, and that its expression is influenced by culture.

Keywords: male sexual orientation; bisexuality; viewing time; response latency; Samoa

Introduction

Males do not represent two discrete populations, heterosexual and homosexual. The world is not to be divided into sheep and goats... The living world is a continuum in each and every one of its aspects.

- Kinsey, Pomeroy, and Martin (1948) *Sexual Behavior in the Human Male*

Male sexual orientation has been characterized as a mechanism, analogous to a compass, that directs one's sexual feelings, arousal, fantasy, and attraction (Bailey, 2009). Like the needle of a compass, male sexual orientation orients in one direction—either toward men or women—and not in multiple different directions at once. Accordingly, monosexual sexual orientations such as *gynephilia* (i.e., sexual attraction toward adult females) or *androphilia* (i.e., sexual attraction to adult males) should be expressed in males, but male bisexuality should be quite rare. Contrary to Kinsey et al.'s (1948) assertion, research conducted in Western cultural settings largely supports the view that male sexual orientation is overwhelmingly categorical, not continuous, in nature. For example, studies indicate that males' self-reported sexual feelings are largely directed to men or to women, not to both (e.g., Gangestad, Bailey, & Martin, 2000; Lauman, Gagnon, Michael, & Michaels, 1994). Studies that assess viewing time response latencies for stimuli of men and women indicate that most males demonstrate prolonged viewing time response latencies when presented with stimuli depicting their preferred sex compared to their non-preferred sex (Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Israel & Strassberg, 2009; Lippa, 2012a; Rieger & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010). Similarly, physiological measures indicate that most males display genital arousal to one sex or the other, but not to both (Chivers, Rieger, Latty, & Bailey, 2004;

Chivers, Seto, & Blanchard, 2007; Freund 1963; Rieger, Chivers, & Bailey, 2005; Suschinsky, Lalumière, & Chivers, 2009; Suschinsky & Lalumière, 2011).

Taken together, the studies described above furnish consistent support for the idea that male sexual orientation is categorical in nature and not continuous. Nevertheless, the generalizability of this conclusion is limited by the fact that the studies in question were all conducted in Western cultural settings where gender is conceptualized as dichotomous and consisting of “men” versus “women.” However, in many non-Western cultures, gender categories existing outside the “men” and “women” binary are recognized. In particular, alternative gender categories are routinely used in non-Western cultures to describe markedly feminine males. With few exceptions (e.g., Nanda, 1999), these feminine males retain their male genitalia. Examples include, but are by no means limited to, the *kathoey* of Thailand (Totman, 2003), the *kothi* of India (Asthana & Oostvogel, 2001; Ramanathan et al., 2013), *xanith* of Oman (Wikan, 1977), the *Lakota winkte* of North America (Williams, 1992), the *Zapotec muxes* of Mexico (Chiñas, 1992), the *Maale ashtime* of Ethiopia (Donham, 1990), and the *fa’afafine* of Samoa (Vasey & VanderLaan, 2014). In the academic literature, these males are sometimes described as occupying a “third gender” category (e.g., Herdt, 1994).

In adulthood these feminine males are, almost always, exclusively androphilic. They do not, however, engage in sexual activity with one another. Rather, they are attracted to, and engage in sexual activity with, masculine males who self-identify, and are identified by others, as “men” (Murray, 2000).

Consistent with the observed sexual preferences of third gender/feminine androphilic males, Study 1 (Chapter 1) found that Samoan feminine androphilic males,

known as *fa'afafine*, exhibited an androphilic pattern of sexual attraction, as measured by self-report and viewing time response latencies while Samoan men who only engage in sexual activity with women exhibited a gynephilic one. In contrast, Samoan men who engage in sexual interactions with *fa'afafine* demonstrated a uniquely bisexual pattern of sexual attraction that was intermediate to that of the other two groups. In Study 1 it was noted that masculine Samoan males men who engage in sexual activity with *fa'afafine* did not represent a homogeneous group. Within-group differences did exist for measures of self-reported sexual attraction and time viewing response latencies to stimuli of men and women. I speculated that these differences may depend, in part, on aspects of the relationship between *fa'afafine* and their sexual partners, such as the role adopted by the masculine male partners' during sexual activity with *fa'afafine*.

Although evidence is limited, cross-cultural research indicates that masculine men who engage in sexual activity with feminine androphilic males do indeed vary with respect to the roles they adopt during sexual activity. For example, research conducted in India shows that masculine males who engage in sexual activity with feminine androphilic males, known locally as *kothi*, vary in their willingness to perform certain types of sexual behaviours (Asthana & Oostvogel, 2001; Ramanathan et al., 2013). Masculine men known as *panthi* will only adopt the insertive role during oral intercourse with *kothi*, whereas masculine men known as *double-deckers*, will adopt both the insertive and receptive roles.

Similarly, Weinberg and Williams (2010) found that there were two subsets of American men who displayed sexual interest in self-identified transgender women whose bodies were feminized, but who nonetheless retained their penises. One group, identified

as ‘straight’ and reported sexual attraction to the transgender women’s feminine presentation and sexual prowess. These “straight” men reported that they preferred or made an effort to ignore the fact that the transgender women had male genitalia and some even noted that they were averse to the male genitalia. The other group, who identified as ‘bisexual,’ reported that they were sexually attracted to the amalgamation of feminine and masculine characteristics encompassed in these transgender women. The majority of men interviewed who identified as ‘bisexual’ reported a willingness to be fellated by and to fellate the transgender women who were their sexual partners, whereas, those who identified as ‘straight,’ typically only allowed themselves to be fellated by transgender women.

In order to examine the effects of sexual role taking on sexual attraction, in the present study I employed self-report and viewing time measures to assess sexual attraction. Viewing time is measured by asking participants to subjectively rate the sexual attractiveness of stimuli while covertly recording response time latencies (i.e., the amount of time elapsed between the presentation of the stimulus and the participant’s response). It has been demonstrated that viewing time is a reliable means of assessing male sexual orientation (Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Israel & Strassberg, 2009; Quinsey, Ketsetzis, Earls & Karamanoukian, 1996; Rieger, & Savin-Williams, 2012; Rullo, Strassberg, & Israel, 2010). I examined differences in patterns of sexual attraction between: (1) masculine men who engage in sexual interactions with *fa’afafine* and who only allow themselves to be fellated, versus (2) those who actively fellate, and are fellated by, their *fa’afafine* sexual partners. I then compared the measure

of sexual attraction for these two groups to those of: (1) Samoan men who only engage in sexual activity with women, and (2) to *fa'afafine*, themselves.

I predicted that the four participant groups would differ significantly from each other for both measures of sexual attraction. Further, I predicted that these groups would be distributed on a scale ranging from exclusive gynephilic to exclusive androphilic attraction in the following manner: (1) masculine men who only engage in sexual activity with women, (2) masculine men who are only fellated by their *fa'afafine* sexual partners, (3) masculine men who fellate, and are fellated by, their *fa'afafine* sexual partners, and (4) *fa'afafine* who only engage in sexual activity with men. If so, then this would furnish some support for Kinsey et al.'s (1948) assertion that male sexual orientation does indeed exist on a continuum, despite the relatively dichotomous classification seen in studies conducted in Western cultures. Clarity on this issue is essential if we seek to build accurate models for the development and evolution of male sexual orientation.

Methods

Ethics Statement

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. A Samoan Research Visa was obtained from Samoan Immigration under the auspices of the Samoan Ministry of Women, Community and Social Development. Participants were required to provide informed written consent prior to taking part in the study.

Participants

All participants were recruited from the island of Upolu, the most highly populated island of Independent Samoa, using a network sampling procedure, which

involved contacting initial participants who display qualities of interest (i.e., status as [1] *fa'afafine*, [2] man who engages in sexual interactions with women exclusively, or [3] man who engages in sexual interactions with *fa'afafine*) then obtaining referrals from them to additional participants who, in turn, provide further referrals, and so on. All *fa'afafine* participants self-identified as such, had only engaged in sexual interactions with men, and had done so within the past year ($N = 21$). Participants who self-identified as men were categorized as “men who engaged in sexual interactions only with women” if they had engaged in sexual interactions exclusively with women throughout their lives and had done so within the past year ($N = 31$). Participants who self-identified as men were categorized as “men who engaged in sexual interactions with *fa'afafine*” only if they had engaged in sexual interactions with *fa'afafine* within the past year and had done so previously, as well ($N = 50$).

During the interview, the men who engage in sexual interactions with *fa'afafine* were asked about the sexual activities they engaged in with *fa'afafine*. Specifically, they were asked whether they had engaged in fellatio with *fa'afafine*. If they had, they were asked whether they had previously: (1) performed fellatio on *fa'afafine* partner(s), but had not received it, (2) received fellatio from *fa'afafine* partner(s) but had not performed it, or (3) had both performed fellatio on and received fellatio from *fa'afafine* partner(s). Of the men who engaged in sexual interactions with *fa'afafine*: 1 participant reported that he received fellatio from *fa'afafine* partners and that he had performed fellatio on men but not *fa'afafine*, and 1 participant reported that he had performed fellatio on a *fa'afafine* partner once when he was young, but following that he never did so again. These participants were not retained for subsequent analysis. Of the retained men who engaged

in sexual interactions with *fa'afafine* ($N = 48$): 65.3% ($n = 31$) received fellatio from *fa'afafine* partners but had not performed it; and 34.7% ($n = 17$) performed fellatio on, and received fellatio from, *fa'afafine*. None of the participants performed fellatio on *fa'afafine* partners without receiving it. Participants who received fellatio from *fa'afafine* partners, but did not perform it are referred to here as the *passive oral sexual partners of fa'afafine*. Participants who performed fellatio on, and received fellatio from, *fa'afafine* partners are referred to here as the *versatile oral sexual partners of fa'afafine*.

The passive oral sexual partners of *fa'afafine* varied in terms of the types of sexual partners they had over the course of their lives. Overall, 16.1% ($n = 5$) had engaged in sexual interactions with *fa'afafine*, women, and men, and 83.9% ($n = 26$) had engaged in sexual interactions with both *fa'afafine* and women, but not men. Over the past year, 3.2% ($n = 1$) had engaged in sexual interactions with *fa'afafine*, women, and men; 93.5% ($n = 29$) had engaged in sexual interactions with both *fa'afafine* and women, but not men; and 3.2% ($n = 1$) had engaged in sexual interactions with *fa'afafine* only.

The versatile oral sexual partners of *fa'afafine* also varied in terms of the types of sexual partners they had over the course of their lives. Overall, 47.1% ($n = 8$) had engaged in sexual interactions with *fa'afafine*, women, and men; 41.2% ($n = 7$) had engaged in sexual interactions with both *fa'afafine* and women, but not men; and 11.8% ($n = 2$) had engaged in sexual interactions with both *fa'afafine* and men, but not women. Over the past year: 35.3% ($n = 6$) had engaged in sexual interactions with *fa'afafine*, women, and men; 52.9% ($n = 9$) had engaged in sexual interactions with both *fa'afafine* and women, but not men; and 11.8% ($n = 2$) had engaged in sexual interactions with *fa'afafine* only.

The age range of the *fa'afafine* participants was 19-43 ($M = 29$ $SD = 7.06$), that of men who engage in sexual interactions only with women was 20-46 ($M = 29.71$ $SD = 8.88$), that of the passive oral sexual partners of *fa'afafine* was 18-42 ($M = 23.71$ $SD = 5.37$), and that of the versatile oral sexual partners of *fa'afafine* was 19-34 ($M = 24.41$ $SD = 4.40$). A one-way analysis of variance (ANOVA) indicated that age differed significantly as a function of group, Brown-Forsythe statistic, $F(3, 81.91) = 5.84$, $p = .001$. For the versatile oral sexual partners of *fa'afafine*, age correlated significantly with self-reported sexual attraction ratings for women, $r = -.464$, $p = .009$. Consequently, age was included as a covariate in subsequent analysis of self-reported sexual attraction ratings, even though it was not significantly correlated with self-reported sexual attraction ratings for the other groups ($p = .115-.841$). No significant correlations were found between age and response latencies for images of men or women ($p = .127 - .834$). Consequently, age was not included as a covariate in subsequent analysis of response latencies. An independent chi-square test indicated religiosity did not differ significantly between groups, $\chi^2(6) = 2.91$, $p = .820$ (*fa'afafine*, men who only engage in sexual interactions with women, the passive oral sexual partners of *fa'afafine*, and the versatile oral sexual partners of *fa'afafine* respectively; highly religious: 23.8%, 35.5%, 22.6%, 23.5%; somewhat religious: 71.4%, 61.3%, 71.9%, 64.7%; slightly religious: 4.8%, 3.2%, 6.5%, 11.8%).

Measures

The study consisted of a viewing-time experiment followed by a brief biographic questionnaire and, lastly, a brief semi-structured interview. The text accompanying the viewing-time experiment and questionnaire were translated and back-translated into

Samoan by two Samoan-speaking research assistants. One of the Samoan research assistants (a *fa'afafine*) was present to provide instructions to all of the participants and to answer questions.

Prior to the actual experiment beginning, participants first viewed nine trial images of men and women to familiarize them with the task. Because some participants were unfamiliar with computers, if they did not understand the experiment following the first trial, a second trial was conducted. If, following a third trial, the participants did not understand the task, they were given payment and thanked for their time. The experiment proceeded following one, two, or three practice trials, if the participants (1) stated they understood the task, and (2) demonstrated that they understood the task.

The viewing-time portion of the study was conducted using Empirisoft's MediaLab viewing-time software. Participants were shown a series of images that included men's faces, women's faces, and neutral stimuli (i.e., cartoon faces composed of a circle with two dots for eyes and a straight line for a mouth each of which varied slightly) and told that the purpose of the experiment was to obtain their subjective sexual attraction ratings for these images. Participants were instructed to take as long as they needed to complete the task and to carefully appraise each photo before rating it. Examples of the stimuli are displayed in Appendix A. The experiment consisted of forty images.

The first image in the actual experiment was a cartoon face image. Participants' response to this first neutral image was deleted from the analysis to remove any confounds associated with transitioning from the trial to the actual experiment. The remaining experiment was comprised of ten target images of women's faces, ten target

images of men's face, and ten cartoon face images, which were presented in a randomized order. As each image was displayed, participants were asked to respond to the question, which appeared at the top of the image: "How would you feel about having sex with this person?" Participants' responses were measured using a seven point Likert-type scale ranging from 1-"very unpleasant" to 7- "very pleasant." These response options appeared in a boxed column at the right of the image. Participants indicated their responses by clicking on the appropriate boxed number using a computer mouse.

Unbeknownst to the participants, as they were providing their self-reported ratings of sexual attraction to the target images, the time between the presentation of the stimulus and participants' response was being simultaneously recorded. It is important to note that this latent period, which is typically referred to as a "viewing time" reflects the time required to respond to the task of rating attraction (see Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Imhoff, Schmidt, Weiß, Young, & Banse, 2012). For ease of comparison across studies, I will refer to this measure as *viewing time*.

The Samoan research assistant was present during the trial portion of the viewing-time experiment, but left prior to the actual experiment commencing. The Dr. Vasey was present throughout the entire period of data collection for every participant⁹. During the experiment he remained silent, did not move, did not look directly at the participants, and watched the computer screen out of the corner of his eye. The experiment was discontinued for any of the following non-exclusive reasons, including, if the participant: (1) looked away from the computer screen, (2) called out to someone, (3) lost control of

⁹ Dr. Vasey and I believed that it would be culturally inappropriate for a woman to be present when participants responded to questions that were sexual in nature and our Samoan research assistant confirmed this.

the mouse, (4) moved rapidly through the images in a “machine-gun” fashion such that Dr. Vasey inferred that they were not actually looking at the images but rather rushing to complete the experiment, or (5) scored every one of the thirty-one experimental images the same, including the first neutral face image.

Following the viewing-time experiment, the Samoan research assistant returned to help the participant complete the biographic questionnaire portion of the study. During the biographic questionnaire portion of the study, participants were asked to report their age, religiosity (“not religious,” “somewhat religious,” “very religious”) and whether they had had sexual interactions with men, women, and *fa’afafine* (1) at any point in their lives, and (2) within the past year. Participants that had engaged in sexual interactions with *fa’afafine* were asked if they engaged in active or passive fellatio with their *fa’afafine* sexual partners. Lastly, men who engaged in sexual interactions with *fa’afafine* were asked about the sexual activities they engaged in with their partner(s) (as discussed previously).

Upon completion of the questionnaire and brief interview, participants were debriefed and invited to ask any questions they might have about the study. All participants were thanked and given \$20 Western Samoan Tala as a gift to compensate them for their time. An Institutional Research Ethics Committee approved this research. Participants were required to provide informed consent.

Stimulus Construction

Twenty-four Samoan men (age range = 18-28 years, $M = 22.04$, $SD = 2.71$) and 24 Samoan women (age range = 18-27 years, $M = 21.67$, $SD = 2.76$) were photographed under standard lighting conditions posing with a neutral expression. The target images

were created using composite images of the faces of Samoan men and women and the composite faces were then manipulated to render them more masculine or feminine. To manipulate masculinity/femininity, twenty ‘base faces’ (10 men, 10 women) were constructed. The base faces were composite average faces that were constructed from two individual facial photographs in line with previous methods (Benson & Perrett, 1993; Tiddeman, Burt, & Perrett, 2001; Little & Hancock, 2002). Individual facial photographs were paired randomly from a pool of 40 face images (20 men, 20 women) that were, themselves, drawn randomly from the overall sample of Samoan men’s ($n = 24$) and women’s faces ($n = 24$). The composite base faces were then made symmetric prior to being transformed on a sexual dimorphism dimension using the shape linear difference between a composite of 50 men and an equivalent composite of 50 young adult women, in line with previous methods (Perrett et al., 1998). Transforms represented $50\% \pm$ the difference between these two composites, resulting in twenty faces that were $+50\%$ of the shape of the relevant sex (10 masculinized faces of men, 10 feminized faces of women; Appendix A). Composite faces are representative of the average traits of the faces within them, reducing idiosyncratic differences between faces. By following this procedure, the faces of men were transformed to be more masculine and the faces of women were transformed to be more feminine. Doing so ensured that the target images were clearly masculine or feminine, thereby eliminating any possibility that the images could have been viewed as androgynous.

Data Analysis

Mean self-reported sexual attraction and mean response time latencies were calculated for participants’ response the target images of men, and the target images of

women. To directly compare individual participants' responses to the images of men versus the images of women, the discrepancy in their mean responses to both types of images were calculated. The discrepancies in *self-reported sexual attraction* and *response latencies* were calculated using the following formula: mean self-reported sexual attraction rating (or response latency for images of men) – mean self-reported sexual attraction rating (or response latency for images of women) = discrepancy in self-reported sexual attraction ratings (or response latencies). A score greater than 0 indicated androphilic attraction; a score lower than 0 indicated gynephilic attraction.

Statistical Analysis

Analysis was conducted using IBM SPSS Statistics version 22. A one-way ANCOVA, (with the alpha level set at $\alpha = .05$) was conducted to examine whether the mean discrepancies in self-reported sexual attraction to each stimuli category (i.e., men and women) differed as a function of group, with age included as a covariate. A one-way ANOVA (with the alpha level set at $\alpha = .05$) was conducted to examine whether the mean discrepancies in response latencies for each stimuli category (i.e., men and women) differed as a function of group. Contrast comparisons were conducted to compare the groups that I predicted would be the least likely to differ significantly, specifically: (1) men who only engaged in sexual interactions with women versus men who were the passive oral sexual partners of *fa'afafine*, (2) men who were the passive oral sexual partners of *fa'afafine* versus men who were the versatile oral sexual partners of *fa'afafine*, and (3) men who were the versatile oral sexual partners of *fa'afafine* versus *fa'afafine*, themselves.

Following between-group analysis, within-group one sample *t*-tests were conducted to assess the extent to which participants' self-reported sexual attraction and response latencies differed from a theoretically equal response to images of men and women. A test value of 0 was used for all groups because this value indicates equal attraction to both men and women. For these analyses, the alpha levels were adjusted to $\alpha = .013$ to maintain a Type I Error rate of $\alpha = .05$ across multiple comparisons.

Next, analyses were conducted to assess the possibility that the subset of men who engage in sexual interactions with *fa'afafine* were indiscriminately responding to all of the target images. Such indiscriminate responding could artificially produce what appeared to be a bisexual pattern of sexual attraction. To assess this possibility, within-group paired sample *t*-tests were conducted to determine whether participants differed in their self-reported sexual attraction ratings and response latencies to the neutral images in comparison to the target images of men and the target images of women. For these analyses, alpha levels were set at $\alpha = .013$ to maintain a Type I Error rate of $\alpha = .05$ across multiple tests.

Results

Mean and standard deviation values for participants' self-reported sexual attraction ratings and viewing times response latencies are displayed in Table 3.1 by group.

Self-Reported Sexual Attraction Analysis

Calculations of the discrepancies in self-reported sexual attraction to images of men and images of women, adjusted for age, revealed a mean score of $M = 4.08$, $SD = 1.92$ for *fa'afafine*; $M = -3.26$, $SD = 2.00$ for men who only engage in sexual interactions

with women; $M = -2.28$, $SD = 2.00$ for men who were the passive oral sexual partners of *fa'afafine*; and $M = -.78$, $SD = 1.94$ for men who were the versatile oral sexual partners of *fa'afafine*. A one-way ANCOVA was conducted to determine whether mean discrepancies in self-reported sexual attraction scores differed as a function of group. Group mean discrepancies in self-reported sexual attraction scores are displayed in Figure 3.1. This analysis indicated no significant main effect of age, $F(1, 95) = 1.32$, $p = .253$, $\eta_p^2 = .01$. There was, however, a significant main effect of group, $F(3, 95) = 67.38$, $p < .001$, $\eta_p^2 = .68$. Contrast comparisons indicate, firstly, that the men who only engaged in sexual interactions with women did not differ significantly from the men who were the passive oral sexual partners of *fa'afafine*, $p = .060$, $d = -.49$, 95% CI $(-2.01, .04)$. Secondly, the men who were the passive oral sexual partners of *fa'afafine* exhibited mean discrepancies in self-reported sexual attraction scores that were significantly lower than those who were the versatile oral sexual partners of *fa'afafine*, $p = .012$, $d = -.76$, 95% CI $(-2.65, -.34)$. Thirdly, the men who were the versatile sexual partners of *fa'afafine* exhibited mean discrepancies in self-reported sexual attraction scores that were significantly lower than those of *fa'afafine*, themselves, $p < .001$, $d = -2.52$, 95% CI $(-6.13, -3.58)$.

Additional analyses pertaining to self-reported sexual attraction were conducted to assess the extent to which the groups differed from a theoretically idealized pattern of equal sexual attraction the images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0, $t(20) = 13.69$, $p < .001$, Cohen's $d = 6.12$. Men who only engaged in sexual interactions with women scored significantly lower than 0, $t(30) = -12.07$, $p < .001$, Cohen's $d = -4.41$. The

passive oral sexual partners of *fa'afafine* also scored significantly lower than 0, $t(30) = -6.40, p < .001$, Cohen's $d = -2.34$. The versatile oral sexual partners of *fa'afafine* did not differ significantly from 0, $t(16) = -1.27, p = .223$, Cohen's $d = -.63$.

Viewing Time Analysis

A logarithmic transformation was conducted on the mean response latencies for images of women and men to ensure normality and avoid skew. Non-logarithmically transformed means are presented in Table 3.1. Calculations of the discrepancies in response latencies for images of men and images of women revealed a mean score of $M = .12, SD = .17$ for *fa'afafine*; $M = -.33, SD = .20$ for men who only engage in sexual interactions with women; $M = -.16, SD = .19$ for the passive oral sexual partners of *fa'afafine*; and $M = -.03, SD = .14$ for the versatile oral sexual partners of *fa'afafine*. A one-way ANOVA was conducted to determine whether the mean discrepancies in response latency scores differed as a function of group. Group mean discrepancies in response latency scores are displayed in Figure 3.2. This analysis indicated a significant main effect of group, $F(3, 96) = 28.29, p < .001, \eta_p^2 = .47$. Contrast comparisons indicated, firstly, that men who only engaged in sexual interactions with women exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by the passive oral sexual partners of *fa'afafine*, $p = .001, d = -.87$, 95% CI $(-.26, -.07)$. Secondly, men who were the passive oral sexual partners of *fa'afafine* exhibited mean discrepancies in response latency scores that were significantly lower than those exhibited by men who were the versatile oral sexual partners of *fa'afafine*, $p = .015, d = -.78$, 95% CI $(-.24, -.03)$. Thirdly, men who were the versatile oral sexual partners of *fa'afafine* exhibited mean discrepancies in response latency scores

that were significantly lower than those exhibited by *fa'afafine*, themselves, $p = .001$, $d = -.96$, 95% CI $(-.27, -.03)$.

Additional analyses pertaining to viewing time response latencies were conducted to assess the extent to which the groups differed from a theoretically idealized pattern of equal sexual attraction the images of men and women (represented by a test value of 0). This analysis revealed that *fa'afafine* scored significantly higher than 0, $t(20) = 3.32$, $p = .003$, Cohen's $d = 1.48$. Men who only engaged in sexual interactions with women scored significantly lower than 0, $t(30) = -9.27$, $p < .001$, Cohen's $d = -3.38$. The passive oral sexual partners of *fa'afafine* also scored significantly lower than 0, $t(30) = -4.78$, $p < .001$, Cohen's $d = -1.75$. The versatile sexual partners of *fa'afafine* did not differ significantly from 0, $t(16) = -.79$, $p = .439$, Cohen's $d = -.40$.

Responses to the Target Images and Neutral Control Images

Within group, paired sample t -tests were conducted to assess whether both groups of men who engage in sexual interactions with *fa'afafine* were indiscriminately responding to all of the target images. With respect to self-reported sexual attraction, the passive oral sexual partners of *fa'afafine* did not differ significantly in their ratings of the images of men ($M = 2.26$, $SD = 1.47$) and the neutral images ($M = 2.26$, $SD = .99$), although the group differences trended towards significance in the expected direction, $t(30) = 2.01$, $p = .054$, Cohen's $d = .73$. These men did, however, rate the images of women ($M = 4.64$, $SD = 1.48$) as significantly more attractive than the neutral images ($M = 1.80$, $SD = .99$), $t(30) = 10.38$, $p < .001$, Cohen's $d = 3.79$. The versatile oral sexual partners of *fa'afafine* rated the images of men ($M = 3.87$, $SD = 1.59$) as significantly more attractive than the neutral images ($M = 2.53$, $SD = 1.58$), $t(16) = 2.96$, $p = .009$,

Cohen's $d = 1.48$, and they also rated the images of women ($M = 4.73$, $SD = 1.69$) as significantly more attractive than the neutral images ($M = 2.53$, $SD = 1.73$), $t(16) = 3.28$, $p = .005$, Cohen's $d = 1.64$.

A logarithmic transformation was conducted on the mean response latencies for neutral images, as well as the mean response latencies for the images of men and women, to ensure normality and avoid skew. With respect to viewing time, the mean response latencies for the passive oral sexual partners of *fa'afafine* did not differ significantly for images of men ($M = 3.77$, $SD = .27$) and the neutral images ($M = 3.71$, $SD = .32$) given the adjusted alpha level, although the group differences trended towards significance in the expected direction, $t(30) = 2.46$, $p = .020$, Cohen's $d = .90$. These men did, however, exhibit mean response latencies that were significantly longer when presented with images of women ($M = 3.94$, $SD = .23$) compared to neutral images ($M = 3.71$, $SD = .32$), $t(30) = 6.64$, $p < .001$, Cohen's $d = 2.42$. The mean response latencies of the versatile oral sexual partners of *fa'afafine* were significantly longer for images of men ($M = 3.99$, $SD = .34$) than neutral images ($M = 3.84$, $SD = .32$), $t(16) = 3.01$, $p = .008$, Cohen's $d = 1.51$, and they were also significantly longer when presented with images of women ($M = 4.02$, $SD = .33$) than neutral images ($M = 3.84$, $SD = .32$), $t(16) = 3.65$, $p = .002$, Cohen's $d = 1.82$.

Discussion

The current study employed measures of self-reported sexual attraction and viewing time to determine whether differences in the roles adopted during oral intercourse by masculine men who engage in sexual interactions with *fa'afafine* partners relate to differences in sexual attraction to men and women. Both self-reported sexual

attraction and viewing time response latencies scores indicated that the control groups (i.e., [1] men who only engage in sexual activity with women and [2] *fa'afafine*) exhibited predominantly gynephilic and androphilic patterns of sexual attraction, respectively. In contrast, the self-reported sexual attraction and viewing time measures employed in this study indicate that both groups of masculine men who engaged in sexual interactions with *fa'afafine* exhibit: (1) significantly more sexual attraction to women than do *fa'afafine*, and (2) significantly more sexual attraction to men than do masculine men who only engage in sexual interactions with women. Consequently, on the basis of these measures and this sample, both groups of masculine men who engage in sexual interactions with *fa'afafine* could be described as exhibiting a relatively bisexual pattern of sexual attraction.

This pattern of sexual attraction does not, however, appear to be contingent on a bisexual identity since this identity category is virtually non-existent among Samoan people. Although the masculine men who engaged in sexual interactions with *fa'afafine* did not exhibit perfectly equal attraction to men and women, those who were the versatile oral sexual partners of *fa'afafine* came very close to doing so. In any case, it is important to note that bisexual attraction that is characterized in terms of perfectly equal attraction to men and women represents a theoretical ideal that is rarely found in the real world (Diamond, 1993).

The patterns of sexual attraction exhibited by Samoan masculine men who engage in sexual interactions with *fa'afafine* differ in more nuanced ways depending on the role(s) they assumed during oral intercourse with their *fa'afafine* sexual partners. For instance, self-report measures of sexual attraction indicated that masculine men who only

adopted the passive role during oral intercourse with *fa'afafine* did not differ significantly from masculine men who only engaged in sexual interactions with women, although they did trend toward significance. In contrast, these groups did differ significantly in regards to their viewing-time response latency scores for images of men versus images of women, with the former's scores being significantly less dissociated than the latter's. On the basis of the more objective measure of sexual attraction (i.e., viewing time), these findings indicate that the masculine men who only adopted the passive role during oral intercourse with their *fa'afafine* partner(s) demonstrated a viewing time pattern that was intermediate between that of: (1) masculine men who only engaged in sexual interactions with women and (2) masculine men who both received and performed fellatio during oral intercourse with their *fa'afafine* partner(s). These men may, however, subjectively interpret their sexual attractions as being, on balance, higher for women, than for men.

Further, self-report and viewing-time response latency scores indicate that, compared to the other groups examined, masculine men who both received *and* performed fellatio with *fa'afafine* sexual partners demonstrated relatively similar patterns of sexual attraction to images of men and women. That being said, both measures indicated that their sexual attraction to women was slightly greater, than to men. These results cannot be attributed to an indiscriminate response pattern on the part of these men given that their response times were prolonged for the images of men and women compared to the neutral controls. Furthermore, their self-reported attraction ratings were higher for the images of men and women relative to the neutral controls.

My results stand in stark contrast with Western studies that have found that male sexual attraction is overwhelmingly category-specific (i.e., males are oriented

toward men or toward women, but not toward both; Bailey, Dunne, & Martin, 2000; Chivers et al., 2004; Chivers et al., 2007; Freund 1963; Diamond, 1993; Gangestad et al., 2000; Imhoff, et al., 2010; Israel & Strassberg, 2009; Lauman et al., 1994; Rieger et al., 2005; Rullo et al., 2010; Suschinsky et al., 2009; Suschinsky & Lalumière, 2011). Moreover, my results suggest that sociocultural context may influence male patterns of sexual attraction. Specifically, the presence of markedly feminine androphilic males in the local environment may promote bisexual patterns of male sexual attraction, as well as, behavioural expression of these attractions.

In sum, my results lend support to Kinsey et al.'s (1948) assertion that male sexual orientation exists on a continuum—an idea that has, of late, been largely challenged by Western sexologists (e.g., Bailey, 2009). In general terms, the present study highlights the importance of conducting sexuality research in non-Western cultures so as to garner a more comprehensive understanding of how male sexual orientation is structured (for a more generally discussion of this point, see Henrich, Heine, & Norenzayan, 2010). In the absence of such information, our models for the development and evolution of male sexual orientation run the risk of being biased, incomplete, or even erroneous.

Table 3.1

Mean (\pm SD) values for participant group's self-reported sexual attraction ratings and viewing times (measured in milliseconds) for the images of men, women, and neutral stimuli.

	<i>Fa'afafine</i>		Men who only engage in sexual interactions with women		Men who were the passive oral sexual partners of <i>fa'afafine</i>		Men who were the versatile oral sexual partners of <i>fa'afafine</i>	
	<i>N</i> = 21		<i>N</i> = 31		<i>N</i> = 31		<i>N</i> = 17	
	<i>M</i>	SD	<i>M</i>	SD	<i>M</i>	SD	<i>M</i>	SD
<i>Self-reported sexual attraction ratings to images of:</i>								
Women	1.21	.44	4.29	1.46	4.64	1.48	4.73	1.69
Men	5.36	1.43	1.12	.32	2.26	1.47	3.87	1.59
Neutral Stimuli	1.63	.92	1.48	.96	1.80	.99	2.53	1.73
<i>Response latencies for images of:</i>								
Women	5768.83	5250.89	11136.06	8593.53	10069.67	6747.20	14292.88	13763.31
Men	6901.61	4134.63	5438.68	4472.35	7254.61	5381.78	13459.36	12461.91
Neutral Stimuli	5225.02	4708.11	5617.95	4878.95	6949.26	7068.83	8989.59	7773.30

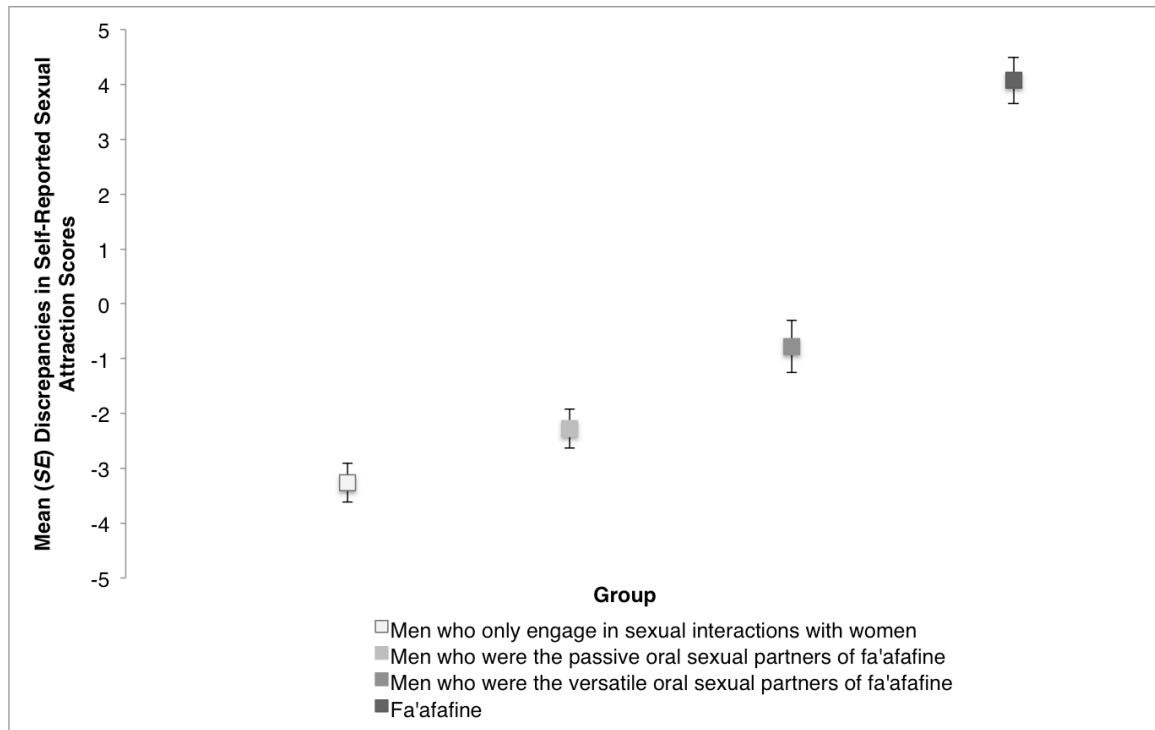


Figure 3.1. Mean discrepancies in self-reported sexual attraction to images of men versus images of women for *fa'afafine*, men who were the passive oral sexual partners of *fa'afafine*, men who were the versatile oral sexual partners of *fa'afafine*, and men who only engage in sexual interactions with women. Covariates appearing in the model are evaluated at the following value: Participant age = 26.80.

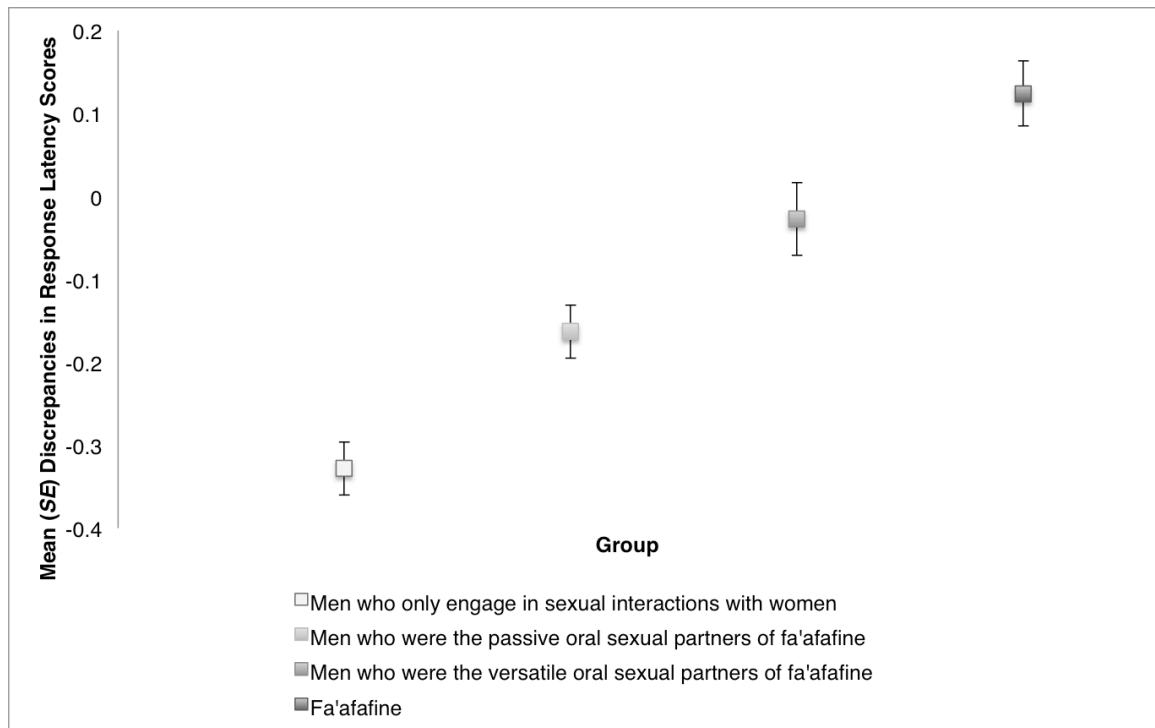


Figure 3.2. Mean discrepancies in viewing time response latencies for images of men versus images of women for *fa'afafine*, men who were the passive oral sexual partners of *fa'afafine*, men who were the versatile oral sexual partners of *fa'afafine*, and men who only engage in sexual interactions with women.

CHAPTER FOUR

Discussion and Future Directions

The Importance of a Cross-Cultural Perspective

Culture influences the manner in which human psychology and behaviour manifests (Henrich, Heine, & Norenzayan, 2010). To date, most psychological research, including research on sexual orientation, has been conducted using samples drawn from WEIRD populations, that is, those that are Western, Educated, Industrialized, Rich, and Democratic. Although information derived from research using WEIRD samples has provided invaluable insights into human psychology and behaviour, the culturally restricted nature of these samples may have resulted in biased, incomplete, or even erroneous ideas about the universality of fundamental components of human psychology and behaviour. Accordingly, research conducted in non-Western cultures may furnish us with transformative insights concerning which aspects of human psychology and behaviour represent ubiquitous facets of humanity

My thesis represents an attempt to contribute to this dialog by using a cross-cultural lens to examine the manner in which sexual orientation is structured in males. I sought to critically evaluate implicit and explicit assumptions about the universal “nature” of male sexual orientation by testing whether these assumptions hold in a non-Western setting. In doing so, I examined patterns of sexual attraction and behaviour exhibited by males in Samoa. Some of the “big picture” questions that my thesis addressed included: *Can bisexual patterns of sexual attraction be observed among males in non-Western cultures? Is male sexual orientation a categorical trait (i.e., males are predominantly sexually attracted to either women or to men, but not both) or a continuous trait (i.e.,*

male sexual orientation exists on a spectrum anchored on either side by exclusive gynephilia and exclusive androphilia with many bisexualities in between)? How does male sexuality manifest in a cultural system in which androphilic males are markedly feminine and recognized as belonging to a third gender category? Does the cultural context in which males develop influence their sexual orientation?

More specifically, Study 1 focused on examining whether masculine Samoan men who engage in sexual interactions with *fa'afafine* exhibit a unique pattern of sexual attraction compared to that of: (1) *fa'afafine* and (2) men who only engage in sexual interactions with women. This comparison indicated that men who engage in sexual interactions with *fa'afafine* did indeed demonstrate a unique pattern of sexual attraction; one that was intermediate between that of *fa'afafine* and of men who only engage in sexual interactions with women. In other words, this pattern of sexual attraction could be accurately described as bisexual.

Using this same paradigm, Study 2 focused on examining the sexual orientation of Samoan men who engage in sexual activity with *fa'afafine* in greater detail. I examined whether more nuanced patterns of sexual attraction existed among these men in relation to the roles they adopted during sexual interactions with their *fa'afafine* partners. To do so, I compared patterns of sexual attraction exhibited by: (1) men who engage in sexual interactions with *fa'afafine* and who only allow themselves to be fellated (the *passive oral sexual partners of fa'afafine*), and (2) those who actively fellate, and are fellated by, their *fa'afafine* sexual partners (the *versatile oral sexual partners of fa'afafine*). I then compared patterns of sexual attraction exhibited by the aforementioned groups to those of: (1) men who only engage in sexual activity with women, and (2)

fa'afafine themselves. The results of Study 2 indicated that these groups were distributed on a scale ranging from exclusively gynephilic to exclusively androphilic in the following manner: (1) men who only engage in sexual activity with women, (2) the passive oral sexual partners of *fa'afafine* (3) the versatile oral sexual partners of *fa'afafine* (s), and (4) *fa'afafine*. Study 2 corroborates Study 1 in furnishing additional support for the conclusion that bisexual patterns of male sexual attraction exist. Further, compared to Study 1, Study 2 provides stronger evidence that male sexual orientation is a continuous trait, not a categorical one and that multiple “bisexualities” exist.

In sum, the results presented in this thesis stand in stark contrast to those amassed using WEIRD samples, which have found that males exhibit substantial sexual attraction to either women or men, but very rarely to both (Bailey, Dunne, & Martin, 2000; Chivers, Rieger, Latty, & Bailey, 2004; Chivers, Seto, & Blanchard, 1997; Diamond, 1993; Freund 1963; Gangestad, Bailey, & Martin, 2000; Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Israel & Strassberg, 2009; Lauman, Gagnon, Michael, & Michaels, 1994; Rullo, Strassberg, & Israel, 2010; Suschinsky, Lalumière, & Chivers, 2009; Suschinsky & Lalumière, 2011). The results presented herein are, instead, in line with Kinsey et al.'s (1948) assertion male sexual orientation is best characterized as a continuous trait that is anchored on either side by exclusive gynephilia and exclusive androphilia with a range of bisexualities in between.

The studies presented in my thesis serve to remind us that caution should be exercised when making assumptions about the universality of human psychological and behavioural traits when those assumptions are based on research that has been exclusively conducted using WEIRD populations. Furthermore, my thesis research,

underscores the importance of conducting psychological research, and more specifically sexological research, in non-Western cultural settings. In the absence of such cross-cultural research our understanding of human psychology and behaviour, including human sexuality, risks being, at best, incomplete and, at worst, incorrect.

Implications of the Present Findings for Sexual Selection and the Evolution of Mating Systems

VanderLaan, Ren & Vasey (2013) found that conditions thought to typify the ancestral human sociocultural environment¹⁰ were more prevalent in cultures in which the feminine form of male androphilia predominated, compared to cultures in which it did not. This suggests that the feminine form of male androphilia is evolutionarily ancestral to the masculine (“gay”) form. Consequently, the outcome of evolutionary processes may be obscured when using more derived forms of male androphilia (e.g., the masculine form), which may reflect historically recent cultural influences. As such, feminine androphilic males likely represent better models for understanding the evolution of male androphilia.

Another under-appreciated implication of the work by VanderLaan et al. (2013) is that feminine androphilic males, and not masculine ones, were present in the human ancestral mating environment. Their presence would have had potential consequences for sexual selection in humans, as well as for the evolution of human mating systems—consequences that, to date, have gone unexamined by researchers. For example, it is possible that the presence of feminine androphilic males may have influenced

¹⁰ The ancestral sociocultural conditions examined included small community size, dependence on hunting and gathering, egalitarian political structure, and animistic belief systems.

heterosexual mating systems via *inter*-sexual mate competition, that is, competition between feminine males and women for masculine men.

Inter-sexual mate competition for female mates has been documented empirically in Japanese macaques (Vasey, 1998). Anecdotal evidence suggests that it also occurs in a number of other bird and mammal species (Vasey, Leca, Gunst, & VanderLaan, 2014). Additional anecdotal evidence gleaned from the anthropological literature indicates that inter-sexual mate competition also occurs between feminine androphilic males and women for access to and control of masculine men as sexual partners (e.g., Williams, 1996). It is this type of inter-sexual mate competition that may have existed in ancestral human mating systems and that may have impacted sexual selection in humans.

The research presented in this thesis raises the possibility that the presence of feminine androphilic males in the local environment may encourage the expression of bisexual attraction and behaviour in masculine men. More specifically, my thesis research is consistent with the conclusion that under such conditions masculine men may become more accepting (or less averse) to feminine male sexual partners, such as *fa'afafine*. It seems reasonable to suggest that an elevated frequency of male bisexuality would, in turn, promote inter-sexual competition among feminine androphilic males and women for masculine men as sexual/reproductive partners. If feminine androphilic males sometimes out-competed women for sexual access to men (as the anthropological literature suggests might be the case; Williams, 1996) then these masculine men may have, at times, missed reproductive opportunities¹¹. Consequently, inter-sexual mate

¹¹ Women who are ovulating are more likely to engage in mate competition than those who are not (e.g. investment more in enhancing their attractiveness or in being sexually appealing: Durante, Griskevicius, Hill, Perilloux, & Li, 2011; Durante, Li, & Haselton,

competition such as this may influence the outcome of reproductive interactions and, by extension, sexual selection. Although Darwin (1871) did not discuss inter-sexual selection as a component of sexual selection, it has been documented in a number of species (Vasey et al., 2014) and, as such, is a real world phenomenon, not simply a theoretical construct. Future research on such interactions may provide transformative new insights into sexual selection and the evolution of mating systems.

Considering the Relative Importance of Sexual Attraction and Sexual Aversion

There is debate in the literature concerning whether evidence for male bisexuality reflects sexual *attraction* to both males and females or, alternatively, sexual attraction to one sex coupled with relatively little sexual *aversion* to the other (cf. Bailey, Rieger, & Rosenthal, 2011; Rosenthal, Sylva, Safron, & Bailey, 2012). The psychological mechanism that motivates individuals to engage in sexual interactions with others is sexual attraction, however, this sexual attraction must occur in conjunction with a lack of sexual aversion. For example, a gynephilic man may experience high sexual attraction and low sexual aversion to women, which would orient him toward his preferred sex. The same gynephilic man may simultaneously experience low sexual attraction and high sexual aversion to men, which would dissuade him from interacting sexually with his

2008; Haselton, Mortezaie, Pillsworth, Bleske-Rechek, & Frederick, 2008). If women do engage in more competitive behaviours during ovulation and feminine androphilic males do not adjust their own behaviour accordingly, it is likely that women's competitive behaviours will surpass those of androphilic males. If such is the case, women will likely successfully outcompete androphilic males and, thus, obtain mating opportunities when they are more reproductively viable. Alternatively, however, if women increase their competitive behaviours and it does not surpass those of feminine androphilic males, or if feminine androphilic males similarly increase their own competitive behaviour when faced with an ovulating woman, the odds may not always favour women. Future research could examine whether women and feminine androphilic males moderate their behaviour when attempting to attract men.

least preferred sex. Identical attraction and aversion mechanism may be present in bisexual men, but may operate differently. For example, a bisexual man may experience high sexual attraction to women, but low sexual aversion to men, in which case he would prefer sexual interactions with women, but not be loath to engaging in sexual interactions with men, should the opportunity for same-sex interactions arise that promise to be sufficiently pleasurable.

For sexual selection to occur, the majority of males must be sexually attracted to reproductively viable opposite-sex partners (Symons, 1995). Consequently, the orienting mechanism underlying this *mate preference* would have been under strong sexual selection since the emergence of a two-sex mating system. It, therefore, stands to reason that a preference for women will characterize the vast majority of men cross-culturally and variation in the socio-cultural environment (such as the presence or absence of feminine androphilic males) will have little, if any, impact on this mate preference for the opposite sex. However, sexual *aversion* may be under less selection pressure and, thus, may be far more susceptible to socio-cultural influences. As such, the threshold at which gynephilic men experience sexual aversion vis-à-vis their less preferred sex may have greater potential for significant fluctuation depending on the socio-cultural context in which they develop.

There is reason to suspect that certain aspects of male mating psychology may exhibit flexibility. It is this psychological flexibility that may facilitate the expression of bisexual patterns of sexual attraction given the appropriate socio-cultural environment. Compared to women, men provide lower levels of parental investment and, thus, they may be less choosy when selecting sexual partners (Trivers, 1972). When choosing

short-term mates (i.e., “one night stands”), men apply less stringent selection criteria than when selecting long-term mates (Kenrick, Groth, Trost, Sadalla, 1993; Kenrick, Sadalla, Groth, Trost, 1990; Woodward & Richards, 2005). Woodward and Richards (2005) theorized that this relaxation of selection criteria during short-term mating interactions is based on men’s perception that these sexual interactions are unlikely to result in reproduction. In addition, men who adopt short-term mating strategies tend to engage in sexual activity with a larger number of partners and, therefore, must be more accepting of a wider range of sexual partners, including those who may be less attractive (for further discussion see Buss & Schmitt, 1993). Thus, when following short-term mating strategies men may be relatively accepting of fluctuations away from signals of optimal femininity.

Extrapolating from this, it could be argued, firstly, that many Samoan men demonstrate an interest in sexual activity with feminine males because *fa’afafine* are a salient and non-stigmatize part of the social environment in which gynephilic male sexuality develops. Secondly, many (if not most) sexual interactions between masculine men and their *fa’afafine* sexual partners are “one night stands” (P.L. Vasey, pers. comm. 2015) and Samoan men (like men everywhere) are less averse to fluctuations away from optimal femininity when pursuing short-term mating opportunities. These conditions may work in concert to promote the expression of male bisexual attraction and behaviour in Samoa. To help identify whether such is the case, future research should focus on disentangling the relative contribution that sexual aversion and sexual attraction play in influencing the psychological and behavioural manifestation of male sexual orientation.

Examining Sexual Arousal

Singer (1984) proposed that three, related but potentially distinct, phases comprise

sexual arousal including: (1) an aesthetic phase that involves visual fixation on an object of interest, (2) an approach phase that involves desire to achieve closer physical proximity to an object of interest, and (3) a genital phase that involves physiological manifestations of sexual arousal. It should be kept in mind that, despite the term “genital phase,” physiological manifestations of sexual arousal are not limited to the genitals. Several authors (e.g., Ebsworth & Lalumière, 2012; Kalmus & Beech, 2005) have suggested that measures of attention, such as viewing time, measure Singer’s aesthetic phase of sexual arousal,¹² whereas measures of pupil dilation and genital response may directly measure Singer’s genital phase. The stimuli, or strength of stimuli, required to exceed a response threshold may differ for each of the phases in question. Consequently, a particular stimulus may elicit a response that is indicative of one phase (i.e., aesthetic), but no such response may occur in relation to another phases (e.g., genital).

In the studies that comprise this thesis, I elected to examine sexual attraction, and not sexual arousal, for two reasons. First, measures of sexual attraction (e.g., viewing time) are easier to collection than measures of sexual arousal (e.g., plethysmography) because the former is less invasive than the later. One corollary that follows from this is that it is relatively easier to obtain a representative sample when using measures of sexual attraction. Second, studies that measure participants’ physiological arousal have required stringent recruitment criteria for a bisexual pattern to be detected (e.g., Rosenthal, Sylva, Safron, & Bailey, 2012). In contrast, studies that measured participants’ patterns of

¹² Prolonged response latencies may be, partially, attributed to the longer time required to positively evaluate an individual as an appropriate/ desirable sexual partner than to confirm that they are not an appropriate/or desirable sexual partner (Imhoff, Schmidt, Nordsiek, Luzar, Young, & Banse, 2010; Imhoff, Schmidt, Weiß, Young, & Banse, 2012).

sexual attraction through viewing time have identified a bisexual pattern without requiring such stringent recruitment criteria. This suggests that a lower response threshold may be required to identify bisexual patterns of sexual attraction, compared to bisexual patterns of sexual arousal. As such, the former may be more easily measured than the latter. Potential discordance among sexual arousal phases complicates the assessment of sexual orientation.

Bailey (2009) argued that genital arousal is the primary motivator directing sexual interest in men, and it can, thus, be considered the “gold standard” for evaluating male sexual orientation. Finding that specific men demonstrate a bisexual pattern of viewing time does not necessarily indicate that these men would demonstrate genital arousal in response to stimuli of both men and women. Given this consideration, these men might not be considered bisexual using Bailey’s operational definition of male sexual orientation.

This potential for discordance among sexual arousal phases would be rendered unproblematic if more easily measured phases of sexual arousal serviced as reliable proxies for other more difficult to measure phases. Indeed, research suggests that this is the case. For example, viewing time and pupil dilation measures that occur in response to sexual stimuli are highly correlated (Rieger, Savin-Williams, 2012). Similarly, pupil dilation and genital arousal measures in response to sexual stimuli are also highly correlated (Rieger et al., 2015). Thus, viewing time may be a good proxy for measuring genital arousal. Further research is needed to confirm this pattern of inter-correlation between different sexual arousal phases, which, in turn, would facilitate efforts to address whether men who engage in sexual interactions with *fa’afafine* do, indeed, demonstrate a

bisexual pattern of sexual *arousal*. As such, in Samoa, future research could utilize alternative measures of physiological arousal such as pupil dilatation, which, as stated, appear to be a reliable proxy for genital arousal (Rieger et al., 2015). As an alternative, genital arousal might be more feasibly assessed using men who have recently immigrated from Samoa to Western countries such as New Zealand, Australia or the USA, where such research is less culturally problematic. In addition, more research effort should also be invested in assessing the approach phase of Singer's (1984) model.

Gynandromorphophilic Sexual Attraction

Studies of sexual attraction have traditionally focused on whether individuals demonstrate androphilic, gynephilic, or bisexual patterns of sexual attraction and arousal and the current study is no exception. Nevertheless, sexual orientation can manifest in ways that are not limited to these three patterns (e.g., Lawrence, 2007; Miletski, 2005; Seto, 2012). For example, some men are gynandromorphophilic, that is, preferentially sexually attracted and aroused to behaviourally and/or anatomically feminine males (Blanchard & Collins, 1993). In Western cultures, men who are gynandromorphophilic are more than incidentally sexually attracted to males whose bodies have been feminized, but who nonetheless retained their penises. These feminized males often identify as “transgender women,” but in Samoa they would be recognized as *fa'afafine* given that the identity category “transgender women” is not one that would be culturally intelligible. If gynandromorphilic men exist in Samoa, the presence of *fa'afafine* would afford them with many opportunities to readily engage with their preferred sexual partners.

The manner in which I conducted Studies 1 and 2 did not enable me to determine whether the masculine men who engage in sexual interactions with *fa'afafine* do so

because they prefer sexual interactions with behaviourally and/or anatomically feminine males when given the alternate choices of masculine men or feminine women. To address this possibility, additional studies of sexual attraction should be conducting using stimuli depicting men, women and *fa'afafine*.

The extent to which particular sexual behaviours or desires are deemed abnormal or troublesome may vary depending on cultural mores (Bhugra, Popelyuk, & McMullen, 2010). Gynandromorphophilia is be an example of a sexual preference that is considered aberrant within a Western context, but may be much more common in cultures in which feminine androphilic males predominate. If so, this would force us to reconsider the degree to which this sexual preference can be accurately described as paraphilic. This possibility is particularly compelling when one considers that feminine androphilic males were likely a salient part of the human ancestral sociocultural environment (VanderLaan et al., 2013).

Sexual Openness and Behavioural Bisexuality

Several authors have proposed that men who identify or behave in a bisexual manner are more likely to demonstrate elevated sexual openness compared to monosexual men (i.e., those who engage in sexual interactions with only one sex; e.g., Rosenthal et al., 2012; Stokes, Miller, & Mundhenk, 1998). This idea is founded on the premise that elevated sexual openness motivates individuals, particularly men, to seek out diverse sexual experiences with novel sexual partners, including members of their least preferred sex (Stokes et al., 1998). Rosenthal et al. (2012) elaborated on this idea, suggesting that men who are open-minded may engage in sexual interactions with both men and women even if the two are not sexually satisfying to an equal degree.

Consistent with this suggestion, Stief, Rieger, and Savin-Williams (2014) found that individuals who reported bisexual patterns of sexual attraction, behaviour, and identity exhibited elevated sexual curiosity and sexual sensation seeking compared to non-bisexual individuals. Similarly, Rieger et al. (2015) assessed participant's sexual arousal via genital arousal as well as pupil dilation. The authors found that only men with elevated openness displayed a bisexual pattern of arousal; those who scored lower on sexual openness exhibited elevated arousal for one sex or the other, but not both. It is conceivable that men in Samoa who engage in sexual interactions with *fa'afafine* exhibit greater sexual openness, sexual curiosity, and sexual sensation seeking and that these personality traits promote bisexual behaviour and sexual attraction. Future research should be conducted to explore this possibility.

Other Directions for Future Research

Examining partner profiles. The majority of Samoan men who engage in sexual interactions with *fa'afafine* (72.9%) did not engage in sexual activity with both men and women. Rather, 68.8% of these men engaged in sexual interactions with just *fa'afafine* and women, and 4.2% engaged in sexual interactions with just *fa'afafine* and men. Thus, the bisexual patterns of sexual attraction I documented for such men did not necessarily manifest in terms of behavioural bisexuality as classically defined. Study 2 demonstrated that patterns of sexual attraction varied among men who engaged in sexual activity with *fa'afafine* depending on their sexual activity preferences. Future research should focus on ascertaining whether similar variation exists in relation to men's sexual partner profiles. This would involve comparing men who engage in sexual interactions with: (1) *fa'afafine* and women, (2) *fa'afafine* and men, (3) *fa'afafine*, women and men, and (4) only with

fa'afafine.

Formulating population estimates. Finally, the current study was not designed to provide an estimate of the frequency of individuals who exhibited bisexual sexual attraction. Nevertheless, based upon ease of recruitment, it appears that men who engage in sexual interactions with *fa'afafine* are commonplace. Indeed, most participants, including men who only sleep with women, indicated that this was the case. In contrast, it was noticeably more difficult to recruit men who only engaged in sexual activity with women. Future research should confirm these impressions empirically by determining the prevalence of male bisexual attraction in Samoa using a probability sample and the viewing-time method outlined in this thesis.

Limitations

One potential limitation of the thesis studies was my use of non-sexually suggestive stimuli. Traditionally viewing time studies have been conducted using more sexually suggestive stimuli, such as images of models in underwear or swimsuits (e.g., Israel & Strassberg, 2009; Ebsworth & Lalumière, 2012; Lippa, 2012a; 2012b; Letourneau, 2002). However, due to Samoan cultural mores, it is uncommon for a woman to be seen in a swimsuit or otherwise minimally dressed, but it is unremarkable for a man to be seen in a similar state. Thus, using swimsuit or underwear clad models as stimuli in Samoa could introduce a potential confound because such imagery of women would be relatively novel, whereas, such imagery of men would be relatively commonplace. Furthermore, it is important to note that heterosexual gender difference in response latencies are maintained when only faces are used as stimuli (Imhoff et al., 2010). In any case, one would anticipate that if the stimuli I employed were not

adequately explicit my results would be biased toward Type II Errors (failing to reject a null hypothesis), which is inconsistent with my results due to the significance obtained.

Additionally, to my knowledge, this study represents the first time a viewing time experiment pertaining to sexual orientation has been conducted in a non-Western field setting. Although every effort was made to ensure that all participants were tested under similar conditions, confounds may have been introduced due to variation in testing conditions. This limitation is somewhat mitigated, however, because this factor was true across all groups.

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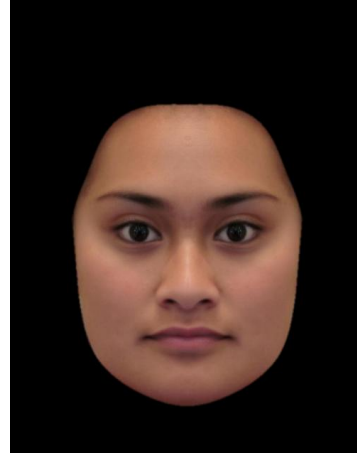
Appendix A

Examples of Stimuli Used in the Viewing Time Experiment

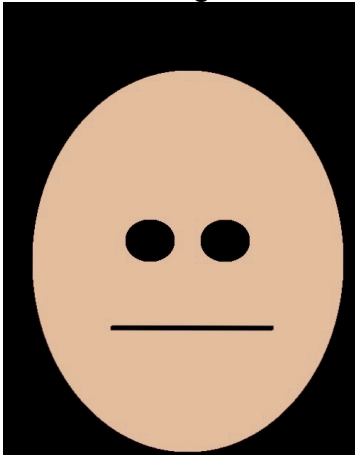
A. Composite image of a man



B. Composite image of a woman



C. Neutral Image ¹³



¹³ I encountered unexpected difficulties when constructing the neutral images. I had previously included images of various landscapes (e.g. mountains, trees, oceans) as the non-sexual neutral images in the experiment. However, when such images were included as the neutral controls, participants spent an inordinate length of time looking at these images and participants rated these images higher than the images of men and women (i.e., some participants were responding that the “neutral images” were the ones they would most like to have sex with). When asked why this was so, participants said things such as “*I would like to go there with a man...under that tree...that would be really nice.*” Hence, these images were replaced with neutral images that were less stimulating to the imagination (simple faces formed from two black circles for eyes, a black straight line for a mouth, and a beige circle for a head, against a black background) and the data from the participants who had previously completed the experiment were disposed of.

Appendix B

Translation of Viewing Time Experiment Instructions¹⁴

Participants were provided with the initial instructions:

You will be shown a series of images. Rate how you feel about the idea of having sex with the person in the image on a scale from 1 – “very unpleasant” to 6 – “very pleasant.”

On the subsequent pages participants were shown an image and provided with the instructions:

How do you feel about the idea of having sex with this person?

Participants were provided with the response options:

- 1- Very unpleasant
- 2- Somewhat unpleasant
- 3- Slightly unpleasant
- 4- Neither pleasant or unpleasant
- 5- Slightly pleasant
- 6- Somewhat pleasant

Following the completion of the experiment participants were shown a final page, which thanked them for their time and requested that they inform the researchers that they had completed this portion of the experiment.

¹⁴ When piloting the experiment participants were presented with a translation of the following instructions: “You will be shown a series of images. Rate how sexually attractive you find these images on a scale from 1-“very sexually attractive” to 10-“very sexually unattractive,” and on the subsequent pages: “How sexually attractive do you find this image?” However, this phrasing proved inappropriate because its meaning was still not well understood and participants consistently requested further clarification. As such, the phrasing was changed to “You will be shown a series of images. Rate how you feel about the idea of having sex with the person in the image on a scale from 1-“very unpleasant” to 6-“very pleasant,” and “How do you feel about the idea of having sex with this person?” Our research assistants confirmed that this phrasing most accurately reflected what I was intending to ask and participants appeared to understand this phrasing without any difficulty.

Appendix C

Translation of the Post-Experiment Questionnaire

Post-Experiment Questionnaire

1. Gender (circle one):
- Man Woman Fa'afafine
2. Age: _____
3. Relationship status (If in a relationship, are you with a man, woman, or fa'afafine?)
- _____ Not in a relationship
- _____ In a casual relationship
- _____ In a committed relationship
- _____ Married
- _____ Divorced or widowed
4. How religious are you?
- 1 2 3
- Not religious Somewhat religious Very religious
5. How much do you earn in a week?
- _____ 0 – 99 tala
- _____ 100 – 199 tala
- _____ 200 – 299 tala
- _____ 300 – 399 tala
- _____ 400 – 499 tala
- _____ 500 – 599 tala
- _____ 600 – 699 tala
- _____ 700 – 799 tala
- _____ 800 – 899 tala
- _____ Over 900 tala
6. How do you feel about the idea of having sex with women?¹⁵
- 0 = Very unpleasant
- 1 = Somewhat unpleasant
- 2 = Slightly unpleasant
- 3 = Neither pleasant or unpleasant
- 4 = Slightly pleasant
- 5 = Somewhat pleasant
- 6 = Very pleasant

¹⁵ This phrasing is a close approximation to “How sexually attractive do you find women?” within the Samoan vernacular (see footnote 10).

7. How do you feel about the idea of having sex with men?

0 = Very unpleasant

1 = Somewhat unpleasant

2 = Slightly unpleasant

3 = Neither pleasant of unpleasant

4 = Slightly pleasant

5 = Somewhat pleasant

6 = Very pleasant

8. How do you feel about the idea of having sex with fa'afafine?

0 = Very unpleasant

1 = Somewhat unpleasant

2 = Slightly unpleasant

3 = Neither pleasant of unpleasant

4 = Slightly pleasant

5 = Somewhat pleasant

6 = Very pleasant

9. Throughout your whole life, you felt sexual desire for (circle all that apply)

Man

Woman

Fa'afafine

10. Throughout your whole life, you have had sexual interactions with (circle all that apply)

Man

Woman

Fa'afafine

11. Within the past year, you felt sexual desire for (circle all that apply)

Man

Woman

Fa'afafine

12. Within the past year, you have had sexual interactions with (circle all that apply)

Man

Woman

Fa'afafine

13. Of those who you did indeed have sexual interactions with, who did you have sexual interactions with first, second, and third.

Man _____

Woman _____

Fa'afafine _____