Young Adults' Sexual Strategies and Mating Displays in the Virtual World: An evolutionary perspective

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COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

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Abstract

Life History Theory (LHT) predicts that natural selection favours a degree of developmental plasticity when it comes to sexual strategies and mating displays. Individuals should develop a faster life history strategy (showing, for example, higher mating effort and a preference for a variety of mates) when they are raised in a relatively unstable environment with high extrinsic mortality. In contrast, individuals should develop a slower life history strategy (showing, for example, lower mating effort and a preference for investment in long-term parenting) when they are raised in a relatively stable environment with low extrinsic mortality. Most previous research examining predictions derived from LHT regarding sexual strategies and mating displays has used survey designs and self-report instruments exclusively. The current study represents a departure from such designs in that I used a quasi-experimental design to examine sexual strategies and mating displays in virtual chatrooms, and to test LHT-based predictions about those strategies and displays. Specifically, I tested the hypotheses that, in the chatrooms, individuals would adopt sexual strategies and mating displays reflective of their different life history strategies, and that these behaviours would manifest in the virtual world much like they have been documented to manifest in the real world. I used the Mini-K Short Form questionnaire, a 20-item instrument designed to measure both cognitive and behavioural aspects of life history strategy, to designate undergraduate males (n = 44) and females (n = 47) as having either a fast or a slow life history. Ten separate groups of these participants, each featuring 3-5 men and 4-5 women, then interacted in separate 1-hour online chat sessions. Results showed that LHS accurately predicted the ways in which male and female participants engaged with one another. Furthermore, men that remained consistent in their LHS presentation (i.e., they behaved in ways consistent with what their LHS predicted they should) were more popular among women than men who were not consistent in this presentation. These results demonstrate the power of evolutionary-based theories of sexual interaction to predict sexual strategies and mating displays in online settings. Further, the ‘pure’ environment of the online platform, without extraneous real-world constraints, provided an opportunity to document and examine sexual strategies and mating displays in new and exciting ways.

Keywords: evolutionary psychology; Life History Theory; self-presentation strategies, sexual strategies, mating displays, online behaviour.

Theoretical Framework and Background

The Internet has become increasingly more prominent within our daily lives, often dominating social correspondence and interpersonal communication. Consequently, online behaviour has become a well-researched area within psychology. Research in the discipline has theretofore adopted, to a great degree, social psychological perspectives to explain online behaviour. However, these approaches tend to emphasize the *proximal* causes of online behaviour (Piazza & Bering, 2009). For the purposes of expanding current knowledge and understanding of online behaviour, the current research used a different theoretical perspective (an evolutionary psychology framework) to explore some of the *distal* causes of the ways in which individuals interact online.[1] The key theoretical ideas used here are largely shaped by previous findings in the cyberpsychological literature (see, e.g., Subrahmanyam & Greenfield, 2008; Valkenburg, Schouten, & Peter, 2005; Young, Pistner, O'Mara, & Buchanan, 1999), as well as by well-established evolutionary biology and psychology theories (see, e.g. Belsky, Steinberg, & Draper, 1991; Buss, 1994; Figueredo, Vásquez, Brumbach, & Schneider, 2004; Trivers, 1972).

The Internet provides a virtual space that may be devoid of the visual and auditory cues relied upon so heavily in real-world, or offline, interactions (Joinson, 2003). However, despite the difference between the relational setting of online and offline engagements, many of the behavioural and psychological strategies used in real-world interactions are also employed in online interactions (Piazza & Bering, 2009). Thus, evolutionary psychological theoretical approaches argue that, regardless of whether the interaction occurs online or offline, the same strategies and psychological mechanisms that have developed throughout human evolution will be employed (Buss, 1994; Piazza & Bering, 2009). Hence, for the purposes of this research, the evolutionary perspectives and theoretical models that examine behaviour around sexual partner selection, or "mating strategies," are useful.

According to these evolutionary psychology theories, individual relational and sexual motives have evolved through the mechanism of natural selection because these strategies have proved useful and successful in facing adaptive challenges across human history. Thus, the basic evolved motives are pursued online, much as they would be offline, employing the same evolved strategies and psychological mechanisms. For example, from an evolutionary perspective, men and women desire different qualities in a sexual partner, and thus employ

[1]A proximal cause is closely spaced in time to a given phenomenon, whereas a distal cause is farther away temporally, yet intricately and causally related to the proximal mechanism(s) of behaviour (Belsky, Steinberg, & Draper, 1991; Piazza & Bering, 2009).

gendered strategies in their selection of that partner (Buss, 1994; Landolt, Lalumière, & Quinsey, 1995; Piazza & Bering, 2009). More specifically, parental investment theory states that, because women have a greater obligatory parental role than men, they favour long-term partners who may provide and care for them and their offspring (Kenrick, Groth, Trost, & Sadalla, 1993; Trivers, 1972).

Further, in terms of intrasexual competition, women compete for men who appear high in status and who appear more capable of caring for offspring (Buss, 1994). In contrast, as a result of relatively less parental obligation, men tend not to factor status into their competitive equations; rather, they compete to have multiple sexual partners, regardless of those women's status, and favour women who appear more capable of carrying their offspring. Thus, men compete with one another for women who are not necessarily high in status, but who are attractive and young (qualities often seen as a reflection of fertility). Men may also compete for women who have no desire to engage in mating with them. Men will infer sexual interest in all women they perceive to be viable mates. This often unconstrained inference of sexual interest among potential female mates is known as sexual over-perception theory (Haselton & Buss, 2000; Haselton, 2003). Further, in attempting to appear favourable to potential female sexual partners, men compete with one another for status, as reflected by, for instance, cultural or social capital (Buss & Shackelford, 1997). Thus, individuals who possess qualities that the opposite sex desires in a mating partner have a higher perceived mate value (Ellis & Symons, 1990; Symons, 1979). These behaviour patterns are evident when the literature on forms of relating on the Internet is viewed from an evolutionary perspective, as will be demonstrated throughout this review.

Life History Theory (LHT) is a useful evolutionary psychology theoretical framework within which one might examine online behaviour, particularly online sexual engagements. At its most simplistic level, this theory states that individuals are faced with various environmental challenges throughout their lifetime, and that these challenges shape the strategies employed to achieve most basic human goals. For example, environmental hardship often leads to trade-offs that require individuals to make strategic decisions to ensure not only their survival, but also the survival of their genes through reproduction (Kaplan & Gangestad, 2005).

LHT posits that in order to optimize survival fitness (in other words, surviving as well as reproducing), individuals[2] are required to make adaptive choices, or trade-offs, when allocating available resources. These trade-offs[3] involve deciding whether and when to invest in somatic effort or reproductive effort (Brumbach, Figueredo, & Ellis, 2009; Dunkel, Mathes, & Decker, 2010). *Somatic effort* requires resources that are spent towards the growth, maintenance, and longevity of one's body and mind. These resources may include time and money spent on education, or on the development of skills and of self. *Reproductive effort* involves investing in activities aimed at producing offspring. These reproductive efforts may be divided further, if resources are scarce, into a trade-off between mating effort and parental effort (Figueredo et al., 2006). The aim of *mating effort* is to produce quantity over quality of offspring, whereas the aim of *parental effort* is to direct resources toward the growth and development of one's own children. Because an individual's needs differ throughout developmental stages, decisions of optimal resource allocation will vary across the lifespan (Griskevicius, Delton, Robertson, & Tybur, 2011).

The ways in which an individual decides to allocate resources are known, collectively, as that individual's *life history strategy* (*LHS*; Brumbach, Figueredo, & Ellis, 2009; Dunkel, Mathes, & Decker, 2010; Griskevicius et al., 2011). An individual's LHS is determined by a set of biological, behavioural, and cultural life history traits that predict rates of reproduction, patterns of growth, parental investment, and aging. Life history traits are clustered together and lie on a continuum running from slow to fast (Brumbach et al., 2009; Ellis, Figueredo, Brumbach, & Schlomer, 2009).

A *slow life history strategy* is usually associated with high levels of somatic effort and reproductive effort focusing on parenting (Dunkel et al., 2010). Individuals with a slow LHS are more likely to dedicate their resources to long-term relationships that might eventually

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[2]Although LHT is hypothesized to apply to all organisms, in this review I refer specifically to humans.

[3] Darwin defined sexual selection as, firstly, competition within one sex for members of the opposite sex, and, secondly, the differential choice of members of one sex for members of the opposite sex. This scenario often meant competition among males, and choice among females (Trivers, 1972). Thus, particular characteristics or traits may have evolved as they were advantageous in terms of sexual selection, and in terms of maximising one's mating potential, rather in terms of natural (somatic) selection ensuring survival (Buss, 2006; Darwin, 1859). A further implication here is that the traits evolved to enhance one's mating or reproductive abilities may hinder or work against the traits evolved to ensure survival. LHT examines the trade-off between these two sets of traits (Sefcek & Figueredo, 2010).

include parenting, and are less likely to pursue short-term relationships that require a high degree of mating effort. Slow *cultural life history traits* in Westernised human societies may be manifest through the use of contraception, for example, or through developing skills for the future, saving monetary resources in a bank account, or owning a home. Slow life history traits are usually associated with a longer lifespan, long-term investment in resources and relationships, and long-term child rearing (Brumbach et al., 2009).

At the other end of the continuum are *fast life history strategies*. These are defined by a life trajectory favouring reproductive effort and mating (Dunkel et al., 2010). Individuals with a fast LHS usually experience accelerated physical development and early sexual maturation, traits that favour the production of as many children as possible as soon as possible. Due to the unpredictable environments in which these individuals usually find themselves, this strategy is often accompanied by short-term, unstable relationships, and a lower level of parental care (Brumbach et al., 2009; Griskevicius et al., 2011).

Research suggests that humans monitor current and expected environmental pressures and determine their LHS according to specific cues (Griskevicius et al. 2011). The conditions that a child or adolescent is exposed to through the developmental stages of his/her life are likely to influence the LHS employed throughout young adulthood. Hence, LHS is persistent over at least part of the lifespan (Brumbach et al., 2009). If children are exposed to adverse conditions, such as, for example, high mortality rates, or they have grown up in a home where their father has been absent or very minimally present, they are more likely to adopt an opportunistic, fast LHS (Ellis et al., 2009; Figueredo, Vásquez, Brumbach, & Schneider, 2007). Consequently, they take reproductive opportunities when these present themselves (Bereczkei & Csanaky, 2001; Chisholm et al., 1993).

Similar findings as those described above for men have been reported regarding women’s LHS patterns in response to early environmental conditions. Young women exposed to unstable and unpredictable environments during childhood (e.g., father-absent homes or resource-scarce environments) tend to have a physiological response. Hence, fast LHS women show earlier signs of sexual maturation (e.g., earlier onset of puberty), experience accelerated sexual bonds, and orient toward a more short-term mating strategy (Belsky, Steinberg, & Draper, 1991; Ellis & Essex, 2007). In contrast, women exposed to more stable environmental context during childhood and adolescence develop a slower LHS, and tend toward behaviours associated with long-term mating and high parental investment. These women typically show delayed onset of puberty, have later sexual debut, and are oriented toward achieving relatively stable and enduring relationships (Ellis & Essex, 2007)

An important note here is that although men, in general, are more oriented toward a faster LHS, and therefore demonstrate an increased propensity toward short-term mating strategies (Figueredo et al., 2006), both men and women may engage in short-term mating strategies, depending on their LHS (Greiling & Buss, 2000).

Relating LHT and LHS to socioeconomic status (SES), a man who lives in an impoverished community where his life is threatened regularly may adopt a faster life history strategy; this man may need to employ different sexual strategies compared to the individual who lives within a more stable and comfortable environment, and who thus has adopted a slower life history strategy (Ellis et al., 2009). That is to say, men from more stable and higher-SES backgrounds can afford to be more discerning in their choice of a sexual partner, as they have more potential partners to choose from: Their status ensures that women seek them out more frequently, as these men have a higher perceived mate value (Ellis & Symons, 1990; Symons, 1979). Conversely, men from impoverished low-SES backgrounds will place time and energy into having multiple sexual partners so as to maximize the potential for their genetic material to be passed on. These men will, however, have few resources to ensure long-term parental investment. Thus, low-SES men may be less discerning in their selection of potential partners. Similarly, low-SES women may attempt to attract multiple short-term sexual partners in order to accumulate resources or to assess a potential long-term partner (Buss & Schmitt, 1993; Greiling & Buss, 2000). In summary, research demonstrates that life history strategies are shaped by various factors, one of which is the perception of resource availability in childhood and adolescence (Belsky et al., 1991; Griskevicius et al., 2011; James, Ellis, Schlomer, & Garber, 2012).

These concepts proposed by Life History Theory have been applied successfully to topics in biology (Cole, 1954), anthropology (Chisholm et al., 1993), and psychology (Figueredo, Vásquez, Brumbach, & Schneider, 2004; Kaplan & Gangestad, 2005). The theory proposes that a set of distal mechanisms drive sexual behaviour (strategies and mating displays), and that these may be applied to various contexts, including modern-day social platforms such as the virtual world of Internet. Although these ideas may seem to be based heavily within the framework of natural sciences such as biology, and although it may seem that Internet-based sexual engagements have no offline consequences (e.g., the conception of offspring), the patterns of behaviour described above are innate and not conscious to the individual, and thus remain evident across various interpersonal, social, and environmental contexts. Hence, although the context of online behaviour may differ from that of real life in many ways, the same patterns of evolved behaviour should emerge because they rely upon the same psychological mechanisms. Therefore, an evolutionary psychology perspective can provide a complementary view to social psychological explanations of Internet-based behaviour. That is to say, the current knowledge base surrounding online behaviour is predominantly proximal in its focus. The evolutionary psychology perspective is complementary in that it explores more distal psychological mechanisms that might underlie the already-described behaviours.

Furthermore, from a methodological perspective the online environment complements the theoretical development of evolutionary psychology by providing a 'pure' environment in which to examine human interaction and behaviour. That is to say, the online environment is devoid of extraneous real-world variables (e.g., physical appearance and attractiveness), and thus allows the underlying psychological mechanisms of behaviour to be observed in purer form. With specific regard to LHT, little direct observation of behaviour related to life history strategies has been captured in humans. Rather, the bulk of the work regarding LHT has come from well-executed correlational studies that use self-report data (see, e.g., Figueredo et al., 2006; Dunkel & Decker, 2009; Olderbak & Figueredo, 2012). Hence, the online environment complements and contributes to the extant body of knowledge by providing data from directly-observed behaviour.

In relation to LHT, and to evolutionary psychology perspectives more broadly, the demographic diversity of South Africa provides an opportunity to explore the role of SES and biological sex in relation to young adults' online behaviour, as well as to explore the theoretical validity of LHT in predicting online behaviour patterns.

Young Adults' Online Behaviour in South Africa

Late adolescence and young adulthood is an important life stage for psychosocial development (Subrahmanyam, Smahel, & Greenfield, 2006). Much of this development is supported and shaped by social interactions with peers and prospective romantic or sexual partners (Connolly, Furman, & Konarski, 2000; Seiffge-Krenke, 2003). The virtual world appears to be a new (and perhaps now the preferred) space in which adolescents and young adults engage with one another, develop relationships, and meet prospective partners (Cooper, Morahan-Martin, Mathy, & Maheu, 2002; Subrahmanyam & Greenfield, 2008; Subrahmanyam, Reich, Waechter, & Espinoza, 2008).

Although the vast majority of research in online behaviour has emerged from high-income countries (HICs) such as the United States, some of the key patterns of behaviour identified are applicable to low- and middle-income countries (LAMICs), such as South

Africa. Although many parts of South Africa remain impoverished and have little access to resources, South Africans from various demographic backgrounds engage in online communication and interaction (Kreutzer, 2009; UNICEF, 2011). Most South Africans who access the Internet and Internet-based media do so through the use of mobile-phone technology; this is particularly true in cases where individuals have limited resources and limited or no access to computer-based Internet (Hodge, 2005).

Most research on the online behaviour of South African individuals has focused on a locally developed technology, called Mxit (see, e.g., A. Chigona & Chigona, 2008; Donner & Gitau, 2009; Napolitano, 2010). Mxit is a popular mobile-based technology that allows for instant messaging among its users (Bosch, 2008). The technology's popularity is attributed largely to its convenience and to the fact that it (a) is not limited to any particular mobile-phone network, and (b) allows for users to communicate with friends and to meet new individuals in real time (W. Chigona, A. Chigona, Ngqokelela, & Mpofu, 2009). Further, Mxit has a high adoption rate among South African adolescents and young adults as it allows for cheap and rapid communication. Hence, young adults in South Africa may utilize mobile-based technologies such as Mxit even if their access to desktop computer-based technologies are limited.

There are, to date, no studies that explore systematically the ways in which South Africans (and, generally, individuals from LAMICs) utilize online media. Qualitative studies (e.g., A. Chigona & Chigona, 2008; W. Chigona, Kankwenda, & Manjoo, 2008) predominantly from media and information-systems perspectives, have demonstrated the individual importance and user perceptions of platforms such as Mxit, but not of online behaviour more broadly. Previous studies have not have not, however, examined, in a more systematic manner, online platform use by adolescents and young adults from varying demographic backgrounds.

The existing literature highlights that even within a resource-scarce country such as South Africa, technology use is an important avenue of communication and social engagement among adolescents and young adults. Hence, online communication provides a valid platform in which to explore the behavioural dynamics and strategies used by young adults who are engaging with one another. Further, the popularity of technologies such as Mxit demonstrate that individuals choose to continue to use online platforms that not only allow them to communicate with those they know in real life, but that also provide a service that facilitates anonymous communication in the form of chatrooms.

Social Psychological Understandings of Online Behaviour

As stated previously, the ways in which Internet behaviour is understood are largely based on theories developed within social psychological frameworks. Although a number of proximal causes of behaviour have been proposed as a means to understand online communication between young adults (see, e.g., Caplan, 2003; Ehrenberg, Juckes, White, & Walsh, 2008; Joinson, 2004), two factors are important to discuss further as they demonstrate the ways in which evolutionary psychology theories might be applied to online behaviour.

Anonymity. The notion of anonymity is often stated as an important factor in understanding an individual's use of Internet-based media (Chou, 2000). *Anonymity*, in this context, refers to the belief that one can safely conceal one's real-world identity in online relations (Young et al., 1999). Anonymity is a major factor in the *online disinhibition effect*, which describes how individuals experience an online sense of dissociation in a number of ways. For example, individuals may engage in a number of behaviours that would not occur ordinarily in their offline reality. The online self and actions thus become compartmentalized and separate from the offline self. This separation allows individuals to engage in role-play and in the construction of 'online identities.' These identities may be created freely as the physical self is essentially invisible online, and all communication can be text-based (Suler, 2004). For example, the absence of visual cues, as well as potential geographical distance, allow for online sexual engagements to be liberating and allow for sexual experimentation, as users report feeling a sense of safety. Hence, the online disinhibition effect may lead individuals to express themselves more freely in the online space than they might in the offline environment (Morahan-Martin & Schumacher, 2003; Suler, 2004)

Furthermore, the relatively anonymous nature of online communication minimizes real-world differences in status and authority; all individuals are placed onto an even playing field of communication. In real-world and face-to-face communication, status, authority, and power are expressed through dress, body language, and the outward portrayal of wealth. However, in a chatroom or any other such text-based environment, these cues are absent. Hence, individuals, regardless of their real-world status, authority, or power, can develop their skills of text-based communication to gain influence within online communities, allowing for an equal opportunity for self-expression and status renegotiation (Flanagin, Tiyaamornwong, O'Connor, & Seibold, 2002).

Self-presentation strategies. One of the ways in which young adults may practice status renegotiation is through various self-presentation strategies. *Self-presentation* refers to an individual's control over how others may perceive him/her; that control is attained by selective presentation of aspects of the self (Leary, 1995). The concept of self-presentation is understood as the strategic presentation of oneself across multiple settings. One argument is that self-presentation strategies are employed within any social setting, but that these strategies differ according to the actor's audience, goals, and circumstances (Schlenker & Pontari, 2000). Within the frameworks of evolutionary psychology theories, self-presentation strategies could be likened to sexual displays, where individuals portray desirable qualities they possess in an effort to attract members of the opposite sex (Bale, Morrison, & Caryl, 2006; Buss, 1988). Thus, within an anonymous medium such as an Internet-based chatroom, individuals have the ability to present select information about themselves strategically, and to overemphasize and exaggerate different aspects of themselves (Turkle, 1997; Valkenburg & Peter, 2008). Thus the online platform may allow individuals to practice various mating tactics (or different ways of presenting themselves as attactive mates) in order to assess which mating tactics prove successful in attracting potential mates, and maximise the success of their mating strategy.

Previous research suggests that men and women do not differ in the frequency with which they experiment with their self-presentation online, but that they do differ significantly in the kinds of self-presentation strategies they choose. Young men display hyper-masculine behaviour in their interactions with others, and place emphasis on their status. In contrast, young women tend to emphasize their beauty or physical attractiveness (Döring, 2002; Postmes & Spears, 2002; Schouten, 2007; Valkenburg et al., 2005).

Interpreted within an evolutionary psychology framework, these online behaviours, featuring the utilization of anonymity and clear sex differences, are a proximal expression of distal psychological mechanisms. These mechanisms are, within an evolutionary perspective, the means for sexually maturing young adults to practice the ways in which they can attract members of the opposite sex. Thus, sexually maturing individuals can learn, during online interaction, what strategies are useful in social interactions, even if offline they feel incapable of executing these behaviours. The perceived safety and anonymity of the Internet therefore allows young adults to explore and to satisfy their evolved sexual interests and desires, and to detect the preference of the opposite sex. For example, parental investment theory states that women prefer sexual partners who have access to resources and high social status, as these serve as an indication that their chosen male partners will be able to provide for them (Buss, 1994, 1995; Trivers, 1972). Thus, young men without resources may seize the anonymity of Internet-based communication to present themselves as more wealthy, powerful, and dominant than they truly are. Although this self-presentation may only hold true online and may be temporary, a man may practice this ability enough to attract women online and to have the gratification of sexual engagements online.

Hence, evolutionary psychology perspectives complement well-established social psychological perspectives on Internet-based behaviour. Evolutionary psychology frameworks lend further insight into online behaviour, however, in that they examine the manifested behaviour from the perspective of distal psychological (and biological) mechanisms.

The Influence of Social and Environmental Stressors on Online Behaviour

Life History Theory examines the ways in which environmental factors, such as socioeconomic resources and social networks, shape individual sexual and reproductive behaviour (Ellis et al., 2009). Some of the same environmental factors (e.g., socioeconomic status and perceived social status) appear to be important in predicting individual behaviour in social psychological studies exploring online communication.

Experimental research using simulated feelings of isolation through a "cyber-ball" paradigm (an online game of catch) found that adolescents who felt socially rejected were more likely to seek the online company of strangers (Gross, 2009). Similarly, individuals who feel less valued in face-to-face communication tend to seek out online communication as an alternative (Papacharissi & Rubin, 2000). Thus, social psychological research demonstrates that social isolation is a proximal cause of adolescents and young adults seeking out online communication. It appears that the Internet provides individuals who feel socially rejected or deprived with a comfortable environment for communication, as those they interact with anonymously have no knowledge of their real-life social standing or inadequacies (Gross, 2009). Such use of the Internet has become known as the *social compensation hypothesis* (Peter, Valkenburg, & Schouten, 2005).

The complementary evolutionary view to this social psychological perspective might examine the behaviours of socially isolated young adults in terms of intrasexual competition. That is to say, feelings of social rejection or inadequacy (thus a self-perception of low mate value) may compel young adults to attempt, in online settings, different self-presentation strategies in order to appear more attractive or likeable. The need to appear more likeable or attractive not only has social motives, such as developing a peer group, but also functions to attract potential mates as it demonstrates preferable qualities to the opposite sex.

From an evolutionary perspective, individuals are not conscious of their strategic behaviour. But in order for this behaviour to develop, individuals must learn what the opposite sex finds attractive in a partner (Buss, 1994). During adolescence, individuals begin to practice self-presentation strategies to explore what is preferred by others; often, that practice is shaped by the feedback received during social interactions (Harter, 2003; Manago, Graham, Greenfield, & Salimkhan, 2008). Internet-based communication provides a space that allows for multiple self-presentation strategies to be practiced with relatively pain-free social consequences. Thus, these media may be popular among young adults, particularly those who feel socially isolated, as they allow for multiple self-presentation strategies to be assessed without offline (real-world) consequences.

Social and Socioeconomic Realities of Young Adults in South Africa

Findings that support these concepts surrounding online communication emerge primarily from studies conducted within HICs (see, e.g., Peter, Valkenburg, & Schouten, 2006; Subrahmanyam et al., 2006). However, the circumstances that surround young adults from these developed-economy countries may lead to different stressors and social pressures in comparison with young adults from LAMICs. For example, individuals from impoverished areas within LAMICs may not only have concerns surrounding typical everyday issues such as work and peers, but they may also have concerns around basic necessities such as food and safety. The socioeconomic pressures these young adults face may, therefore, shape a faster life history. Thus, the ways in which the Internet is utilized by individuals to manage unpleasant feelings or to cope with stress may differ according to the wider context that impacts upon these feelings.

A few studies support this contention that the wider socioeconomic context shapes the issues and challenges that adolescents and young adults have to face and negotiate. For example, in a test of the social compensation hypothesis, Bessière, Kiesler, Kraut, and Boneva (2008) demonstrated that Internet use varied according to an individual's biological sex and perceived social resources. Specifically, men with low levels of social support were more prone to using Internet-based media for escape and for meeting new people, in comparison to men with higher perceived social support. Further, studies examining Internet use among adolescents have found a dose-response relationship between Internet use and stressful events. As stressful events or dissatisfaction with family increase, male adolescents tend to be at higher risk of developing compulsive Internet use (Lam, Peng, Mai, & Jing, 2009).

In South Africa, the legacy of Apartheid created segregation along racial lines, but also divided the population along stark socioeconomic lines. Hence, the nation still remains economically divided, with some sections of the population living in wealth, and others in extreme poverty (Roberts, 2009). The socioeconomic context in which young South Africans find themselves may alter the ways in which they utilize and engage with Internet-based media such as instant messaging (IM) or Mxit.

An important note here is that it is not only social stress and socioeconomic status that social psychological literature identifies as important factors in understanding online patterns of behaviour: Biological sex also shapes online behaviour. A study that examined mobile-phone use among low-SES adolescents in Cape Town found that IM was predominantly a male activity, with 93% (*n* = raw 410) of the sampled males, but only 72% (*n* = raw 190) of the sampled females, using IM platforms. Furthermore, male adolescents were more frequent daily users of Mxit than their female counterparts (Kreutzer, 2009). Similarly, Swanepoel and Thomas (2012) found that low-SES men had higher levels of Mxit use than their middle- and high-SES peers, whereas usage was fairly even across women regardless of SES groups. Thus, depending on demographic variables such as biological sex and SES, Internet-based platforms may facilitate different purposes for adolescent users, as individual differences lead to different needs and goals to negotiate offline as well as in the virtual world.

Differences in usage across both biological sex and SES may be attributed to the uses and purposes of online engagement within the individual’s daily life. Bosch (2008) found that adolescent girls tend to use IM platforms, such as Mxit, for developing and maintaining friendships and, at times, for sexual exploration. Adolescent boys, however, were reported to be sexually manipulative, coaxing female chatroom users into sexual conversations. Studies from abroad also demonstrate a trend in which young men and women communicate online differently about sexually related topics. For instance, a Taiwanese study examining young adults’ sexual disclosure online found young men to be more liberal than young women in online sexual self-disclosure. Young women appeared more constrained sexually, even within the anonymous and private space of Internet-based communication (Chiou, 2007). It appears, then, that young adults demonstrate biological sex-stereotyped behaviour online, even though these platforms may afford them anonymity. Once again, these biological sex-stereotyped behaviours may be cued by proximal needs, but they may also be underpinned by distal psychological mechanisms; these mechanisms may, in turn, be explained using evolutionary psychology theoretical frameworks.

Thus, from the perspective of Life History Theory and, more broadly, evolutionary theories about sexual mating strategies, men who lack social status or capital are often unable to compete with their high-status peers in offline reality: They lack the qualities women prefer. However, in online settings, men who feel unable to compete in offline reality may compensate for these inadequacies: They can self-present as someone more preferable to the opposite sex. Hence, the need for social acceptance is based deep within evolved psychological mechanisms for mate selection and reproduction, as social acceptance may be understood as an indication of mate value (Kenrick, Sadalla, & Keefe, 1998). In South Africa, where the socioeconomic gap between the advantaged and disadvantaged is vast, those who feel inadequate in relation to their peers, as well as those who are deprived or disadvantaged, may capitalize on Internet-based communication to assess the responses to their various self-presentation strategies. Such assessment would not be possible in their offline reality. Therefore, in a country such as South Africa, where the legacies of Apartheid ensure that the relationship between SES, social status, and race remains strong, relatively deprived individuals may be particularly likely to utilize a platform devoid of visual cues, such as race, to bolster their perceived status.

Rationale for the Current Research

Social psychology research has identified several proximal causes of online behavioural patterns. The social psychology theories that have been used to understand online behaviour have, to a great degree, been developed using descriptive methodologies, however; there has, for example, been little systematic and experimental work examining individual differences in the utilization of anonymity. In fact, previous work on anonymity in online communication has focused predominantly on describing *why* anonymous media are so appealing to young adults, but has not attempted to systematically describe or predict individual differences in this characteristic of online behaviour.

Thus, there is a gap in this field for rigorous experimental research; the current study utilized such a design. Furthermore, an evolutionary psychology perspective provides an alternative but complementary view of Internet-based behaviour to that proposed by social psychology: A focus on distal rather than proximal causes of behaviour, but with many of the theoretical propositions applicable directly to previous findings in this literature.

To summarize, the rationale for the current study emerged from two paths. First, I examined online behaviour from a distal rather than a proximal perspective. Second, most previous studies examining the relationship between sexual behaviour (sexual strategies and mating displays) and Life History Theory used survey designs and self-report instruments exclusively (e.g., Dunkel & Decker, 2010; Figueredo, Wolf, Olderbak, Gladden, & Jacobs, 2011). The current study represents a departure from such designs in that I used a quasi-experimental design to examine sexual strategies and mating displays in virtual chatrooms. These two features of the current study compliment and contribute to both the cyberpsychological and evolutionary psychology theoretical disciplines: The online space in which I hypothesized natural evolutionary-based behaviour would emerge provided a platform to observe participant behaviour naturally, and allowed me to develop data collection in such a way that it was captured easily and was not confounded by real-world phenomena. Thus, this externally valid design permitted me to standardize timing, situations, and settings in which men and women interacted, allowing examination of important LHT-based predictions about the form and initial success of human mating displays.

An interesting examination of the utilization of anonymity according to SES is possible within the South African context due to the wide demographic profile of online -based communication users in this country. Mxit, for example, has been shown to have no digital divide, and is used frequently by individuals from different SES backgrounds (Kreutzer, 2009; Swanepoel & Thomas, 2012). Hence, the current research explored anonymity along a slightly different dimension from that taken in previous studies: Most published research exploring anonymity has used samples of Internet users from middle- to upper-class communities in high-income countries. The diverse demographic profile of online-based communication users in South Africa, a low- to middle-income country, allows the application and testing of theoretical frameworks of intrasexual competition, gendered sexual strategies, and Life History Theory in relation to SES.

Specific Aims and Hypotheses

The major research question explored in the current study was: Is it possible to predict the patterns of behaviour (specifically, sexual strategies and mating displays) shown by young adults in an anonymous online medium? Further, might broad patterns of mating displays and sexual strategies, as they are displayed during online communication, be predicted using Life History Theory? I explored these questions by testing this set of specific hypotheses:

1. *Life history strategies and chatroom behaviour*: Individual men and women act according to their life history strategies in the chatroom. Hence, fast LHS men will interact with many women, whereas slow LHS men will interact with fewer women. Similarly, fast LHS women will interact with many men, whereas slow LHS women will interact with fewer men.

More specifically, fast LHS men will use the anonymous online platform for self-promotion and to display hyper-masculine behaviour, and will do so more than slow LHS males and females will. I make this prediction on the following grounds: Slow LHS men are more likely have the access to resources and status that most women find attractive; fast LHS men do not. Hence, slow LHS men possess qualities that women find desirable (Buss, 1994). Therefore, in an anonymous medium, slow LHS men will not need to use exaggerated self-presentation strategies. In contrast, fast LHS men will capitalize on the anonymity of the chatroom and will make use of the factors associated with anonymous communication (e.g., lack of visual and auditory cues) to employ self-presentation strategies that allow them to present qualities that are preferred by women but that they (the men) may lack in offline reality. Therefore, fast LHS men will either behave in a manner consistent with their LHS, or they will use tactics to present themselves as slower life history strategists in an effort to generate more desirability among females.

Fast LHS women may also capitalize on the anonymity of the chatroom to present themselves as more attractive and provocative then they are in offline reality. Overall, however, women will be less sexually oriented in the chatroom than men (especially fast LHS males). Hence, women will not only spend their time and effort meeting male participants, but will also engage with other women in the chat room. I make this prediction on the following grounds: Because the parental investment of males and females differs greatly, each sex has evolved different sexual strategies and has different preferences for the qualities sought in sexual partners (Buss, 1994; Trivers, 1972). Women are more oriented toward developing long-term relationships, and thus utilize communication to bolster or develop trust and intimacy with relatively small groups of individuals. In contrast, men, generally, are more oriented toward attracting multiple partners, and are more willing to engage sexually after a shorter period of time (Hall, 2011). Furthermore, such sex-stereotyped behaviour occurs among young adults online (Chiou, 2007). An orientation toward sexually related conversation may be taken as an indication of the sexually oriented goals of men; different orientations in conversation may taken as an indication of the intimacy goals of women. Hence, when meeting new people in the chatroom, slow LHS women will attempt to develop a friendship with select others, rather than engage with multiple others. Fast LHS women will engage with more men in comparison to slow LHS women, but will also look to develop friendships with other women.

2. *Opposite-Sex desirability:* The most desirable men and women are those who behave in ways consistent with their LHS. That is to say, those individuals who use tactics, strategies, and mating displays to present themselves as something they are not will be unsuccessful in their attempts to attract members of the opposite sex. I make this prediction in light of parental investment theory (Trivers, 1972), and the differing biological and parental obligations that face men and women. Because women incur greater costs in reproduction, they can detect deception or inconsistencies in male sexual displays (Buss, 2006). This ability to detect deception is important for a woman: Once she has selected a mate and reproduced with him, she undertakes a biological and parental obligation that limits her from reproducing further for several months. Hence, for a woman to enjoy reproductive benefits, she must be able to engage in careful mate selection; she must choose a mate who will actually remain with her, protect her, and provide resources for her and her offspring, rather than one who only makes false promises to do so (Johnson et al., 2004).
3. *Same-Sex popularity:* Men who present themselves as dominant or who appear popular among women in the chatroom will gain popularity among other men. I make this prediction in light of reciprocal altruism theory, which posits that individuals will invest in a friendship in order to benefit in some way (Hall, 2011). Men may associate or try to befriend men who appear dominant in order to bolster their own social capital, thus appearing more attractive to women and increasing their mate value (Baumeister & Sommer, 1997).

   In contrast, women who appear engaging and interact with the group will gain popularity among other women. Again, this prediction emerges from reciprocal altruism theory, as well as parental investment theory, both of which posit that women will seek out other women who appear open and trusting (Bigelow & LaGaipa, 1980; Hall, 2011; Vigil, 2007). As stated previously, women, generally, are more oriented than men toward long-term mating strategies and toward building bonds with people of the same sex. Hence, they are more likely than men to use chatroom interactions to develop (same-sex) friendships rather than seek out potential (opposite-sex) mates. Because the chatroom space is an anonymous virtual platform, devoid of real-world cues, women would not be able to assess accurately the validity of the qualities they would seek out in a potential mate (e.g., financial resources) (Buss, 1989; Feingold, 1992), and would thus rather use the time to get to know the other females in the chatroom, and potentially spark a friendship, than seek a mate.

4. *Content of chatroom posts:* The content of individual posts reflects the poster's LHS. Thus, not only would men and women in the chatroom display patterns of behaviour that reflect their LHS implicitly, but they would also demonstrate their LHS explicitly via the content of their posts.

   More specifically, I hypothesized that men would be more overt than women in making sexually charged or flirtatious posts. I make this prediction because cyberpsychological literature has described sex differences in online behaviour, both in terms of the ways in which men and women describe themselves and in terms of the content of their conversations (Bosch, 2008; Döring, 2002; Postmes & Spears, 2002; Schouten, 2007; Valkenburg et al., 2005). Sexual strategies theory also predicts that men and women will make use of initial conversation with members of the opposite sex to display favourable qualities about themselves and so attract attention or desire (Bale et al., 2006; Cooper, O'Donnell, Caryl, Morrison, & Bale, 2007).

5. *Feelings of social inadequacy or relative deprivation:* Individuals who feel relatively deprived or who perceive themselves as inadequate (financially or socially) in relation to their peers will make use of online platforms (e.g., Mxit, other social networking sites) more than individuals who do not experience such relative deprivation. I make this prediction following previous cyberpsychological literature, which found that individuals who felt socially excluded made use of online platforms to meet new people more frequently than did those who did not feel socially excluded (Gross, 2009). Furthermore, from theories of intrasexual competition one may derive the prediction that those individuals who feel deprived relative to their peers, and who therefore feel unable to compete for favourable mates, will use online platforms and the anonymity they afford to present themselves in a more competitive way (Buss, 1988; Piazza & Bering, 2009). This hypothesis related to relative deprivation fits with the other specific hypotheses outlined above because relative deprivation might stand as a proximal predictive mechanism alongside LHS, a more distal predictive mechanism.

Methods

Design and Setting

The study featured a quasi-experimental 2 x 3 factorial design. The first predictor variable was the sex of the participant (male, female). The second predictor variable was self-perceived socioeconomic status (high, low) of the participants, assessed by a relative deprivation scale. The third predictor variable was a measure of life history strategy (fast, slow), assessed by the Mini-K Short Form. The outcome variables (described in detail below) were derived from a coding schedule that allowed me to convert chatroom textual data to numeric data describing participant behaviour in the room. I used data from a pilot study that consisted of one chat session to develop the coding schedule. That schedule, and hence the nature and structure of the outcome variables, was based on themes drawn out from evolutionary psychology theories (primarily, LHT and sexual strategies theory).

The study consisted of two phases. I conducted the *screening phase* of the study using the online survey platform *Zoomerang* (www.zoomerang.com). The *chatroom phase* of the study used the *Chatzy* platform (www.Chatzy.com), which is supported by mobile-phone and desktop computer-based Internet connectivity.

Participants

Four hundred and ninety-five UCT undergraduate psychology students (122 male, 373 female) completed the screening phase of the study. Of that number, 412 (95 male, 317 female) consented to participate in the chatroom phase of study. From that sample, I selected, on the basis of the eligibility criteria detailed below, individuals to invite to participate in the chatroom phase. The final sample on which analyses of chatroom data were conducted consisted of 91 UCT psychology undergraduate students (44 male, 47 female) between the ages of 17 and 25 years. Table 1 presents a complete set of sociodemographic characteristics for that final sample.

Table 1.
Final Sample: Sociodemographic characteristics (N = 91)

		Sex	
Variable	Total sample (*N* = 91)	Male (*n* = 44)	Female (*n* = 47)
Age (years)	19.67 (1.48)	19.97 (1.64)	19.38 (1.28)
Race (W : B : C : I: O)	50: 28: 11: 2: 0	21: 18: 4: 1: 0	29: 10: 7: 1: 0
Mini-K score	28.64 (11.74)	27.18 (11.51)	30.02 (11.91)
Relative deprivation score	8.49 (3.05)	7.95 (3.53)	9.02 (2.42)

Note. Race is coded as White, Black, Coloured (mixed race), Indian, or Other.

***Inclusion and exclusion criteria*.** Only male and female undergraduate students who self-identified on the screening survey as being (a) heterosexual and (b) between the ages of 17 and 25 years were invited to participate in the chatroom phase. I excluded individuals who self-identified as homosexual or bisexual because the study aimed to explore the sexual strategies used by men and women in attracting the opposite sex. Although research shows that little difference exists in the mating psychology of homosexual vs. heterosexual individuals, the target individual differs (Bailey, Gaulin, Agyei, & Gladue, 1994) As I wished to establish both same sex popularity, as well as desirability among opposite sex participants, the inclusion of other sexual orientations would cloud the results. I excluded individuals outside the age range of 17-25 years because Internet chatrooms and other online social interactive platforms are most popular among adolescents and young adults (Bosch, 2008; Valkenburg & Peter, 2011). Of the 412 students who had completed the screening survey and had signaled their willingness to participate further, I excluded 33 because they did not meet the sexual orientation and/or age criteria.

Individuals were also excluded from participation in the chatroom phase of the study if they reported a complete absence of any feelings of relative deprivation (i.e., obtained a score of 10 on the measure of cognitive relative deprivation, or a score of >10 on the measure of affective relative deprivation). Because relative deprivation was a key variable in the statistical models I wished to create, I required chatroom participants who had expressed feelings of either cognitive or affective relative deprivation (or both). Based on this criterion, I excluded 36 otherwise eligible and willing individuals from participation in the chatroom phase of the study.

Hence, 343 participants met all the required inclusion criteria, and so remained eligible to participate in the chatroom phase of the study. Of these 343 participants, 229 re-confirmed their willingness to continue participation and accepted a preliminary invitation to be involved in the chatroom phase. However, due to attrition and perhaps the time at which the chat sessions were run, 138 did not join or complete the chat room phase successfully.

Measures

I administered the following screening measures via Zoomerang.

***Sociodemographic questionnaire*.** This questionnaire (see Appendix A) asked participants to provide their basic demographic details (e.g., age, sex, race, sexual orientation). This questionnaire also contained questions pertaining to their general technology use and their use of social networking platforms (e.g., it asked how often they used online social networking platforms, and the main purpose of such use).

Relative deprivation measures. I measured the participant's self-reported relative deprivation rather than his/her objective socioeconomic status (SES). SES is often difficult to classify, particularly in LAMICs, because of the vast educational and socioeconomic disparities among various sectors and the possibility that many individuals and families participate in informal-economy activities (Myer, Ehrlich, & Susser, 2004). Furthermore, SES as a construct may relate to a number of economic and socioenvironmental factors (e.g., access to financial, social, and educational resources; Myer, Stein, Grimsrud, Seedat, & Williams, 2008; Magnuson & Duncan, 2006). Hence, there are multiple ways in which to define and measure SES, and I felt that making a decision about which was best for South Africa was beyond the scope of the current research.

Although the legacy of Apartheid means that SES is often highly correlated with race in South Africa, regardless of race and objective SES some adolescents may feel deprived in relation to their peers (Dambrun, Taylor, McDonald, Crush, & Méot, 2006). In the current study, I aimed to examine proximal mechanisms of behaviour, such as feelings of such deprivation or inadequacy, in order to determine their predictive power in relation to (a) the distal mechanisms of behaviour proposed by LHT, and (b) online behaviour more broadly. Hence, the construct of *relative deprivation* (Runciman, 1966) is more useful for the purposes of this study than that of SES: Relative deprivation does not imply the absolute measure of deprivation, but rather the perception of deprivation in relation to some standard (here, the individual's own perception of his/her social and economic status in relation to others in the same environment; Crosby, 1976).

Because relative deprivation, as defined above, is a subjective feeling of discontent resulting from a perceived lack of standing in comparison to peers, it has both a cognitive (relating to perception of inequality) and an affective (relating to the feeling of discontent) component. Therefore, an assessment of self-reported relative deprivation allows one to (a) capture an individual's view of him/herself relative to peers, (b) measure whether he/she believes his/her family are deprived in relation to others, and (c) assess the emotions the individual associates with those perceptions (Appelgryn & Bornman, 1996; Crosby, 1976).

Cantril's (1965) *Self-Anchoring Scale* assessed the cognitive component of relative deprivation (CRD). This instrument is an 11-point scale depicted as a ladder. Descriptive labels accompany the ends of the ladder, such that the highest rung represents best possible feelings of status, and the lowest rung represents feelings of worst possible deprivation. The intervening rungs of the ladder remain unlabeled (see Appendix A, question 18).

To fill out this scale, participants had to make three separate reports. First, they indicated on the ladder where they felt their current status was. Second, they rated their perception of the status of their peers within their community. Third, they rated what status they felt they deserved. This procedure has been used in previous studies exploring mobile technology use among young adults, as well as in studies of race relations and racial identification in South Africa (Appelgryn & Bornman, 1996; Kreutzer, 2009).

For scoring purposes, the bottom rung of the ladder was assigned a numerical value of 0, and the highest rung a numerical value of 10. The participant's rating of his/her current status (i.e., the first rating made) was used as the baseline score. The second rating (i.e., the one given to the participant's peers) was then subtracted from this baseline score. The third rating (i.e., the one regarding the participant's perception of deserved status) was also subtracted from the baseline score. Thus, a participant's score was derived from the sum of Rating 1 – Rating 2 – Rating 3. To eliminate negative scores, a constant value of 10 was added to the total of this sum. Hence, if a participant gave himself a low rating for current position, but high ratings for both where he perceived peers to be and where he felt he deserved to be, he received a low score (i.e., a score indicative of high perceived relative deprivation). This scoring system is consistent with that used by De La Rey and Raju (1996) in their study of relative deprivation among South African Indians.

I assessed affective relative deprivation (ARD) by asking participants to rate their feelings about the perceived differences between themselves and their peers, as well as their feelings about the differences between their perceptions of their current status and their perceptions of what sort of status they deserve. They were asked to give a rating for each of De La Rey and Raju's (1996) list of five emotions (anger, frustration, satisfaction, helplessness, and anxiety) on a 4-point Likert-type scale (*definitely no* = 0; *no* = 1; *yes* = 2; *definitely yes* = 4; see Appendix A, question 19). The item regarding the participants' feeling of satisfaction was reverse scored. Using this 5-point Likert-type scale and scoring system, higher scores denoted high affective relative deprivation, and lower scores denoted low affective relative deprivation.

I chose this measure of affective relative deprivation because it has been used previously to assess this construct in a South African sample (De La Rey & Raju, 1996). According to De La Rey and Raju (1996), this measure shows relatively strong internal consistency reliability, with alpha values ranging from .69 to .93.

The Mini-K Short Form**.** This instrument is designed to measure, on a single continuous scale, the behavioural and cognitive aspects of an individual's LHS (Dunkel & Decker, 2010). This Likert-type scale is a component of the Arizona Life History Battery (ALHB; Gladden et al., 2010). It consists of 20 items, with responses to each ranging from -3 ("disagree strongly") to +3 ("agree strongly"); a response of 0 indicates "not applicable" (see Appendix A, question 21 and its sub-sections). Hence, possible scores range from -60 to 60.

The Mini-K is scored directionally to indicate a slow (high-K) LHS on the fast-slow (r/K) continuum[4] (Olderbak & Figueredo, 2012). Hence, a score of -60 indicates an extremely fast LHS, whereas a score of +60 indicates an extremely slow LHS. In this study, as in Dunkel and Decker (2010), the instrument was used as a self-report measure of LHS.

Regarding reliability, the Mini-K Short Form appears to be internally consistent, with alpha values ranging from .70 to .77 (Gladden et al., 2010; Olderbak & Figueredo, 2012). Regarding validity, the Mini-K correlates strongly, and can be used interchangeably, with other measures of LHS, such as the High-K Strategy Scale (HKSS; Dunkel & Decker, 2010; Giosan, 2006). The Mini-K is favoured, however, when examining behavioural traits associated with LHS; hence, I used it in this study.

Procedure

Pilot. I used data from the first chat session, which featured 9 participants (5 female), as a means to pilot and develop the coding system that would be used for statistical analyses. Data from the pilot study were not included in the final dataset used for analyses.

Phase one: Screening. To recruit participants, I placed an announcement on the UCT student website detailing the procedure of the study and the incentives in place. Individuals were invited to participate in the screening study by clicking on a link that took them directly to the web-based screening questionnaire. Individuals consenting to participate then proceeded through the screening measure. Once the screening measure was completed, the final page detailed the procedure of the second phase of study and asked participants to enter their contact details if they were willing to participate in the second (chatroom) phase of study.

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[4]The K-factor is determined by positive associations among an assortment of sexual reproductive, parental, familial, and social behaviours (Figueredo, Vásquez, Brumbach, & Schneider, 2007). The LHS continuum runs from fast to slow (r to K) where extreme "r" (fast LHS in this study) represents evolved clusters of traits associated with unstable and unpredictable environments, such as high reproductive rates, little parental care, and a relatively a short amount of time between generations. Extreme "K" (slow LHS in this study) represents evolved clusters of traits associated with predictable and stable environments such as low reproductive rates, elaborate parental care, and longer intergenerational times (Figueredo et al., 2007).

As noted earlier, I used data from the screening measures to select individuals for participation in the chatroom phase of the study. Only participants who met all the inclusion criteria were invited to participate in the second phase.

Phase two: Chatroom. I worked with a Psychology Honours student (a 24-year-old female) to coordinate this phase of the study. Via e-mail, we invited participants fitting the inclusion screening criteria to participate in the chatroom phase. The e-mail stated that this phase involved taking part in a 1-hour, anonymous, online chat session with up to 9 other participants (4 men and 4-5 women). We gave no further details about other participants from that point onwards. We asked potential participants to confirm, via text message or e-mail, whether they were willing to take part in the designated session. If they did not confirm within 24 hours, we contacted them by telephone and asked them to confirm or decline participation in a future chat session.

I assigned each participant, pseudo-randomly, to a cohort of 7-9 chat participants (due to the limitations imposed by the Chatzy chat platform on participation space in the chatrooms, each chat session could contain only 10 individuals). I constructed chat sessions to contain at least 3 male participants and 4-5 female participants. Hence, of the ten chat cohorts, one consisted of 5 men and 3 women; two consisted of 5 men and 4 women; three of 4 men and 5 women; two of 4 men and 4 women; and three of 3 men and 4 women.

For each chat cohort, I created a unique Chatzy account and a private chat room. Once participation had been confirmed, we sent participants an e-mail that included a neutral designated username (e.g., A1) and detailed instructions on how to log in to the chatroom from their landline computer or mobile device (see Appendix B). In this email, we also instructed them that, in the chat session, they would have the task of getting to know someone new. Hence, participants were requested to complete a “friendship” task in the chat session, and were requested to email the researcher the screen name of those they wanted to get to know better, or to chat privately with, once the hour-long chat had been completed.

Each chat session took place from 8-9pm, and each took place on a different day between 12 April 2012 and 22 September 2012. One of the two researchers facilitated each chat session by giving four generic prompts throughout the session (see Appendix C). Aside from the prompts, the chatroom was largely uncensored. The researcher only intervened in the session (e.g., by blocking a user or by deleting content) if it appeared that the anonymity of a user, and therefore the integrity of the study, was at risk.

Once all data had been collected, we allocated participants their promised course credit. We e-mailed debriefing sheets to all participants, thanking them for their participation and describing the aims and objectives of the study.

Ethical Considerations

The study was granted ethical approval by the Research Ethics Committee of University of Cape Town's Department of Psychology. The following ethical considerations were important.

Consent and confidentiality. Participants were required to sign an informed consent document on the online survey before commencing Phase One of the study (screening). At the end of the screening survey, they were presented with a page that asked them to either confirm or deny consent for involvement in Phase Two (chatroom). All consent documents assured participants that all sociodemographic and other information they provided would be held completely confidential.

Throughout Phase Two, the researchers assured participants that their identities would be held completely anonymous. I kept in mind that the nature of this research encourages (anonymous) participant interaction. Thus, there was a possibility that the reciprocal interaction between participants might promote or develop personal interest. However, before initiating the study I decided that at no stage, and under no circumstances, would any participant's personal or contact information be disclosed to other participants.

Incentives. Students were awarded one research participation course credit for participation in Phase One, and two such credits for participation in Phase Two. Although research participation is a requirement for all undergraduate courses in our Department, at no stage was any individual forced to participate in this study against his/her will. Participants were free to withdraw from the study at any point, with no penalty.

Debriefing. Because this study involved multiple phases, participants in both phases were debriefed, via e-mail (see Appendix D), after all data collection was complete in order to avoid contamination of results. In this email, I also provided my contact details in case participants required any additional information or had any further questions about the study.

Data Management and Statistical Analyses

To conduct statistical analyses on the data, I developed a coding system to transform raw textual data from the chatrooms into quantitative data. Textual data were coded in two different ways. The first of these entailed coding the text for patterns of engagement between chatroom participants: I examined and coded for the interaction between one participant and another, as well as between one participant and the group. Appendix E provides further details of this coding method. The second way entailed coding textual data according to the actual content of chatroom posts.

Coding participant engagement patterns. Using an odd/even method, I split the final data set in half. The same two researchers as described above, operating as independent raters, each coded approximately one half of the data (45 data sets in one case, 46 in the other). Each rater followed a detailed procedural guide when coding (see Appendix F for an example of how raw chat data was coded into participant engagement patterns). This coding guide was refined based upon the experience gained and consensus reached between the two raters when coding the pilot chat session.

The variables derived from this coding guide were:

1. *Interactivity:* This variable was used as a predictor in the statistical models described below. An instance of interactivity was coded when the participant posted a comment in the chatroom. The variable itself was calculated as a percentage, dividing the total number of posts made by each participant in a single chatroom session (i.e., the sum of all instances of interactivity by that participant) by the total number of posts by all participants throughout that chat session. In other words, this variable represented relative activity (comments directed toward another participant, or toward a group of participants) in the chatroom.
2. *Specific addresses:* This variable was used as a predictor in the statistical models described below. An instance of a specific address was coded when a participant posted a comment in the chatroom that sought the attention of a single participant of the opposite sex. The variable itself was calculated by summing all such instances for each participant.
3. *Generalized addresses:* This variable was used as a predictor in the statistical models described below. An instance of a generalized address was coded when a participant posted a comment in the chatroom that sought the attention of a group of other participants. The variable itself was calculated by summing all such instances for each participant.
4. *Popularity:* This variable was used as an outcome in the statistical models described below. An instance of popularity was coded when a participant, post-chat, that he/she would have liked to get to know better, or that he/she would have liked to

chat privately with, a particular participant of the same sex. Hence, the variable itself was calculated by summing the number of times a participant was chosen by other participants of the same sex for potential post-chat interaction.

5. *Desirability:* This variable was used as an outcome in the statistical models described below. An instance of desirability was coded when a participant indicated, post-chat, that he/she would have liked to get to know better, or that he/she would have liked to chat privately with, a particular participant of the opposite sex. Hence, the variable itself was calculated by summing the number of times a participant was chosen by other participants of the opposite sex for potential post-chat interaction.

I took numerous steps to ensure reliability of the coding. First, each rater would "spot check" a third of the second rater's participants. Second, I re-coded the data from 40 randomly selected participants to assess inter-rater reliability. The achieved coefficient here ranged from .80 to 1.00. Third, two other independent raters (both female postgraduate psychology students, both otherwise uninvolved with this research) recoded 60 of the 91 datasets. They achieved an inter-rater reliability of between .88 and 1.00.

When we found inconsistency or disagreement in the coding schedules of two raters coding the same dataset, these inconsistencies or disagreements were discussed and consensus reached after consultation. Before the consensus conference[5], the inter-rater reliability ranged between .52 and .75. The agreed upon values were entered into the data set.

Another step to ensure reliability of the coding involved the use of interaction maps. I used these maps to track the interactions between the participant for whom data were being coded and the other participants in his/her chatroom. These maps consisted, basically, of a circular drawing of all the screen names of all the participants in a given chat. Then, I added arrows to indicate interactions; an arrow leading from A1 to B2, for instance, indicated an interaction between those two participants, with A1 initiating the conversation (i.e., making a specific address). If B2 responded, I drew an arrow heading back toward A1.

These maps, one of which is shown in Appendix G, were used during the consensus conference and allowed raters to identify discrepancies in their ratings quickly. They also allowed raters to get a quick overview of a participant's interaction style (e.g., to note multiple conversations with only female participants, with successful responses from those

[5] When there were discrepancies among the raters, a meeting was held whereby raters would discuss and justify why an interaction had been coded a particular way. Once consensus was reached, the agreed upon rating was then used for that participant.

with whom they chose to engage). We then defined this form of one-to-one engagement, or specific address, with the opposite sex to denote sexual or mating displays.

Hence, the interaction maps enabled assessment of the form and success of an individual's sexual displays. For example, I was able to determine visually (a) the number of times a male participant attempted to engage with a female participant, and (b) whether she responded, thus demonstrating (c) the man's success (or lack thereof) in attracting her attention.

Coding participant posts according to content. I derived content categories from examining the LHT literature (e.g., Figueredo et al., 2006), with specific attention to psychological and behavioural indicators of differing life history strategies (e.g., impulsivity is synonymous with fast LHS, whereas goal-oriented thinking and altruism are synonymous with slower LHS). Each post made by a participant was then coded as either *Neutral* (statements not relating obviously to any LHS traits; these included posts discussing movies, television series, or topics common to all participants, such as coursework assignments); *Fast LHS* (statements demonstrating or implying short-term strategies toward mating and partner selection; these included posts that suggested impulsivity or favourable attitudes toward promiscuity or toward engaging with multiple opposite-sex partners); or *Slow LHS* (statements demonstrating or implying long-term strategies toward stable monogamous relationships and future-oriented thinking; these included posts that suggested selectivity, caution, altruism, and orientation toward long-term goals). Appendix H shows an example of this coding method.

For each participant, a simple count of the code attached to all posts made allowed me to derive three separate raw scores (Neutral, Fast LHS, and Slow LHS). For the purpose of statistical analyses, I then converted these separate raw scores into a single score, labelled *LHS Content Index*, ranging from -1 (denoting a high amount of fast LHS content) to +1 (denoting a high amount of slow LHS content). The conversion proceeded thus: First, each Neutral post was given a score of zero, each Fast LHS post was given a score of -1, and each Slow LHS post was given a value of +1. Second, I put the total Fast LHS value (*f*) and the total slow LHS value (*s*) into this equation, for each participant:

$$\textit{LHS Content Index Score} = \frac{(f \times -1) + s}{f + s}$$

Once again, using an odd/even method, I split the final data set in half. The same two researchers as described above, operating as independent raters, each coded approximately one half of the data (45 data sets in one case, 46 in the other). Again, I took numerous steps to ensure reliability of the coding. First, each rater would "spot check" a third of the second rater's participants. Second, a third independent rater (a female postgraduate psychology student otherwise uninvolved with this research) coded a random selection of the data (40 of the 91 participant datasets). Again, I trained each rater and provided detailed guides regarding the process of coding the data.

When we found inconsistency or disagreement in the coding schedules of two raters coding the same dataset, these inconsistencies or disagreements were discussed and consensus reached after consultation. Before the consensus conference, inter-rater reliability ranged between .68 and .79. The agreed upon values were entered into the data set.

Predictor and outcome variables. Using the instruments, online environments, and coding systems described above, I derived these categories of variables for use in the statistical models described below:

1. *Sociodemographic variables:* These variables were derived from participant responses to the sociodemographic questionnaire, and included age, sex, race, sexual orientation, and whether the responder was currently in a relationship (see Appendix A, items 4 -11).
2. *Technology usage variables:* The sociodemographic questionnaire asked participants to indicate whether or not they made use of social networking platforms (e.g., Mxit), and how much of their time they spent meeting new people online versus interacting with family and friends (see Appendix A, questions 13- 17). Answers to questions 16 and 17 were recorded as continuous variables for use in statistical analyses.
3. *Relative deprivation*: Cognitive relative deprivation and affective relative deprivation were both used as predictor variables in the statistical models described above. The ways in which each of these variables were derived is described above. Scores on both the cognitive and affective relative deprivation scales were recorded as continuous variables.
4. *Life history strategy* (*LHS*): This variable, which was derived from scores on the Mini-K Short Form, was measured on a continuum, with lower scores indicating a fast LHS and higher scores indicating a slow LHS. It was used as a predictor in the statistical models described below.
5. *Engagement patterns:* These variables included Interactivity, Number of Specific Addresses, Number of Generalized Addresses, Same-Sex Popularity, and

Opposite-Sex Desirability. Definition and derivation of each of these is provided above. In some of the statistical models described below, these were used as predictors; in others, they were outcomes.

6. *LHS Content Index*: The way in which this continuous variable was derived is described above. This variable was used as an outcome in one of the statistical models described below.

Descriptive and inferential statistical analyses. All analyses were performed using the software packages SPSS (version 19) and R (the RMS, CAR, and PSYCH packages). Unless otherwise specified, the threshold for statistical significance was set at $\alpha = .05$. Multiple R^2 was calculated as an estimate of effect size.

The analysis proceeded across several steps. First, I created descriptive statistics for sociodemographic variables (sex, relative deprivation scores), Mini-K Short Form scores and the chatroom behavioural data, to gain an overall impression of the sample and a basic understanding of the ways in which participants interacted in the chatrooms. The purpose of this analytic step was to gain a broad understanding of the sample characteristics and to inform subsequent General Linear Modeling.

Second, inferential data analyses tested the predictive power of sociodemographic variables (viz., sex, cognitive and affective relative deprivation scores), LHS (as measured by Mini-K scores), and chatroom behavioural variables (viz., Interactivity, Number of Female-Specific Addresses, Number of Male-Specific Addresses, Number of Generalized addresses) with regard to each of the outcome variables. Specifically, I developed six general linear models (GLMs) and four linear regression models to determine which of the variables listed above significantly predicted, either singly or in combination, (a) Men's interactions with women in the chat room, (b) Women's interactions with men in the chat room, (c) Opposite-Sex Desirability, (d) Same-Sex Popularity (e) content of chat posts (as measured by the LHS Context Index), and (f) the use of technology to meet new people.

Because the current research set out to examine several hypotheses, I began each GLM with an inclusive model and then partitioned variance in a hierarchal manner until a restrictive model was complete. I entered variables that were of interest / importance into the model last, and, based on the first model, I made decisions about further analyses. At each iterative step, I removed non-significant variables from further analyses to uphold the assumptions of regression.

All GLMs used Type I sums of squares analyses. I checked the underlying assumptions for each model and only in a single instance (for the model relating to Number of Female-Specific Addresses) did an influential outlier need to be corrected for, using the method recommended by Field (2009). Separate GLM’s were developed for men and women, when I developed the GLM’s examining opposite interactions and opposite sex desirability as well as same-sex popularity.

Results

Sample Characteristics

The final sample of participants (i.e., those who participated in the chatroom phase of the study) consisted of 44 male and 47 female undergraduate students. All of these individuals were between the ages of 18 and 25 years (M = 19.81, SD = 1.33), and all had completed 12-14 years of education.

Interaction Styles in the Chatroom

As noted earlier, one of the major aims of the study was to explore sexual strategies and mating displays in the chatroom. The first step toward that aim was to describe and capture the interaction styles of men and women as they communicated in the chatroom. Table 2 shows that, overall, women were marginally more active than men in the chat room. Men tended to make more general addresses to the group, however, and to address more women specifically than women addressed men specifically. Regarding number of general addresses, both male and female participants posted approximately 4-5 posts to the general group in the chat room (rather than directly to one person); however, some participants preferred to take part only in direct mating displays (i.e., specific addresses), whereas others preferred mainly generalized displays. Regarding number of specific addresses to a member of the opposite sex, the pattern here was similar to that of generalized mating display: Some participants preferred to address members of the opposite sex directly, whereas others preferred to engage with the group as a whole through generalized addresses.

Table 2.
Chatroom Sexual Strategies and Mating Displays, and their Success: Descriptive statistics

		Sex	
Variable	Total Sample (N = 91)	Male (n = 44)	Female (n = 47)
Interactivity	11.97 (6.05)	11.50 (6.32)	12.40 (5.82)
Generalized Addresses	4.04 (2.79)	4.34 (2.64)	3.77 (2.92)
Specific Addresses	3.78 (1.77)	2.23 (1.38)	1.89 (1.12)
Desirability[a]	1.79 (0.93)	0.83 (0.87)	1.14 (0.77)
Popularity[b]	1.72 (1.25)	0.66 (0.81)	0.91 (0.86)

Note. Means are presented with standard deviations in parentheses. [a]Refers to the number of times a participant was selected by members of the opposite sex for possible post-chat interaction. [b]Refers to the number of times a participant was selected by members of the same sex for possible post-chat interaction.

Some chat sessions had a higher rate of participant interactivity than others. Over the 10 chat sessions, 4471 posts were recorded and analyzed (M = 406.54, SD = 174.56), with a minimum of 195 posts in session 2 and a maximum of 652 posts in session 10. Tables 3 and 4 show the frequency distribution of male and female interactivity in the chatroom. As the tables show, there was great variability in individual interactivity. For instance, three men were hardly visible in that they made only 1-2% of the total number of posts in their chatrooms, whereas others were highly interactive, being responsible for up to 37% of the total number of posts in their chatroom. A similar pattern of interactivity was found amongst the female participants.

Table 3.
Men's interactivity in the chatrooms: Frequency distribution (N =44)

Interactivity[a]	Frequency	Percent	Cumulative Percent
1	1	2.3	2.3
2	2	4.5	6.8
3	1	2.3	9.1
4	1	2.3	11.4
5	1	2.3	13.6
6	2	4.5	18.2
7	1	2.3	20.5
8	1	2.3	22.7
9	7	15.9	38.6
10	3	6.8	45.5
11	4	9.1	54.5
12	6	13.6	68.2
13	3	6.8	75.0
16	5	11.4	86.4
17	1	2.3	88.6
18	2	4.5	93.2
19	1	2.3	95.5
25	1	2.3	97.7
37	1	2.3	100.00
Total	44	100.0	

Note. [a]Refers to the number of times a participant posted in the chat as a percentage of the total number of posts in the 1-hour chat session.

Table 4.
Women's interactivity in the chatrooms: Frequency distribution (N = 47)

Interactivity[a]	Frequency	Percent	Cumulative Percent
3	1	2.1	2.1
5	6	12.8	14.9
6	1	2.1	17.0
7	4	8.5	25.5
8	1	2.1	27.7
9	4	8.5	36.2
10	5	10.6	46.8
11	2	4.3	51.1
12	1	2.1	53.2
13	3	6.4	59.6
14	2	4.3	63.8
15	1	2.1	66.0
16	6	12.8	78.7
19	2	4.3	83.0
20	4	8.5	91.5
21	2	4.3	95.7
23	1	2.1	97.9
27	1	2.1	100.0
Total	47		

Note. [a]Refers to the number of times a participant posted in the chat as a percentage of the total number of posts in the 1-hour chat session.

Specific Addresses: Opposite-Sex Interaction Styles

To determine which predictor, or set of predictors, were associated with opposite-sex interactions and mating displays, I developed two general linear models (GLMs; one for men and one for women).

Men displaying to women. The first GLM sought to determine whether there was an association between the predictor variables *Interactivity*, *Number of Generalized Addresses*, and *LHS*, and the outcome variable, for men, *Number of Female-Specific Addresses*. That is to say, this model examined which predictors were associated with men's specific interactions with individual women in the chatroom. I entered Interactivity into the model first because it was important to control for the possibility that men who were inactive in the chat room would have a large and confounding effect on the model. I entered Number of Generalized Addresses second and LHS third to ensure that the latter was solely responsible for its main effect on the outcome variable. I then entered two- and three-way interactions between these variables.

Table 5 shows the results of the current model. The final model retained only LHS and the interaction between Number of Generalized Addresses and LHS, as these effects were the only significant predictors of males' specific addresses to women. Although the interaction between Number of Generalized Addresses and LHS only approached statistical significance (p = .053), it was retained in the model, and the interaction examined further in Figure 1. The figure shows that, as Mini-K Score decreased (denoting a move from slower to faster LHS) and Number of Generalized Addresses increased, Number of Female-Specific Addresses increased significantly. Conversely, as Mini-K Scores increased (denoting a move from faster to slower LHS) and Number of Generalized Addresses decreased, Number of Female-Specific Addresses decreased significantly.

Table 5.
General Linear Model: Predicting number of female-specific addresses by men (N =44)

Predictor	*B*	*SE B*	*t*	*F*	*p*
Interactivity	0.35	0.29	1.24	1.90	.177
Generalized Addresses	1.47	0.54	2.73	0.27	.605
LHS	0.07	0.06	1.15	4.28	.046*
LHS x Generalized Addresses	-0.04	0.02	-2.55	4.02	.053

Note. LHS = life history strategy, as measured by Mini K Short Form score. R^2 = .325. Adjusted R^2 = .190. Degrees of freedom were (1, 43) in each case. Model F(7, 43) = 2.44, p = .037.
*p < .05.

When all significant main and interaction effects were considered together, they created a statistically significant model that explained 32.17% of the variance in the outcome. I checked the assumptions of the analyses underlying the model visually and with the use of the Shapiro-Wilk normality test, which delivered a non-significant result (W = 0.98, p = 0.807).

However, when examining the Leverage statistic and Cook’s distance, case 84 (the participant labeled M5, a 24-year-old male) appeared to be influential in the model. Closer examination showed that the participant was very active in his chatroom, being responsible for 37% (90 of 241) of the total number of posts in that session. Because the assumptions of the model were being influenced by this single case, I decided to convert that participant’s Interactivity score to the mean male Interactivity score plus twice the standard deviation for male Interactivity. This method is recommended as a robust technique in dealing with outliers and influential cases (Field, 2009). Once this conversion had been performed, the model was re-run; the Leverage statistic and Cook’s distance were now within acceptable limits (i.e., under the recommended value of 1).

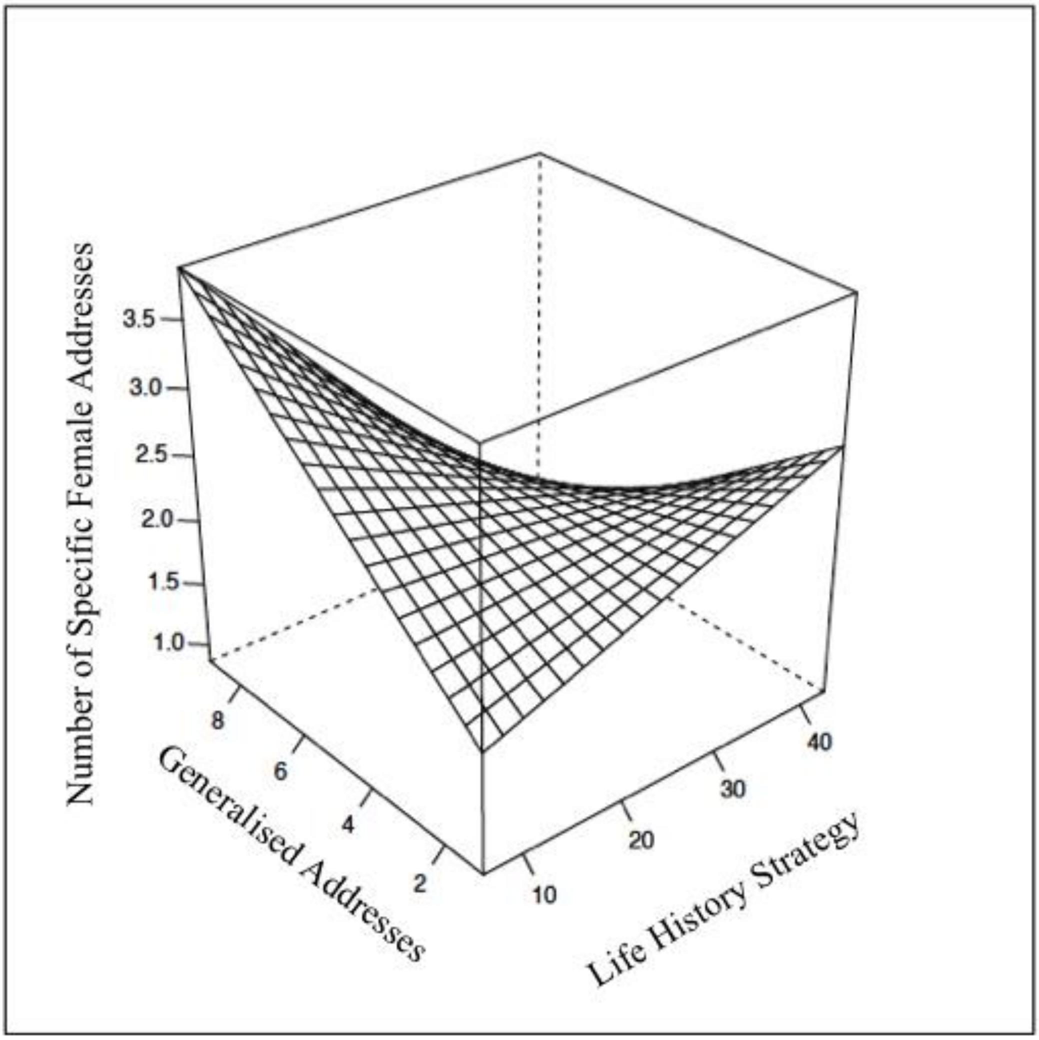


Figure 1. Interaction between life history strategy (LHS, as measured by Mini-K Short Form score) and Number of Generalized Addresses predicts the number of women each man addressed directly.

Women displaying to men. The second GLM sought to determine whether there was an association between the predictor variables *Interactivity*, *Number of Generalized Addresses*, and *LHS*, and the outcome variable, for females, *Number of Male-Specific Addresses*. That is to say, this model examined which predictors were associated with females' specific interactions with individual men in the chatroom. Again, I entered *Interactivity* into the model first to control for the possible influence on the overall model of non-interactive women. For the same reasons as given above for the first model, I entered Number of Generalized Addresses second and LHS third. I then entered two- and three-way interactions between these variables.

The final model (shown in Table 6) was a statistically significant good fit for the data. As the Table shows, that final model contained only two predictors (Interactivity and LHS), and it explained 13.71% of the variance in the outcome. Again, the assumptions of analyses underlying the model were upheld and confirmed by Shapiro-Wilk normality test, $W = 0.98$, $p = .57$.

Figure 2 shows the relationship between a woman's LHS, her Interactivity, and the number of her specific addresses toward individual men. As Mini-K Score decreased (denoting a move from slower to faster LHS) and Interactivity increased, Number of Male-Specific Addresses increased significantly. Conversely, as Mini-K Score increased (denoting a move from faster to slower LHS) and Interactivity decreased, Number of Male-Specific Addresses decreased significantly.

Table 6.
General Linear Model: Predicting number of male-specific addresses by women (N = 47)

Predictor	*B*	*SE B*	*t*	*F*	*p*
Interactivity	.054	.03	1.89	2.89	.122
LHS	-0.03	.01	-2.12	4.49	.040*

Note. LHS = life history strategy, as measured by Mini K Short Form score. $R^2 = .137$. Adjusted $R^2 = .098$. Degrees of freedom were (1, 47) in each case. Model F (2, 46) = 3.49, p = .039.
*$p < .05$.

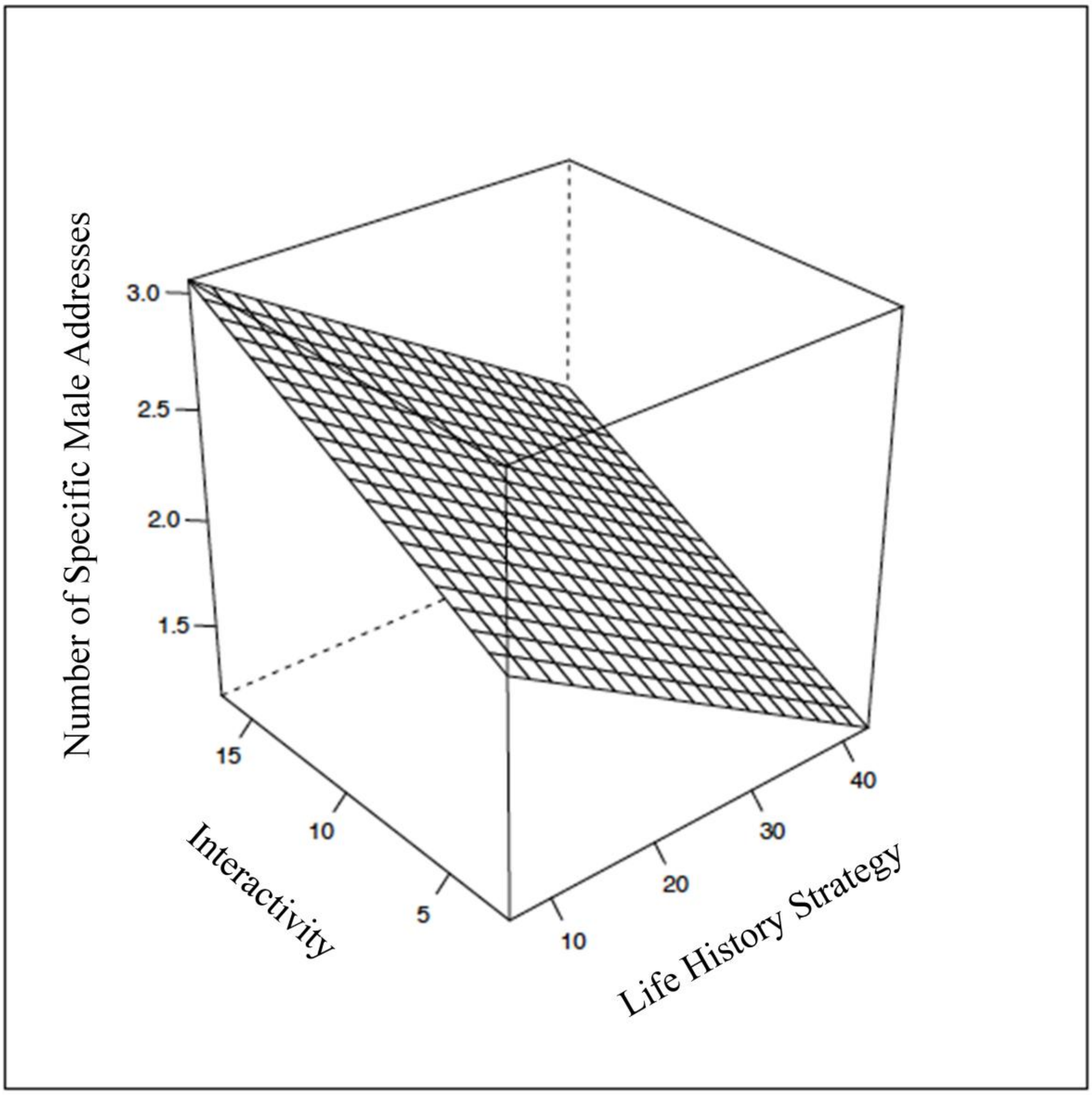


Figure 2. The main effects of life history strategy (LHS, as measured by Mini-K Short Form score) and Interactivity predict the number of men each woman addressed directly.

Opposite-Sex Desirability

Descriptive statistics showed that, regarding male desirability to women, 18 of the 44 male participants were not deemed desirable by any of the female participants (i.e., post-chat, none of those 18 men were chosen by any women as someone that they would have liked to get to know better, or as someone that they would have liked to chat privately with). In contrast, three men appeared to be highly desirable in that three separate women identified each as a candidate for potential future interaction.

Regarding female desirability to men, 20 of the 47 female participants were not deemed desirable by any of the male participants (i.e., post-chat, none of those 20 women were chosen by any men as someone that they would have liked to get to know better, or as someone that they would have liked to chat privately with). In contrast, one woman appeared to be highly desirable in that four separate men identified her as a candidate for potential future interaction.

Women's desirability among men. The third model, a hierarchical regression, sought to determine whether there was an association, in female participants, between the predictor variables *Interactivity, LHS*, *Number of Generalized Addresses,* and *Number of Male-Specific Addresses* (entered in that order), and the outcome variable *Desirability*. That is to say, this model examined which female behaviour, or set of behaviours, in the chatroom predicted desirability with male participants in terms of being selected for potential post-chat interaction. The choice of a hierarchical regression, and the order of predictor variable entry, was based on the observations gleaned from the two models described above.

The final model contained only one predictor (*Number of Male-Specific Addresses*) that contributed significantly. That model was statistically significant, and explained 13.61% of the variance in the outcome, $R^2 = .14$, $F(1, 46) = 7.09$, $p = .011$. Hence, a woman's desirability in her chat cohort was significantly predicted only by the number of specific addresses she made toward individual men in the cohort, $\beta = .37$, $t(46) = 2.66$, $p = .011$.

The final model contained two outliers, which was less than 5% of the total number of cases. A maximum value of 7.15 for Mahalanobi's distance was reported, which is below the recommended value of 10. Corresponding Cook's distances showed that no cases had any undue influence on the dataset, and thus all cases were retained in their original form in the final model.

Men's desirability among women. The fourth model, a GLM, sought to determine whether there was an association, in male participants, between the predictor variables *Interactivity, Number of Generalized Addresses, Number of Female-Specific Addresses,* and *LHS,* and the outcome variable *Desirability.* That is to say, this model examined which male behaviour, or set of behaviours, in the chatroom predicted desirability with female participants in terms of being selected for potential post-chat interaction. I entered Number of Female-Specific Addresses, Number of Generalized Addresses, and Interactivity into the model first, to control for potential confounding effects on the overall model structure of data from participants who either were not active in the chatroom or who did not interact with the opposite sex. Again, I entered LHS last to examine the main effect of this variable on the other predictors, and to ensure that it was solely responsible for its main effect on the outcome variable. I also entered two 2-way interactions (LHS x Generalized Addresses, and LHS x Interactivity) into the model.

Table 7 shows the results of the final model, which was statistically significant and which accounted for 48.87% of the variance in the outcome. As the Table shows, the final model contained two significant predictors of the outcome: Number of Female-Specific Addresses and the two-way interaction between LHS and Number of Generalized Addresses. An interesting note here is that, although LHS on its own did not significantly predict men's desirability among women, the interaction between LHS and Number of Generalized Addresses did. I elaborate upon this point in the Discussion.

Because both Interactivity and Number of Female-Specific Addresses were placed into the model, I calculated a new variable, *VminusSF* (the participant's Interactivity score minus his Number of Female-Specific Addresses), to ensure the variance and intercorrelation between Interactivity and Number of Female-Specific Addresses did not influence the model unduly and inflate the R^2 value artificially. Hence, the term VminusSF in this model is synonymous with the term Interactivity in other models.

Table 7.
General Linear Model: Men's desirability among female participants (N =44)

Predictor	*B*	*SE B*	*t*	*F*	*p*
Specific Addresses	0.34	0.09	3.68	26.06	.001**
Generalized Addresses	0.32	0.15	2.13	0.33	.567
VminusSF	-0.21	0.09	-2.28	0.53	.472
LHS	-0.002	0.02	-0.09	0.13	.725
LHS x VminusSF	0.01	0.003	2.67	3.51	.069
LHS x Generalized Addresses	0.01	0.005	-2.16	4.49	.037*

Note. LHS = life history strategy, as measured by Mini K Short Form score. R^2 = .49. Adjusted R^2 = .41. Degrees of freedom were (1, 44) in each case. Model $F(6, 43) = 5.87$, $p < .001$.
*$p < .05$. **$p < .01$. ***$p < .001$.

To help understand the interaction between LHS and Number of Generalized Addresses and the outcome variable, as well as the non-significant outcome of the relationship between a participant's interactivity (VminusSF) and LHS on the outcome, I captured both interactions onto graphs. Figure 3 shows the interaction effect of LHS and Generalized Addresses on men's desirability among women. The figure shows that as Mini-K score decreased (denoting a move from slower to faster LHS) and Number of Generalized

Addresses increased, male desirability increased. Conversely, as Mini-K score increased (denoting a move from faster to slower LHS) and Number of Generalized Addresses decreased, male desirability decreased.

Although the interaction between LHS and VminusSF was not statistically significant (p = .069) it is represented graphically in Figure 4 because it gives further insight into the significant interaction shown above. The Figure shows that as Mini-K score decreased (denoting a move from slower to faster life history strategy) and VminusSF increased, male desirability diminished. One interpretation of this data pattern is that men with a fast LHS who made themselves highly visible in the chatroom (e.g., by posting nonsensical posts or emoticons), but who did not demonstrate effortful engagement with the group or with an individual, were not desired by female participants. In contrast, slow LHS men who engaged with the group or individuals were more desirable.

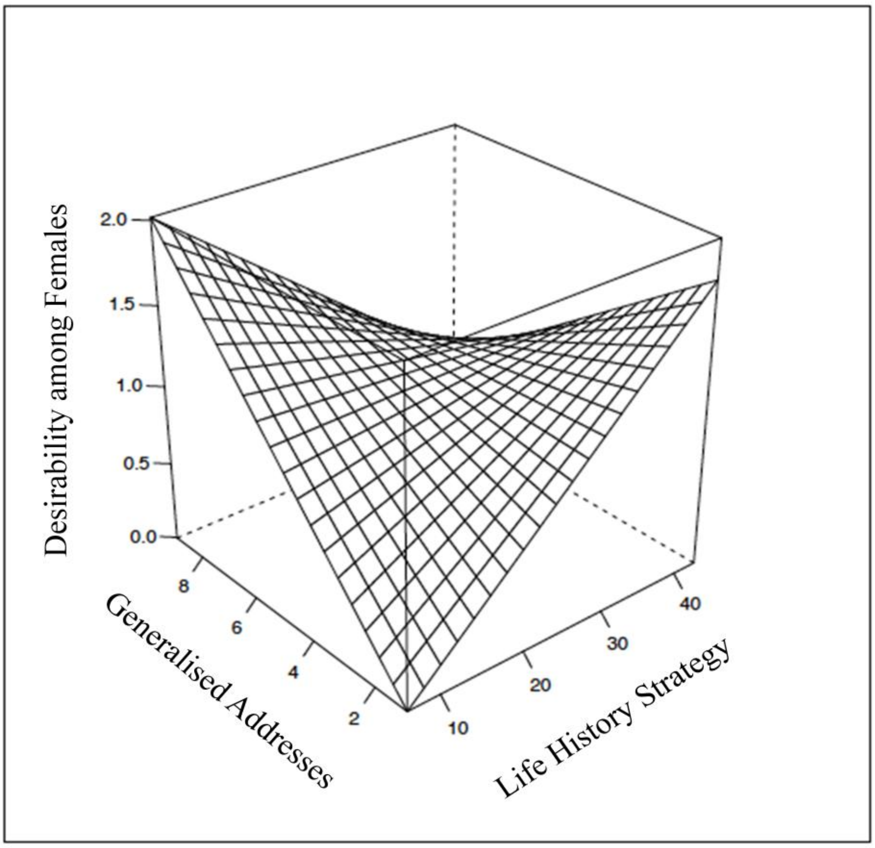


Figure 3. Interaction between life history strategy (LHS, as measured by Mini-K Short Form score) and Number of Generalized Addresses predicts the number of times a man was marked as desirable by women.

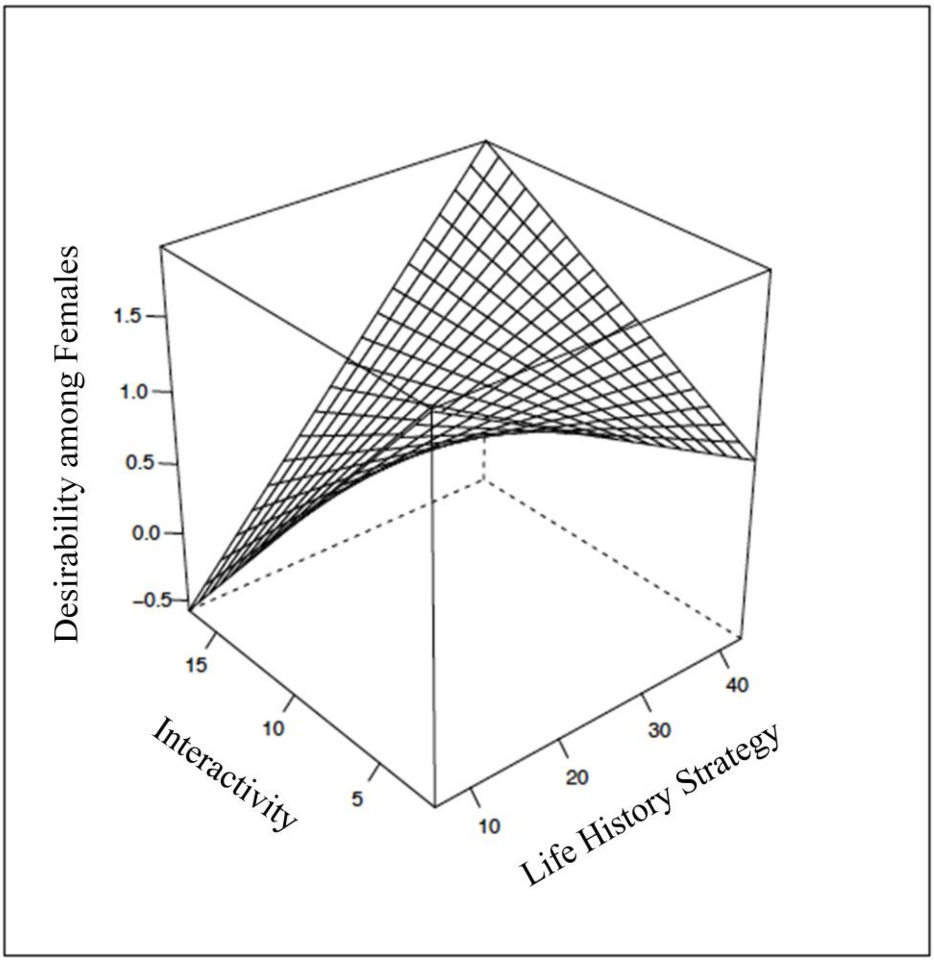


Figure 4. Non-significant interaction effect between Life History Strategy and Interactivity (VminusSF) in terms of predicting male desirability among women.

Same-Sex Popularity

Thirty-five women (75% of the female sample) selected either no men or only one man for a private encounter post-chat. In contrast, 37 men (84% of the male sample) selected at least one woman for a private encounter post-chat. However, 30 women (64% of the female sample) chose to chat privately with other women rather than with men. In contrast, 23 men (52% of the male sample) chose to chat privately with women rather than with other men. These descriptive statistics suggest that men, but not women, exit the chat session with a stated preference for a post-chat encounter with a fellow participant of the opposite sex. Women appear to prefer such post-chat encounters to be with other women. Figure 5 illustrates the sex difference in the patterns of same-sex popularity. This same-sex bias was statistically significant, $\chi^2(4) = 15.62$, Cramer's $V = .42$.

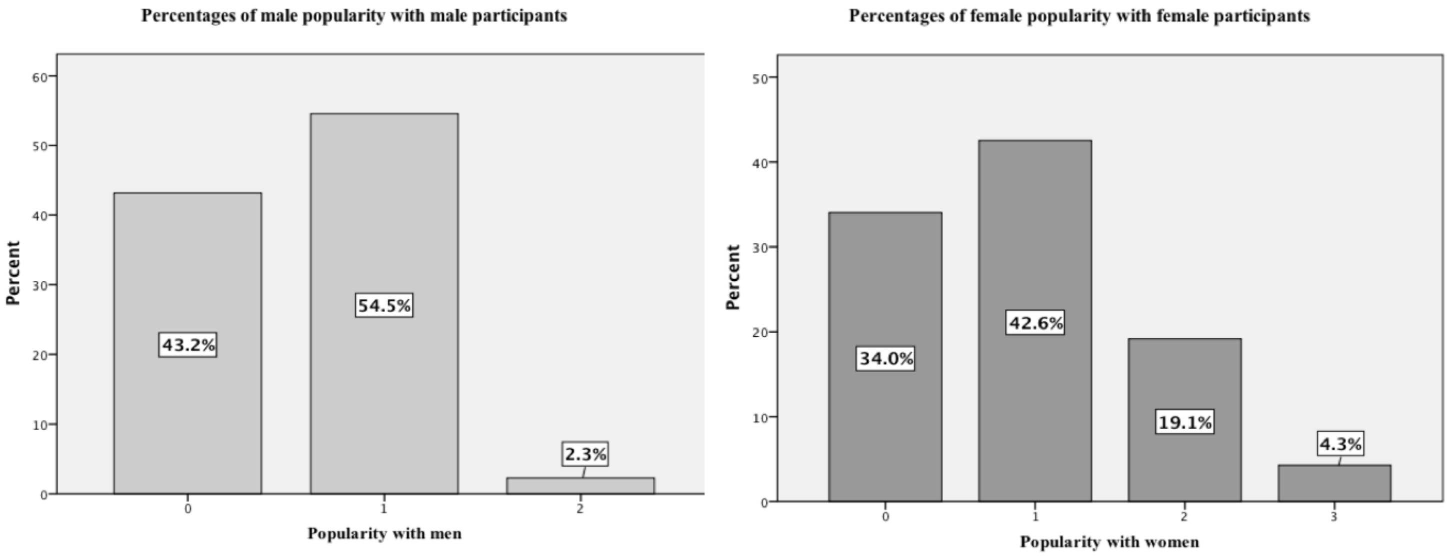


Figure 5. Difference in the patterns of same-sex popularity among men and women. The leftmost panel shows male popularity among other men in the chat room. The data reflect the percentage of men who selected a particular number (either 0, 1, 2) of other men for potential post-chat interaction. The rightmost panel shows the analogous data for women.

I used two separate hierarchical regressions (one for female data, one for male data) to examine same-sex popularity further. Although most assumptions for these two models were upheld and casewise diagnostics demonstrated that no influential cases were present, the data for both men and women appeared to violate the assumption of normality of residuals. Hence, these analyses were run performing bootstrapping on 1000 samples (see Erceg-Hurn & Mirosevich, 2008, for details on this method).

The first of these regression models sought to determine whether there was an association, in female participants, between the predictor variables *Interactivity*, *LHS*, *Number of Generalized Addresses*, and *Number of Male-Specific Addresses* (entered in that order), and the outcome variable *Same-Sex Popularity*. That is to say, this model examined which female chatroom behaviour, or set of chatroom behaviours, predicted her popularity with other female participants in terms of being selected for potential post-chat interaction. The choice of a hierarchical regression, and the order of predictor variable entry, was based on the observations gleaned from the initial models described above.

The final model contained only one predictor (*Interactivity*) that contributed significantly. That model was statistically significant, and explained 27.94% of the variance in the outcome, $R^2 = .27$, $F(1, 46) = 17.37$, $p < .001$. Hence, a women's same-sex popularity in her chat cohort was predicted significantly only by her visibility (how interactive she was) in the chatroom, $\beta = .08$, t (1, 46) = 4.17, $p < .001$.

The second of these regression models sought to determine whether there was an association, in male participants, between the predictor variables *Interactivity*, *LHS*, *Number of Generalized Addresses*, and *Number of Female-Specific Addresses* (entered in that order), and the outcome variable *Same-Sex Popularity*. That is to say, this model examined which male chatroom behaviour, or set of set of chatroom behaviours, predicted his popularity with other male participants in terms of being selected for potential post-chat interaction. The choice of a hierarchical regression, and the order of predictor variable entry, was based on observations gleaned from the initial models described above.

The final model contained only one predictor (*Number of Generalized Addresses*) that contributed significantly. That model was statistically significant, and explained 14.10% of the variance in the outcome, $R^2 = .14$, F(1, 43) = 6.91, $p <.05$. Hence, a men's same-sex popularity in his chat cohort was predicted significantly only by the number of interactions he had with groups of fellow participants in the chatroom, $\beta = .08$, t (1, 42) = 2.51, $p < .001$.

Together, these models suggest that female participants selected, for post-chat interaction, women who were highly interactive or visible in the chatroom, regardless of whether that interactivity or visibility took the form of generalized or male-specific addresses. In contrast, male participants selected, for post-chat interaction, men who engaged with the group as a whole rather than those who engaged with specific women.

LHS and Biological Sex Predicts Participant Post Content in the Chatroom

As noted earlier, I used the LHS Content Index to capture the essence of the posts participants made in the chat room. Another GLM therefore sought to determine whether there was an association between the predictor variables *Biological Sex* and *LHS*, and the outcome variable *LHS Content Index*. I entered Biological Sex into the model first because it was important to control for the possibility that men were 'faster', or more sexually overt, in their content presentation than women, with this difference thus perhaps having a confounding effect on the model.

The analyses demonstrated that LHS remained robust in its main effect on the outcome, even after controlling for the effects of Biological Sex. The final model, the results of which are shown in Table 8, was statistically significant, and accounted for 14.21% of the variance in the outcome. This model suggests that the content of what individuals say to one another in the chatroom reflects their underlying LHS.

The final model did not contain any outliers. Further, the assumptions underlying the model were upheld and casewise diagnostics showed that there were no problematic or influential data points within the data set.

Table 8.
General Linear Model: Predicting LHS Content Index (N =91)

Predictor	*B*	*SE B*	*F*	*t*	*p*
Biological Sex	-0.10	0.03	8.94	-2.99	.004**
LHS	0.002	0.001	3.97	1.99	.049*

Note. LHS = life history strategy, as measured by Mini K Short Form score. R^2 = .14. Adjusted R^2 = .12. Degrees of freedom were (2, 88) in each case. Model F (2, 88) = 7.29, p = .002.
*p < .05. p < .01**.

Relative Deprivation and LHS as Predictors of Technology Use to Meet New People

As the final aspect of my analyses, I explored the value of relative derivation as a predictor of online platform use in the search for potential mates. These analyses were run last because Life History Theory is the more established predictor variable, given its previous use in well-designed correlational research (Figueredo et al., 2006). The idea that relative deprivation might be a valuable predictor is a new theoretical stance on sexual behaviour, particularly within the online environment. Thus, I felt it important to explore statistically as it may have contributed to the overall objectives of the research.

The first analysis here sought to examine if there was an association between the predictor variables relative deprivation (a proximal subjective measure of social standing or mate value) and LHS (a distal mechanism underlying sexual behaviour and resource allocation), and the outcome variable time spent meeting new people online. I predicted that there would be a relationship between scores on the Mini-K Short Form (the measure of LHS used in this study) and those on one or both measures of relative deprivation and the outcome variable. As an initial exploration into the relationships between these variables, I conducted bivariate correlational analyses. The resulting correlation matrix, shown in Table 9, suggested a difference in the male vs. female data; hence, I included Biological Sex as a predictor variable in subsequent analyses. Male-Specific Addresses by women, as well as women's desirability among male participants were significantly correlated with ARD, however this was not the case for the male data. Thus ARD may in some way determine the way in which female participants engage with men in the chatroom, and thus determine her desirability among them. More broadly, the results in Table 9 show a negative relationship between ARD and LHS, such that individuals that have a faster LHS experience greater affective relative deprivation. Participants which come from faster LHS, and perhaps more unstable or unpredictable backgrounds, experience more feelings or frustration, fear and anger in relation to their perceived social standing.

Table 9.
Correlation Matrix: LHS, relative deprivation, online use, and chatroom behaviour (N = 91)

Variable	1	2	3	4	5	6	7	8
1. LHS	1.00							
2. ARD	**-.22***	1.00						
3. CRD	.07	**-.40***	1.00					
4. Time spent meeting new people online	.11	.19	**-.32****	1.00				
5. Male-Specific Addresses by women	-.14	**.25***	.06	-.01	1.00			
6. Female-Specific Addresses by men	**-.21***	.01	.12	-.04	.13	1.00		
7. Desirability among men	.01	**.24***	.12	.02	**.29****	-.03	1.00	
8. Desirability among women	-.02	.09	.06	-.15	.11	**.43****	.03	1.00

Note. LHS = Life history strategy, as measured by the Mini-K Short Form; ARD = affective relative deprivation; CRD = cognitive relative deprivation.
**p* <.05; ** *p* < .01.

Taking into account the data from the bivariate correlations, the first GLM here sought to determine whether there was an association between the predictor variables *Biological Sex*, *LHS*, *Cognitive Relative Deprivation,* and *Affective Relative Deprivation*, and the outcome variable *Time Spent Meeting New People Online*. That is to say, the model examined which predictor, or set of predictors, was associated with individuals using online platforms to meet new people. I entered Biological Sex first because it was important to control for the possibility that, relative to women, men were 'faster' in their LHS, or more likely to use technology and online platforms, with this difference perhaps having a confounding effect on the model. I entered CRD and ARD last to examine the main effects of these variables on the other predictors, and to ensure that it was solely responsible for its main effect on the outcome variable. I then entered two-and three way interactions between these variables.

The final model (shown in Table 10) was a statistically significant good fit for the data, $F(8, 90) = 2.37$, $p = .024$. As the Table shows, that final model contained only two significant predictors (CRD and LHS x CRD x Biological Sex), and it explained 18.71% of the variance in the outcome. Again, the final model did not contain any outliers; the assumptions underlying the model were upheld; and casewise diagnostics showed there were no problematic or influential data points within the data set.

Table 10.
General Linear Model: Predicting use of online platforms to meet new people (N = 91)

Predictor	*B*	*SE B*	*t*	*F*	*p*
Biological Sex	8.33	4.00	2.08	1.33	.253
LHS	0.49	0.21	2.32	1.66	.198
CRD	1.29	0.79	1.63	10.04	.002**
ARD	0.06	0.05	1.22	0.93	.338
LHS x Biological Sex	-0.27	0.12	-2.19	0.45	.506
Biological Sex x CRD	-0.08	0.44	-1.89	0.06	.804
LHS x CRD	-0.01	0.02	-2.09	0.09	.768
LHS x Biological Sex x CRD	0.03	0.01	2.08	4.34	.040*

Note. LHS = life history strategy, as measured by Mini K Short Form score; CRD = cognitive relative deprivation; ARD = affective relative deprivation. $R^2 = .19$. Adjusted $R^2 = .11$. Degrees of freedom were (1, 91) in each case.
$^*p < .05$. $^{**}p < .01$.

Figure 6 shows the interaction between CRD and LHS for men and women in predicting the amount of time an individual spends meeting new people online. The panel depicting the male data shows little variance among the men, although there was more variance among men with a fast LHS. The greatest contrast in time spent meeting new people online exists in individuals who report experiencing no CRD. The data appear to suggest that fast LHS men with minimal perceived relative deprivation are the least likely of all men to spend their time using online media to meet new people.

Figure 7, shows the same male and female data formatted in a different way. The orange line in the CRD bar depicts a sliding scale such that the right denotes low levels of CRD, and the left high levels. The male data are depicted on the left side of the hyper-plane: As CRD decreases (thus from the bottom left panel to the top right), the angle of the slope changes, such that at the lowest end of CRD, LHS is no longer a relevant factor in how individuals use their time online.

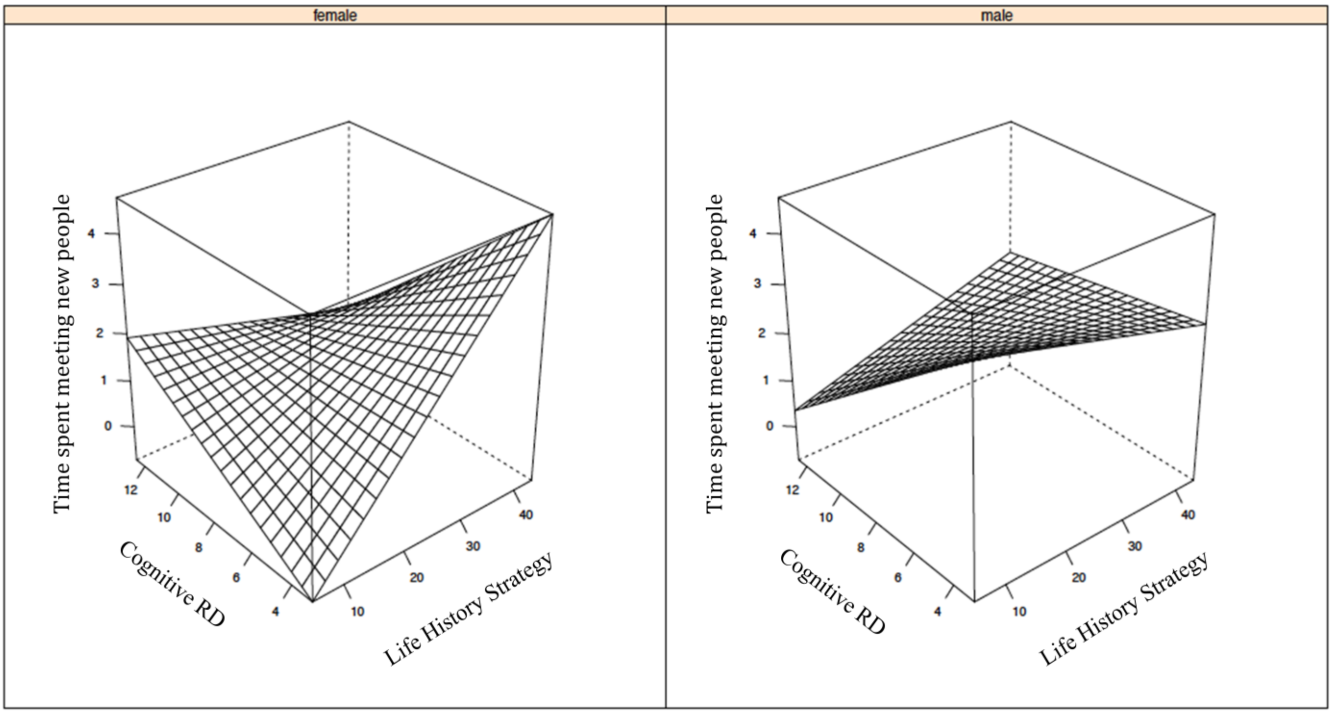


Figure 6. Interaction effect between Life History Strategy and Cognitive Relative Deprivation predicting the amount of time men and women spend online meeting new people.

The panel of Figure 6 that depicts the female data shows that there is more variability among female participants than among men. Women with a fast LHS and minimal CRD spent less of their online time meeting new people than fast LHS men did. However, fast

LHS women with high CRD scores did use online platforms to meet others, with 20% of their time being contributed toward this online activity. However, among slower LHS women, as CRD increases so too does that amount of time women spend online meeting new people. Women with the slowest LHS and minimal CRD were reported to spend 40% of their time online meeting new people. These individuals were the highest users of online media, which is an unexpected finding.

Figure 7 shows the same female data formatted in a different way. These data are depicted on the right side of the hyper-plane: Slow LHS women that have higher CRD spend time online meeting new people, whereas fast LHS women that experience higher CRD do not.

The bivariate correlation analyses also suggested that ARD was, in women, significantly correlated with Number of Male-Specific Addresses and Desirability among men. Furthermore, one of the models described above showed that a woman's desirability among men was predicted only by the number of times she had engaged directly with individual men in the chatroom. Hence, I created two more linear regression models: The first examined whether there was an association, in female participants, between the predictor variable *ARD* and the outcome variable *Male-Specific Addresses*, and the second examined whether there was an association, again in female participants, between the predictor variable *ARD* and the outcome variable *Desirability*. Once again, these analyses were conducted using the Bootstrap method, to correct for the violation of normality in the data.

The first model was statistically significant and explained 20.32% of the variance in the outcome, $R^2 = .203$, $F(1, 46) = 11.45$, $p = .001$. Hence, the number of a woman's mating displays, in the form of the number of male-specific addresses she made in her chat session, was predicted significantly by her feelings of relative deprivation, $\beta = .450$, $t\ (1, 46) = 3.38$, $p = .001$.

The second model was also statistically significant and explained 16.71% of the variance in the outcome, $R^2 = .167$, $F(1, 46) = 9.04$, $p = .004$. Hence, a women's desirability among male participants was predicted significantly by her feelings of relative deprivation, $\beta = .409$, $t(1, 46) = 3.01$, $p = .006$.

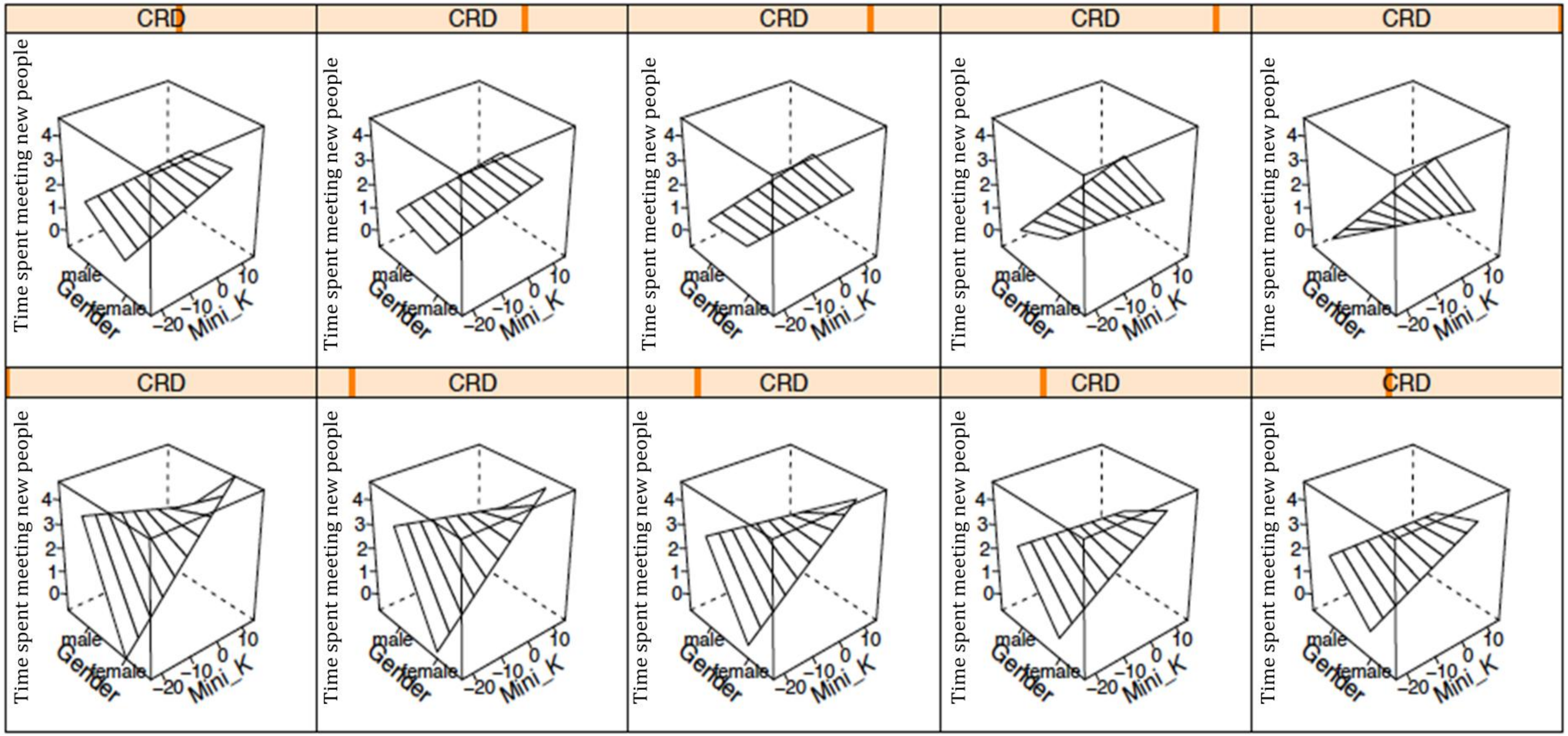


Figure 7. Interaction effect between Life History Strategy and Biological Sex in predicting the amount of time men and women spend online meeting new people. This figure demonstrates the interaction between LHS and Biological Sex across variation in CRD. The top right panel represents an absence of CRD, indicated by the orange line in the panel heading. The orange line represents a sliding scale, such that the rightmost panels indicate an absence of CRD, and the leftmost high CRD. Thus, if one follows the panels from the top right of the figure toward the bottom, the orange sliding scale shows increasing CRD, with the bottom left panel indicating the highest CRD.

Discussion

The well-established theoretical approach of evolutionary psychology and the newer, emerging field of cyberpsychology appear, at face value, to be remote branches of the broader discipline of psychology. However, in the current study, I have aimed to demonstrate that the virtual platforms provided by online technology and the theoretical frameworks proposing distal mechanisms of behaviour complement one another, and in doing so contribute to the discipline as a whole.

The current study tested five main hypotheses. The data largely confirmed the a priori predictions, and thus the thesis contributes to the cyberpsychological literature and helps develop theory in the theoretical approach of evolutionary psychology. In this discussion, I aim to highlight the ways in which both evolutionary theory of distal mechanisms of behaviour and cyberpsychology as well as online platforms may compliment one another, both theoretically and methodologically.

Life History Strategies and Interaction styles in the chatroom

The chatroom environment provides a platform in which to examine and document a number of sexual strategies and mating displays. The text-based interaction facilitated the documentation of these real-time behaviours and interaction between male and female participants. The anonymity allows participants the ability to engage with members of the opposite sex without real world constraints and also gives young adults the opportunity to practice various mating tactics in order to assess what makes them the most desirable among potential mates.

It is important at this point to draw a distinction between an individual's *mating strategy* and his/her *mating tactics*. A *mating strategy* is defined as a system of decision rules involving a set of one or more behavioural tactics. This system of decision processes governs how behaviour and somatic effort are allocated toward one's life history. In contrast, *mating tactics* are selected based upon the mating context, in accordance with the mating strategy (Crawford & Anderson, 1989).

Furthermore, the *preference* of a particular mating tactic differs from the *selection* of a mating tactic. When an individual has a preference for a mating tactic, this implies that he/she would use that tactic if there were unlimited choice in regards to potential mates and no environmental constraints (e.g., as in the virtual environment used in this study). In contrast, when an individual selects a mating tactic this implies that the selection is made under environmentally constrained conditions, and is therefore based upon limited choices in terms of which tactics may be successful and limited access to mating partners (Landolt et al., 1995).

To make these abstract concepts more concrete: In offline reality, an individual man's mate value often constrains his ability to use his preferred mating tactics. So, a man who is not physically attractive and who has less access to resources is forced to engage in tactics that are not his preference (Buss & Schmitt, 1993; Landolt et al., 1995). In online environments, however, the man will not have this constraint because all engagements with females occur in a space devoid of physical mate value markers. Hence, the online environment allows him to bolster his perceived mate value while practicing, developing, and refining his preferred tactics. However, as later discussion will reveal, the practicing and changing tactics in the chat room had implications for men's desirability among female participants.

Specific Addresses: Opposite Sex Interaction Styles

The current research aimed to explore if it is possible to predict the patterns of behaviour (specifically, sexual strategies and mating displays) shown by young adults in an anonymous online medium. Further, might broad patterns of mating displays and sexual strategies, as they are displayed during online communication, be predicted using Life History Theory?

Previous research demonstrates that men, regardless of their LHS, are more oriented than women toward short-term mating strategies and sexual variety (Buss & Schmitt, 1993). Descriptive analyses of the current data regarding men and women's specific addresses toward the opposite sex are consistent with these findings: In the chatrooms, men posted more specific messages to individual women than women did to individual men. Thus men appear to be more orientated toward seeking out opposite sex engagements than women in the chat room. Although the current study only captured individual mating strategy behaviour for an hour in the chatroom, previously documented trends emerge even within this snapshot of time. Previous literature demonstrates that men are more sexually orientated in their goals, in comparison to women, when using online platforms. This reported pattern of sexual strategy behaviour has been documented in the cyberpsychological literature, whereby men have been documented to be more frequent users of Internet dating sites to meet prospective partners (Valkenburg & Peter, 2007) and were more likely to compulsively use online media for sexual encounters (Cooper et al., 1999). The sex differences in the use of online platforms may be attributed to the differing underlying sexual psychological mechanisms in men and women. Once again, these underlying psychological and motivational mechanisms have evolved through the mechanism of natural selection because these strategies have proved useful and successful in facing adaptive challenges of men and women across human history.

Over evolutionary time, the reproductive payoffs and obligations which differ between the sexes has resulted in the underlying nature of men and women's evolved sexual psychology to differ (Greiling & Buss, 2000). Although both men and women are capable of both short- and long-term mating strategies, men are more oriented toward short-term mating strategies, provided willing women can be accessed (Buss & Schmitt, 1993). However, although men are generally more oriented toward short-term mating, they, like women, need to adapt their strategy according to environmental cues, and to act accordingly to ensure success within that environment (Belsky et al., 1991; Griskevicius, Delton, Robertson, & Tybur, 2011). However, even in an environment that forces a short-term strategy, like the chatroom in the current study, the fast-slow LHS dichotomy still holds and shines through.

Women displaying to men. In regards to women, I hypothesized that individual women would act according to their life history strategies in the chatroom. More specifically, fast LHS women may capitalize on the anonymity of the chatroom to present themselves as more attractive and provocative then they are in offline reality. Overall however, women were predicted to be less sexually oriented in the chatroom than men (especially fast LHS men). Women were hypothesized to not only spend their time and effort meeting male participants, but would also engage with other women in the chat room.

Women's displays to men in the chatroom were predicted by their LHS: The faster a woman's LHS was, the more she made sexual mating displays to men. In other words, fast LHS women had more interactivity in the chat room than slow LHS women, and these fast LHS women tended to approach more men specifically.

Although previous research suggests that men generally have a faster life history than women, possibly due to women's biological and parental obligations (Figueredo et al., 2006; Jonason, Koenig, & Tost, 2010), previous evidence shows that women may adopt a fast life history strategy as a result of an unpredictable childhood or unstable environment (Belsky, Steinberg, & Draper, 1991; Chisholm et al., 1993; Ellis, 2004). Specifically, psychosocial acceleration theory (Belsky et al., 1991) proposes that environmental and family dynamics shape a child's early development, as well as his/her later sexual behaviour. Within this theoretical framework, the developmental process begins in early childhood, shapes pubertal maturation and subsequently shapes reproductive development and strategy. This developmental system seeks to ensure reproductive success, as it ensures that individuals adapt and respond to the environment in which they find themselves, and promotes reproductive strategy which ensures survival and fitness within the ecological context (Belsky et al., 1991; James, Ellis, Schlomer, & Garber, 2012).

Although the current study did not measure timing of sexual development, the Life History Strategy that participants report gives insight into their previous developmental environments and current sexual behaviour. Thus, female participants with a faster LHS may be inclined to reproduce earlier, and may thus be more willing to actively seek out potential sexual partners and to be receptive to approaches from such individuals (Chisholm et al., 1993). Hence, the observation that faster LHS women used the chatroom to engage with men (and, perhaps, used the opportunity to assess their viability as mates) is consistent with Life History Theory and other evolutionary psychology theoretical frameworks.

Evolutionary psychology theory also demonstrates that the parental and biological obligations of women allow them the power of choice with regard to mates. Women will select a male partner based on female-oriented reproductive fitness concerns; they will seek a mate who will invest genetically and financially in their offspring (Belsky et al., 2007). In contemporary society, this power of choice has allowed women to initiate interactions (including sexual intercourse) with men they feel may be reliable mates (Lottes, 1993). The virtual space may have allowed faster LHS women to flirt and engage with multiple men. The anonymity and freedom of the virtual space gives women freedom to be more sexually provocative, with fewer consequences, than in the real world. It also allows them to attract men to assess their suitability before potentially engaging with that man in real life. This trend in female behaviour online has also been well documented in the cyberpsychological literature (Bolding, Davis, Hart, Sherr, & Elford, 2006; Bosch, 2008; Cooper et al., 1999; Leiblum, 2001; Kaveri Subrahmanyam, Greenfield, & Tynes, 2004). Thus the current findings support and contribute to the proximal explanations of female behaviour online.

Men displaying to women. I hypothesized that individual men would act according to their life history strategies in the chatroom. Hence, fast LHS men will interact with many women, whereas slow LHS men will interact with fewer women.

More specifically, fast LHS men would use the anonymous online platform for self-promotion and to display hyper-masculine behaviour, and would do so more than slow LHS men and women. The hypothesis was confirmed: men's displays to women were also accurately predicted by mating strategies theory. The mate seeking strategy of a fast LH man was proposed to manifest in terms of high mating effort and an interest in multiple short-term mating opportunities in a short-term online environment; whereas the mate seeking strategy of a slow LH male would manifest in high parental effort and long-term mating (Dunkel et al., 2010). The current data suggested that, in a short-term online environment, many fast LHS men were likely to engage with multiple potential mates simultaneously, and in so doing behave as their LHS would predict.

Interestingly, however, some fast LH men did not behave as their LHS predicted they would. In the chatroom, these males presented low levels of both generalised and specific mating displays behaviour. Life History Theory states that in order for a man with a fast LH to be successful, he needs to seek out many potential mates rapidly (Dunkel et al., 2010); this means that, in the chatroom, this man would have to demonstrate high levels of interactivity. But, if a man with a fast LH does not actively display specific or generalized mating display behaviour in a chatroom (i.e., he displays high interactivity but low general or specific addresses), he is likely to be presenting unnecessary and inappropriate behaviour in an attempt to gain attention.

The mating strategy of a slow LH male is to expend energy on long-term relationships and high parental effort (Dunkel et al., 2010). In the real world, this trait is predicted to manifest through self-development and long-term mating, usually with one partner. In the current short-term online environment, this slow LHS was manifest in adopting a more conservative approach. That is, slow LH men used specific rather than generalized mating display behaviour, thus investing time in getting to know one or two partners intimately.

Implicit Behavioural Displays and Explicit Content of Posts

It may be important at this point to discuss the hypothesis and findings surrounding LHS and biological sex predicting participant post content in the chatroom. Although these analyses were conducted later temporal order, they lend to the current discussion regarding mating displays.

Male sexual displays serve to indicate qualities that will make him a potential long- or short-term partner (Bale, Morrison, & Caryl, 2006). I hypothesized that men would not only behave in a manner consistent with their LHS, but would also demonstrate these slow or fast LHS qualities in the content of their posts. For fast LHS men, however, I also hypothesized that they might utilize the anonymity of the chatroom to present themselves as more desirable than they actually were. In other words, they may have chosen to present themselves as slower LH strategists, as these qualities are more desirable (as they portray access to social and financial resources). This hypothesis was confirmed and is in line with previous cyberpsychological literature. For example, previous research has found that in online engagements, men often portray themselves as more handsome or wealthy than they actually are, in an effort to gain the attention of women (Whitty, 2003, 2004).

Statistical analyses showed that both biological sex and LHS significantly predicted an individual's post content. Specifically, fast LHS men tended to make statements in the chat room that were flirtatious, sexually provocative, and indicative of impulsivity and/or short term-mating strategies. In contrast, slow LHS men tended to make statements that were associated with long-term planning, cultural capital, and altruistic views. These findings are consistent with previous literature that outlines the psychological profile of individuals at different points on the fast/slow LHS continuum. The novelty of these findings, however, is that they provide real-world behavioural data confirming predictions derived from those models, whereas previous studies (e.g., Figueredo et al., 2006) provided only self-report and correlational data.

In summary, the coding system was successful in capturing the broad differences in mating displays among fast and slow LH strategists. Further, the data reviewed thus far suggest that LHS not only predicted an individual's pattern of behaviour in the chat room, but also predicted the content of chatroom posts.

Opposite-Sex Desirability

A central tenet of evolutionary theory is that desire is central to all aspects of mating. Further, desire determines which tactics are successful in attracting and retaining mates, thus successful tactics fulfil desire and lead one to be desired by others. To appear desirable may afford an individual the ability to attract a mate; in order to retain a mate, however, that individual must continue to meet their mate's desires successfully (Buss, 1995, 2006).

Sexual strategies theory proposes that men and women desire different qualities in a mate because men and women face different adaptive problems and have differing parental obligations. Hence, mate selection is strategic because it solves adaptive problems faced by the sexes over evolutionary time (Bale et al., 2006). A key aspect of this theory is that strategies are not rigid, but rather are context-dependent and sensitive to the temporal context of short-term vs. long-term mating relationships (Buss & Schmitt, 1993). For example, the online context poses different challenges as well as a different temporal context, such that participants may log on and off, thus making the time in which to assess potential mates more unpredictable. Further, the online environment, as opposed to offline reality is devoid of physical cues, thus introducing new constraints and liberties in terms of sexual displays.

In the current study, men and women were asked to engage with one another for only one hour. Hence, the chatroom provided a short-term context in which each participant was to attempt to meet and attract others. Thus, the current study sought to assess how successful individuals were in attracting the initial attention of a potential mate, and if the tactics they used were indicative of the kinds of short-term strategy often used by fast LHS individuals, or of the kinds of long-term strategy characteristic of slow LH individuals.

Men's desirability among women. In this study, a participant's strategy within the chat room was considered successful, and he/she was considered desirable, if he or she was selected by an opposite-sex participant as someone that person would have liked to get to know better or to chat privately with.

I hypothesized that the most desirable men would be those who behaved in a way that was consistent with their LHS. The hypothesis regarding male desirability was confirmed: Fast LHS men behaved consistent with their LHS because they made more generalised displays than slow LHS men. A fast LHS man may have utilized generalised mating displays in this virtual environment as a tactic to attract the attention of as many women as possible in order to increase mating opportunities (Bereczkei & Csanaky, 2001; Chisholm, 1993). This tactic appeared to be successful because fast LHS men who made use of generalised mating displays and who specifically sought many different women were most popular. In this way, they not only gained popularity among a group of women, but increased desirability with specific individuals.

The data also showed (also consistent with a priori prediction) that slow LHS men who behaved in a manner consistent with their measured LHS were popular among those females with whom they interacted, but were less popular than fast LH men.

The second aspect of the hypothesis which proposed that individuals who use tactics, strategies, and mating displays to present themselves as something they are not will be unsuccessful in their attempts to attract members of the opposite sex, was confirmed: Those men who did not behave as their LHS predicted they would were less desirable. As expected, those men with a fast LHS who displayed specific mate-seeking behaviour (i.e., low generalised behaviour) and those with a slow LHS who displayed generalised seeking behaviour (i.e., low specific behaviour) were less desirable. As previously mentioned, men with a fast LH that did not actively display specific or generalized mating display behaviour in a chatroom (i.e., he displays high interactivity but low general or specific addresses), he was likely to be presenting unnecessary and inappropriate behaviour in an attempt to gain desirability. The current data suggest that this behaviour either fails to successfully attract the attention of participants, or may attract their attention but due to their incongruous nature may decrease his desirability

The latter results, regarding behaviour inconsistent with LHS, were expected because LHT predicts that in order to be successful (in this case, desirable) in a short-term anonymous online environment, men with a fast LHS need to take advantage of possible mating opportunities when they present themselves (Bereczkei & Csanaky, 2001). Fast LH men would maximize their potential mating opportunities by approaching women in order to capture their attention. Mating strategies theory predicts that when a male approaches a group of women it creates a sense of intra-sexual competition among these women (Buss & Schmitt, 1993; Piazza & Bering, 2009). Thus, when these women then receive the attention from the male participant they infer that this is an indicator that he is possibly willing to invest significant temporal resources in any future relationship he will form with them.

The temporal resources that men with a fast LHS display in a short-term online environment may compensate for physical resources that they may lack in the real world (i.e., these individuals may take advantage of the ability to engage in preferred mating tactics in order to enhance an aspect of the self that is deficient; Toma & Hancock, 2010). Hence, fast LHS men may benefit from deceptive displays, even if it is to gain initial desirability among women online. However, the current findings show that a when men do not behave in ways which are consistent with their LHS, whether this be due to a man's change in tactics and an alteration of his self-presentation, this inconsistency may not yield the desired results among the female participants.

The theory of parental investment (Trivers, 1972) may explain why women have become keen detectors of deception in potential male partners. Women have higher reproductive costs in mating in comparison to men, in terms of both biological and parental investment. Hence, for a women to enjoy reproductive benefits, she must be able to engage in careful mate selection and select a mate that will remain with her, protect her, and provide resources for her and their offspring (Buss, 2006; Trivers, 1972). Thus, in terms of evolutionary success, women not only need to acquire a mate who is willing to invest in her and their offspring, but also needs to have a well-tuned ability to recognize lie detection. Women may be placed in a detrimental position if they copulate with a well-resourced but non-committal man who may then invest resources in other women. Hence, women who can detect the truthfulness of a man's behaviour and his intentions have a reproductive advantage over women who are oblivious to a man's willingness or unwillingness to invest (Buss, 1995; Johnson et al., 2004).

Men may change their mating tactics in the online chatroom to practice what is deemed more desirable among female participants by the responses they receive. However, some desirable qualities are difficult to portray deceptively, and thus a man changing tactics and attempting to use different sexual displays may be highly detrimental. For example, a participant wanting to appear more intelligent may have difficulty, if this is not a natural quality he possesses (Bale et al., 2006; Miller, 2011)

Women's desirability among men. I hypothesized that women that behaved in accordance to their LHS would be desirable among the male participants. The data showed that a women's desirability with men was predicted by whether or not she sexually displayed to specific men in the chatroom. As previously discussed, a women's interaction with male participants was predicted by her LHS, such that fast LHS women made more male-specific addresses in comparison to slow LHS women. Fast LHS women may therefore have been more popular among male participants as they made more male-specific addresses. Perhaps as these women signalled that they too engage in short-term mating strategies, their desirability among the male participants increased. In a short-term environment in which an individual men only had an hour in which to attract members of the opposite sex, women who showed an orientation toward short-term mating strategies would be seen as popular as they may be perceived as more accessible (Wade, 2009).

When men receive attention from women within the chat room, the men may infer this display to signal sexual interest, rather than plutonic conversation. By inferring this in every interaction, men make themselves readily available to multiple women simultaneously, thus increasing their mating potential with any of the prospective women. Thus to men, the costs of a missed sexual opportunity are greater than the cost of minimal time or effort in inferring sexual interest, even if this inference is incorrect. Therefore in light of error management theory, and more specifically sexual over-perception theory, this may account for why specific addresses on the women's part were the single factor for her desirability among male chatters (Haselton & Buss, 2000; Haselton, 2003).

Same-Sex Popularity

I hypothesized that firstly, men who presented themselves as dominant or appeared desirable among women in the chatroom, would gain the most popularity, Secondly I hypothesized that women who appeared engaging and interacted with the group would gain popularity among the female participants. The hypothesis regarding both male and female popularity was confirmed.

Although the current data demonstrated a sex bias regarding women's preference for selecting other women for post-chat interaction, male participants did still engage with and select other men for possible future engagement. The chatroom may have provided an opportunity for participants to practice sexual displays and self-presentation strategies in a virtual environment free of consequence, but it may have also provided a space to develop same-sex friendships (Valkenburg, Schouten, & Peter, 2005).

From a psychological perspective, the ability to form and maintain friendships with individuals outside of one's family is an important aspect of mental and physical wellbeing (Hartup, 1996). In light of evolutionary theory, same-sex friendship development is based upon reciprocal altruism theory (Trivers, 1971), which posits that each individual makes an investment into friendship and in turn benefits in some way (Hall, 2011). The benefits of developing same-sex friendships can be seen as two-fold. The first benefit is described as interpersonal closeness (also referred to as *communion* in the literature), which develops feelings of closeness, intimacy, and connection within the friendship. The second benefit is that of individuation (also referred to as *agency* in the literature), which facilitates self-expansion, determination, and power or ascendance by virtue of the individual being in an alliance with another (Zarbatany, Conley, & Pepper, 2004). Although the literature on interpersonal benefits of same-sex friendship is extensive, and has been demonstrated to be important in both men and women, the literature regarding individuation is limited (Hall, 2011; Zarbatany et al., 2004).

Individuation may promote power and ascendance, as friendships with strategic individuals may allow access to wider social networks and increased visibility among peers (Baumeister & Sommer, 1997). Further, friendships, which facilitate individuation or agency, also promote an individual's feelings of self-worth through acceptance. Previous research demonstrates that there are few sex differences in male versus female same-sex friendships, as both men and women value interpersonal closeness and individuation within friendship. This may account for why being active in the chat and engaging with the group were the only significant predictors of male and female same-sex popularity within the chat room. By making themselves visible and engaging with the group, popular individuals may have signalled that they are willing and open to meet others and to share and engage with the group.

However, friendship formation is not a homogenous experience, and differs according to the motivations of the individual seeking friends (Zarbatany et al., 2004). Hence, I propose that the initiation of friendships in the chat room, within a limited space of time, had differing underlying motivations for men and women. These motivations may be grounded within evolutionary theories of reciprocal altruism and sexual strategies theory.

Much like the process in which an individual finds a mate, friendship formation requires an individual to express social behaviours that signal why they would make a reciprocating and beneficial social partner in which to engage with as a friend (Vigil, 2007; Zarbatany et al., 2004). Hence, both men and women would try to display qualities which would appear attractive to both same- and opposite-sex individuals, such as cultural capital, status, humour and intelligence (Buss & Schmitt, 1993; Miller, 2011).

Because women are less likely to use the chat space for sexual motives, they would engage more frequently with other women in the chat room, and establish common interests and develop trust (Piazza & Bering, 2009). This underlying motivation for closeness and friendship may be the reason why women select other women for post-chat interaction more frequently than they select men. However, because men are more likely to be sexually motivated within the chat room, they took the opportunity to meet members of the opposite sex. A male participant's motivation for friendship may be to establish common interests among the other men but also to align himself with males in the chat room who increase his social prominence and status, thus aiding his attractiveness with the female participants. This may be particularly true for those men who feel they are unable to compete for women within the chat room, and wish to bolster their attractiveness by relying on another man's social prominence, thus basking in another man's glory (Cialdini et al., 1976).

Theories of parental investment and intra-sexual competition posit that men compete against one another, in a number of ways including through display of physical dominance, to win favour with potential female mates (Hawley, Little, & Card, 2008). By displaying favourable aspects of himself, a man can demonstrate to a women that he is also a good choice in terms of mating as he possesses resources and social capital. Through these competitive displays, men also develop a hierarchy among one another (Geary, Byrd-Craven, Hoard, Vigil, & Numtee, 2003). However, in a space such as the online chat room, traditional means of developing male hierarchy, such as athletic competition, physical, or verbal dominance displays (Kolbert & Crothers, 2003), cannot be achieved. Hence, alternative implicit hierarchy development may occur. Men who are highly visible and engaging with the group, as well as with individual women, may appear as more dominant in the online space, in comparison to quieter, less interactive men. Although I acknowledge that some males may not have wished to engage in the chat room, and were thus not visible within the online space interaction, it is the only way in which to make oneself competitive in that environment. Men who did wish to make themselves competitive, but who perhaps did not have the same ability to engage with female participants and the group, may have made attempts to gain social status by befriending a male participant who appeared dominant.

The extant literature supports this proposition: Young men, more than young women, have been found to boast about their achievements in social settings in order to gain social prominence among their peers (Baumeister & Sommer, 1997). In the virtual space, where all interactions are text-based, interactivity and self-presentation are the only ways in which men could gain dominance.

Relative Deprivation and LHS as Predictors of Technology Use to Meet New People

I hypothesized that individuals who feel relatively deprived or who perceive themselves as inadequate (financially or socially) in relation to their peers, will make use of online platforms (e.g., Mxit, other social networking sites) more than individuals who do not experience such relative deprivation. I further predicted that both relative deprivation and LHS would be important factors in understanding which individuals make use of online platforms to meet new people. The hypotheses were both confirmed and the notion of relative deprivation was found to be a significant proximal predictive mechanism alongside LHS, a more distal predictive mechanism in predicting the use of online platforms.

An individual's sexual strategies are based upon an individual's collective experience throughout childhood and adolescence. Therefore, sexual strategies essentially evolve in response to experiences within the environment. In order to thrive in a particular environment, an individual must remain competitive in relation to his/her peers; to do so, he/she must accumulate and retain valuable resources (Buss, 1988). This need to remain competitive requires an individual to constantly monitor his/her behaviour in relation to the environmental context. I hypothesized that the notion of relative deprivation was one way in which to capture an individual's current self-assessment of his/her competitive ability among his/her peers. If an individual considered himself or herself relatively deprived in relation to his/her peers, this in evolutionary terms may be conceptualized as a current self-perception of low mate value.

I propose, in line with previous literature on environmental conditions shaping LHS, that the subjective perception of one's position within the current environmental context (proximal influence) is important in understanding distal mechanisms of behaviour, such as an individual's LHS (Belsky et al., 1991) The subjective experience, such as the self-report of Relative Deprivation, may be as important as the objective environmental context and thus give additional insight into the overall understanding of sexual strategies and the ways in which they manifest.

Implicit psychological mechanisms, such as feelings of relative deprivation, steer behaviour and shape the way in which different mating tactics may be used (Bereczkei & Csanaky, 2001). The current data showed that men on average spend a fair amount of time meeting new people online. In light of previous discussions, it may be fair to assume that men, being more oriented toward sexual engagement, may use this time online to meet members of the opposite sex (Cooper, Morahan-Martin, Mathy, & Maheu, 2002). Further, I predicted that fast LHS men may spend the most amount of time using online media to meet women, as these social networking platforms allow fast LH strategists access to a wider pool of potential mates, as well as platforms geared toward short term mating (such as sexually orientated chat rooms) and the ability to use compensatory tactics.

However, the current data showed that the use of online media may be partially determined by the individual men's perception of his relative deprivation. Fast LHS men who did not perceive themselves as relatively deprived (perhaps because they perceived themselves as having high mate value) were only spending minimal amounts of time online meeting others as they remain confident in their ability to compete within their peer group, and thus use their time in offline reality, rather than online, to meet new individuals. Thus, although fast LHS men may not have qualities a female might find preferable, men without feelings of relative deprivation believe they remain competitive in offline reality. Men who reported experiencing relative deprivation spent much more time online meeting others, as their self-perception of low mate value might hinder their ability to compete in an offline reality.

Research has shown that intrasexual competition among men largely revolves around resource possession and display (Buss, 1988). Males who experience feelings of relative deprivation, regardless of their LHS, may use online media to meet new individuals because they feel they are not competitive in terms of financial and social capital in the offline environment.

The current findings, which are consistent with previous cyberpsychological literature, demonstrate that women, in contrast to men, have more varied motives in their online engagements with others. The current data showed that in terms of same-sex popularity, a significant same sex bias in post chat selection among women but not men, was found. Thus, women do not only seek out potential mates, but also use online platforms to meet and befriend other women (Cooper et al., 2002). This difference in the usage of online platforms among men and women, may account for why slow LHS women with feelings of relative deprivation appear to spend a large proportion of their time online. Slow LHS women, who are orientated toward long-term mating strategies, may spend time online recreationally and developing same-sex friends with common interests, and may not necessarily allocate this time to mating effort. They may also use their time online to develop close and intimate relationships with a preferred man online, or make use of social networks to meet friends and bolster self-esteem (Piazza & Bering, 2009).

In contrast, fast LHS women who experienced feelings of relative deprivation spent minimal time online meeting new people. This pattern of data might be accounted for by the fact that fast LHS women face different environmental pressures and are more likely to engage in short-term mating strategies. Thus, these women may have a low self-perceived mate value, but they are more orientated toward placing their reproductive effort into mating, rather than building trust and intimacy, which online platforms may facilitate. The environmental constraints and biological pressures placed upon these fast LHS women, may partially orientate these women toward offline sexual engagements, as the investment is potentially more feasible. For example, these fast LHS women can accumulate access to tangible resources and protection by having short-term sexual engagements with men in the offline reality (Greiling & Buss, 2000). Further, these women may also be able to pursue a potential mate in less time if they are able to show off her physical qualities. Therefore, fast LHS women with feelings of relative deprivation may place their mating effort in meeting new men in offline reality, rather than in the virtual world.

Fast LHS women may pursue a short-term mating strategy with real-world individuals to bolster their self-perception and self-esteem, which may result in better mating decisions (Greiling & Buss, 2000; Thornhill, 1992). Or, the self-perception of being deprived in relation to one's peers may propel young women to engage in short-term mating strategies in an effort to develop their skills in attraction and seduction through short-term mating strategies with men in offline reality.

The increase in mate-seeking behaviour reported among fast LHS women, in comparison to slow LHS women, who feel relatively deprived was also found when women were asked to interact online as a part of their participation in the current study. Results showed that higher feelings of relative deprivation were associated with more specific addresses to men in the chat room.

Limitations and Directions for Future Research

A limitation of the current study was the lack of specificity in designing a few of the initial screening items. For example, when asking participants about the amount of time they spent online meeting new people, I did not ask them to specify whether those people were men or women. Hence, the conclusions drawn regarding the types of interactions that participants may be having online are made with caution. Although these conclusions have been drawn in light of a large body of previous work, future research should specify same-sex versus opposite-sex interactions when examining the amount of time individuals spend online meeting new people. By ensuring that questions around online behaviour are sex-specific, more comprehensive conclusions may be drawn regarding the amount and quality of mating effort that is being placed into virtual versus real-world interactions.

Another potential limitation of the current study is that the screening item regarding relationship status was only administered to a portion of the sample (37 of 91 participants answered the question). In future research, researchers should control for participant's relationship status. Although an individual's LHS should be relatively consistent across different developmental stages, sexual strategies theory states that an individual's LHS is likely to vary according to the environment and mating context in which his/her resources will be displayed. The virtual world is often perceived as an environment free of consequences, where individuals may engage without constraints (Suler, 2004). However, individuals who are in monogamous long-term relationships may behave in a more sexually constrained manner. Although there is much research showing that individuals in long-term relationships engage in online affairs and in online sexual activity outside of his/her main relationship (Hertlein & Piercy, 2006; Underwood & Findlay, 2004; Whitty, 2005; Young, Griffin-Shelley, Cooper, O'Mara, & Buchanan, 2000), this concept of online sexual infidelity needs to be explored further within the current theoretical framework.

In future research, it may also be informative to include a full measure of participants' current and previous socioeconomic status. The current study used measures of relative deprivation and Life History Strategy rather than examining SES directly. However, information about previous and current SES may yield important insights regarding individuals' dynamic life history strategies, and the ways in which their use of online media changes over time and with SES variations.

Finally, the current study measured the construct of LHS in male and female participants from a university sample. According to LHT, individuals who attend university are those who are currently investing in somatic effort (Brumbach et al., 2009), and who are thus more oriented toward a slow LHS. Therefore, although a sample drawn from the population of South African university-going individuals is likely to come from a diverse set of backgrounds, our sample's Mini-K scores are still likely to be positively skewed. This limitation should be addressed in future research by obtaining data from a larger and more diverse sample of individuals from outside of a tertiary education institution.

Summary and Conclusion

This study yielded valuable data helping reconcile distal psychological mechanisms with well-documented proximal behaviour in the online environment. Hence, the study demonstrates that the evolutionary psychology perspective provides a complementary view to social psychological explanations of Internet-based behaviour. Similarly, behaviour documented in the online chatrooms supported a wide range of theoretical ideas drawn from the evolutionary psychology literature. Thus, these findings support the idea that the patterns of behaviour described here are innate and not conscious to the individual, and thus remain evident across various contexts. Although the context of online behaviour may differ from real-life interactions in many ways, the same patterns of evolved behaviour emerge as they rely upon the same psychological mechanisms.

One particularly valuable aspect of the current research is that it goes beyond the descriptive and allows for predictions to be made regarding the online behaviour of men and women in light of sociodemographic and life history profiles. Further, with the use of a novel methodological approach and quasi-experimental design, the online environment has been shown to complement and aid the theoretical development of evolutionary psychology theory by providing a pure environment in which to examine human interaction and behaviour. This departure from correlation-based research has allowed the current data to contribute to the long-established history and documentation of not only Life History Theory, but also of broader mating strategy theories.

References

Appelgryn, A. E. M., & Bornman, E. (1996). Relative deprivation in contemporary South Africa. *The Journal of Social Psychology, 136*, 381–397.

Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionarily relevant aspects of human mating psychology. *Journal of Personality and Social Psychology*, *66*, 1081–1093.

Bale, C., Morrison, R., & Caryl, P. G. (2006). Chat-up lines as male sexual displays. *Personality and Individual Differences, 40*, 655–664.

Baumeister, R. F., & Sommer, K. L. (1997). What do men want? Gender differences and two spheres of belongingness: Comment on Cross and Madson (1997). *Psychological Bulletin, 122*, 38–44.

Belsky, Jay, Steinberg, L., & Draper, P. (1991). Childhood Experience, Interpersonal Development, and Reproductive Strategy: An Evolutionary Theory of Socialization. *Child Development, 62*, 647–670.

Bereczkei, T., & Csanaky, A. (2001). Stressful family environment, mortality, and child socialisation: Life-history strategies among adolescents and adults from unfavourable social circumstances. *International Journal of Behavioral Development, 25*, 501–508.

Bessière, K., Kiesler, S., Kraut, R., & Boneva, B. S. (2008). Effects of internet use and social resources on changes in depression. *Information, Communication & Society, 11*, 47–70.

Bolding, G., Davis, M., Hart, G., Sherr, L., & Elford, J. (2006). Heterosexual men and women who seek sex through the Internet. *International Journal of STD & AIDS, 17*, 530–534.

Bosch, T. (2008). *Wots ur ASLR? Adolescent girls' use of cellphones in Cape Town. In Emerge 2008*. Cape Town, South Africa. Available from http://emerge2008.net/presentation/item.php?item=connecting%20communities/Use%20of%20cellphones

Brumbach, B. H., Figueredo, A. J., & Ellis, B. J. (2009). Effects of harsh and unpredictable environments in adolescence on development of life history strategies. *Human Nature, 20*, 25–51.

Buss, D. M. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic books.

Buss, D. M. (1995). Psychological sex differences: Origins through sexual selection. *American Psychologist, 50*, 164-168.

Buss, D. M. (2006). Strategies of human mating. *Psihologijske teme, 15*, 239–260.

Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: an evolutionary perspective on human mating. *Psychological review, 100*, 204.

Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary psychological perspective. *Clinical Psychology Review, 17*, 605–619.

Buss, D. M. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology, 54,* 616–628.

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*(01), 1–14.

Cantril, H. (1965). *The pattern of human concerns (Vol. 4).* Cambridge University Press.

Caplan, S. E. (2003). Preference for online social interaction. *Communication research, 30,* 625.

Chigona, A., & Chigona, W. (2008). MXit up in the media: media discourse analysis on a mobile instant messaging system. *Southern African journal of information and communication, 9,* 42-57.

Chigona, W., Chigona, A., Ngqokelela, B., & Mpofu, S. (2009). MXIT: Uses, perceptions and self-justifications. *Journal of Information, Information Technology, and Organizations, 4*, 1–16.

Chigona, W., Kankwenda, G., & Manjoo, S. (2008, July). The uses and gratifications of mobile internet among the South African students. In PICMET 2008: *Portland*

International Conference on Management of Engineering & Technology, 2008, (pp. 2197-2207).

Chiou, W. B. (2007). Adolescents' Reply Intent for Sexual Disclosure in Cyberspace: Gender Differences and Effects of Anonymity and Topic Intimacy. *CyberPsychology & Behavior, 10,* 725–728.

Chisholm, J. S., Ellison, P. T., Evans, J., Lee, P. C., Lieberman, L. S., Pavlik, Z., … Worthman, C. M. (1993). Death, Hope, and Sex: Life-History Theory and the Development of Reproductive Strategies [and Comments and Reply]. *Current Anthropology, 34,* 1–24.

Chou, C. (2000). Internet addiction, usage, gratification, and pleasure experience: the Taiwan college students' case. *Computers & Education, 35*, 65.

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology, 34*, 366–375.

Cole, L. C. (1954). The population consequences of life history phenomena. *The Quarterly Review of Biology*, *29*, 103–137.

Connolly, J., Furman, W., & Konarski, R. (2000). The Role of Peers in the Emergence of Heterosexual Romantic Relationships in Adolescence. *Child Development*, *71*, 1395–1408.

Cooper, A., Scherer, C. R., Boies, S. C., & Gordon, B. L. (1999). Sexuality on the Internet: From sexual exploration to pathological expression. *Professional Psychology: Research and Practice, 30*, 154.

Cooper, A, Morahan-Martin, J., Mathy, R. M., & Maheu, M. (2002). Toward an Increased Understanding of User Demographics in Online Sexual Activities. *Journal of Sex & Marital Therapy, 28*, 105–129.

Cooper, M., O'Donnell, D., Caryl, P. G., Morrison, R., & Bale, C. (2007). Chat-up lines as male displays: Effects of content, sex, and personality. *Personality and individual differences*, *43*, 1075–1085.

Crawford, C. B., & Anderson, J. L. (1989). Sociobiology: An environmentalist discipline? *American Psychologist*, *44*, 1449–1459.

Crosby, F. (1976). A model of egoistical relative deprivation. *Psychological Review, 83*, 85.

Dambrun, M., Taylor, D. M., McDonald, D. A., Crush, J., & Méot, A. (2006). The relative deprivation-gratification continuum and the attitudes of South Africans toward immigrants: A test of the V-curve hypothesis. *Journal of Personality and Social Psychology, 91*, 1032–1044.

Darwin, C. (1859). *The origin of the species.* London: Murray.

De La Rey, C., & Raju, P. (1996). Group relative deprivation: Cognitive versus affective components and protest orientation among Indian South Africans. *The Journal of social psychology, 136*, 579–588.

Donner, J., & Gitau, S. (2009). *New paths: exploring mobile-centric internet use in South Africa*. In Pre-Conference on Mobile Communication at the Annual Meeting of the International Communication Association, Chicago.

Döring, N. (2002). Personal Home Pages on the Web: A Review of Research. *Journal of Computer-Mediated Communication*, *7*, 0–0.

Dunkel, C. S., Mathes, E., & Decker, M. (2010). Behavioral flexibility in life history strategies: The role of life expectancy. *Journal of Social, Evolutionary and Cultural Psychology, 4*, 51–61.

Dunkel, Curtis S., & Decker, M. (2010). Convergent validity of measures of life-history strategy. *Personality and Individual Differences, 48,* 681–684.

Ehrenberg, A., Juckes, S., White, K. M., & Walsh, S. P. (2008). Personality and self-esteem as predictors of young people’s technology use. *CyberPsychology & Behavior*, *11*, 739–741.

Ellis, B. J., Figueredo, A. J., Brumbach, B. H., & Schlomer, G. L. (2009). Fundamental dimensions of environmental risk. *Human Nature, 20*, 204–268.

Ellis, B. J. (2004). Timing of Pubertal Maturation in Girls: An Integrated Life History Approach. *Psychological Bulletin, 130*, 920–958. doi:10.1037/0033-2909.130.6.920

Ellis, B. J., & Essex, M. J. (2007). Family Environments, Adrenarche, and Sexual Maturation: A Longitudinal Test of a Life History Model. *Child Development*, *78*, 1799–1817.

Ellis, B. J., & Symons, D. (1990). Sex Differences in Sexual Fantasy: An Evolutionary Psychological Approach. *The Journal of Sex Research*, *27*, 527–555.

Erceg-Hurn, D. M., & Mirosevich, V. M. (2008). Modern robust statistical methods: an easy way to maximize the accuracy and power of your research. *American Psychologist*, *63*, 591.

Feingold, A. (1992). Gender differences in mate selection preferences: A test of the parental investment model. *Psychological Bulletin*, *112*, 125–139.

Field, A. P. (2009). *Discovering Statistics Using SPSS*. SAGE Publications Ltd.

Figueredo, A. J., Vásquez, G., Brumbach, B. H., & Schneider, S. M. R. (2007). The K-factor, covitality, and personality. *Human Nature, 18*, 47–73.

Figueredo, A. J., Vásquez, G., Brumbach, B. H., Schneider, S. M. R., Sefcek, J. A., Tal, I. R., … Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review, 26*, 243–275.

Figueredo, A. J., Wolf, P., Olderbak, S. G., Gladden, P., & Jacobs, W. J. (2011). *A meta-analytic validation of the Mini-K short form of the Arizona Life History Battery.* In preperation.

Figueredo, Aurelio José, Vásquez, G., Brumbach, B. H., & Schneider, S. M. R. (2004). The heritability of life history strategy: The k-   factor, covitality, and personality. *Biodemography and Social Biology*, *51*, 121–143.

Flanagin, A. J., Tiyaamornwong, V., O'Connor, J., & Seibold, D. R. (2002). Computer-mediated group work: *The interaction of sex and anonymity. Communication Research, 29*, 66–93.

Geary, D. C., Byrd-Craven, J., Hoard, M. K., Vigil, J., & Numtee, C. (2003). Evolution and development of boys' social behavior. *Developmental Review, 23*, 444–470.

Giosan, C. (2006). High-K strategy scale: A measure of the high-K independent criterion of fitness. *Evolutionary Psychology, 4,* 394–405.

Gladden, P. R., Figueredo, A. J., & Snyder, B. (2010). Life History strategy and Evaluative Self-Assessment. *Personality and Individual Differences, 48*, 731–735.

Greiling, H., & Buss, D. M. (2000). Women's sexual strategies: The hidden dimension of extra-pair mating. *Personality and individual Differences, 28*, 929–963.

Griskevicius, V., Delton, A. W., Robertson, T. E., & Tybur, J. M. (2011). Environmental contingency in life history strategies: The influence of mortality and socioeconomic status on reproductive timing. *Journal of Personality and Social Psychology, 100*, 241.

Gross, E. F. (2009). Logging on, bouncing back: An experimental investigation of online communication following social exclusion. *Developmental psychology, 45,* 1787.

Hall, J. A. (2011). Sex differences in friendship expectations: A meta-analysis. *Journal of Social and Personal Relationships, 28,* 723–747.

Harter, S. (2003). The development of self-representations during childhood and adolescence. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self and Identity* (pp. 610–642). New York, NY, US: Guilford Press.

Hartup, W. W. (1996). The Company They Keep: Friendships and Their Developmental Significance. *Child Development, 67*, 1–13.

Haselton, M. G. (2003). The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events. *Journal of Research in Personality, 37*, 34–47.

Haselton, M. G., & Buss, D. M. (2000). Error management theory: a new perspective on biases in cross-sex mind reading. *Journal of personality and social psychology, 78,* 81.

Hawley, P. H., Little, T. D., & Card, N. A. (2008). The myth of the alpha male: A new look at dominance-related beliefs and behaviors among adolescent males and females. *International Journal of Behavioral Development, 32,* 76–88.

Hertlein, K. M., & Piercy, F. P. (2006). Internet infidelity: A critical review of the literature. *The Family Journal*, *14*, 366–371.

Hodge, J. (2005). Tariff structures and access substitution of mobile cellular for fixed line in South Africa. *Telecommunications policy, 29,* 493.

James, J., Ellis, B. J., Schlomer, G. L., & Garber, J. (2012). Sex-specific pathways to early puberty, sexual debut, and sexual risk taking: Tests of an integrated evolutionary–developmental model. *Developmental Psychology, 48,* 687–702.

Johnson, A. K., Barnacz, A., Constantino, P., Triano, J., Shackelford, T. K., & Keenan, J. P. (2004). Female deception detection as a function of commitment and self-awareness. *Personality and Individual Differences, 37*, 1417–1424.

Joinson, A. N. (2003). Understanding the psychology of internet behaviour. Virtual worlds, real lives. *Revista iberoamericana de educación a distancia, 6*, 190.

Joinson, A. N. (2004). Self-esteem, interpersonal risk, and preference for e-mail to face-to-face communication. *CyberPsychology & Behavior*, *7*, 472–478.

Jonason, P. K., Koenig, B. L., & Tost, J. (2010). Living a Fast Life. *Human Nature, 21,* 428–442.

Kaplan, H. S., & Gangestad, S. W. (2005). Life history theory and evolutionary psychology. In D. M. Buss (Ed.). *The handbook of evolutionary psychology* (pp. 68–95). New York: Wiley.

Kenrick, D. T., Groth, G. E., Trost, M. R., & Sadalla, E. K. (1993). Integrating evolutionary and social exchange perspectives on relationships: Effects of gender, self-appraisal, and involvement level on mate selection criteria. *Journal of Personality and Social Psychology*, *64*, 951–969.

Kenrick, D. T., Sadalla, E. K., & Keefe, R. C. (1998). Evolutionary cognitive psychology: The missing heart of modern cognitive science. In C. B. Crawford & D. L. Krebs (Eds.), *Handbook of Evolutionary Psychology: Ideas, Issues, and Applications* (pp. 485–514). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Kolbert, J. B., & Crothers, L. M. (2003). Bullying and Evolutionary Psychology. *Journal of School Violence*, *2*, 73–91.

Kreutzer, T. (2009). *Generation mobile: online and digital media usage on mobile phones among low-income urban youth in South Africa*. University of Cape Town, South Africa.

Lam, L. T., Peng, Z., Mai, J., & Jing, J. (2009). Factors associated with Internet addiction among adolescents. *CyberPsychology & Behavior, 12,* 551–555.

Landolt, M. A., Lalumière, M. L., & Quinsey, V. L. (1995). Sex differences in intra-sex variations in human mating tactics: An evolutionary approach. *Ethology and Sociobiology, 16,* 3–23.

Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behavior*. Brown & Benchmark Publishers.

Leiblum, S. R. (2001). Women, sex and the internet. *Sexual and Relationship Therapy, 16,*

Lottes, I. L. (1993). Nontraditional gender roles and the sexual experiences of heterosexual college students. *Sex Roles, 29,* 645–669.

Magnuson, K. A., & Duncan, G. J. (2006). The role of family socioeconomic resources in the black–white test score gap among young children. *Developmental Review*, *26,* 365–399.

Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology, 29,* 446–458.

Miller, G. (2011). *The mating mind: How sexual choice shaped the evolution of human nature.* London: Heinemann.

Morahan-Martin, J., & Schumacher, P. (2003). Loneliness and social uses of the Internet. *Computers in Human Behavior*, *19*, 659–671.

Myer, L., Ehrlich, R. I., & Susser, E. S. (2004). Social epidemiology in South Africa. *Epidemiologic reviews*, *26*, 112–123.

Myer, L., Stein, D. J., Grimsrud, A., Seedat, S., & Williams, D. R. (2008). Social determinants of psychological distress in a nationally-representative sample of South African adults. *Social Science & Medicine, 66,* 1828–1840.

Napolitano, C. M. (2010). ‘MXing it up’: How African adolescents may affect social change through mobile phone use. *New Directions for Youth Development*, *2010*, 105–113.

Olderbak, S., & Figueredo, A. J. (2012). Shared Life History Strategy as a Strong Predictor of Romantic Relationship Satisfaction. *Journal of Social, evolutionary, and cultural psychology, 6*, 111.

Papacharissi, Z., & Rubin, A. M. (2000). Predictors of Internet use. *Journal of Broadcasting & Electronic Media, 44,* 175–196.

Peter, J., Valkenburg, P. M., & Schouten, A. P. (2006). Characteristics and motives of adolescents talking with strangers on the Internet. *CyberPsychology & Behavior, 9,* 526–530.

Peter, Jochen, Valkenburg, P. M., & Schouten, A. P. (2005). Developing a Model of Adolescent Friendship Formation on the Internet. *CyberPsychology & Behavior, 8,* 423–430.

Piazza, J., & Bering, J. M. (2009). Evolutionary cyber-psychology: Applying an evolutionary framework to Internet behavior. *Computers in Human Behavior, 25,* 1258–1269.

Postmes, T., & Spears, R. (2002). Behavior online: Does anonymous computer communication reduce gender inequality? *Personality and Social Psychology Bulletin*, *28*, 1073–1083.

Roberts, B. (2009). Taking in class: Subjective identification in South Africa. *Human Sciences Research Council Review, 7.*

Runciman, W. G. (1966). *Relative deprivation and social justice: a study of attitudes to social inequality in twentieth-century England*. Berkley: University of California Press

Schlenker, B. R., & Pontari, B. A. (2000). The strategic control of information: Impression management and self-presentation in daily life. In A. Tesser, R. B. Felson, & J. M. Suls (Eds.), *Psychological Perspectives on Self and Identity* (pp. 199–232). Washington, DC, US: American Psychological Association.

Schouten, A. P. (2007).Adolescents' online self-disclosure and self-presentation. Doctoral dissertation, University of Amersterdam, Retrieved on March 22, 2010. Available from http://users.fmg.uva.nl/aschouten/thesis_aschouten.pdf.

Sefcek, J. A., & Figueredo, A. J. (2010). A Life-History Model of Human Fitness Indicators. *Biodemography & Social Biology*, *56*(1), 42–66.

Seiffge-Krenke, I. (2003). Testing theories of romantic development from adolescence to young adulthood: Evidence of a developmental sequence. *International Journal of Behavioral Development, 27*, 519.

Smahel, D., & Subrahmanyam, K. (2007). 'Any Girls Want to Chat Press 911': Partner Selection in Monitored and Unmonitored Teen Chat Rooms. *CyberPsychology & Behavior, 10*, 346–353.

Subrahmanyam, K., & Greenfield, P. M. (2008). Communicating online: Adolescent relationships and the media. *The Future of Children: Children and Media Technology, 18,* 119–146.

Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, *29*, 420–433.

Subrahmanyam, K., Smahel, D., & Greenfield, P. (2006). Connecting developmental constructions to the Internet: Identity presentation and sexual exploration in online teen chat rooms. *Developmental Psychology, 42*, 395.

Subrahmanyam, K., Greenfield, P. M., & Tynes, B. (2004). Constructing sexuality and identity in an online teen chat room. *Journal of Applied Developmental Psychology, 25*, 651–666.

Suler, J. (2004). The online disinhibition effect. *CyberPsychology & Behavior, 7*, 321–326.

Swanepoel, T. L., & Thomas, K. G. F. (2012). Malicious MXit? South African adolescents' use of mobile-based communication applications. *Journal of Child & Adolescent Mental Health, 24,* 117–132.

Symons, D. (1979). *The Evolution of Human Sexuality*. New York: Oxford University Press.

Thornhill, N. W. (1992). Female short-term sexual strategies: the self-esteem hypothesis. *Human Behavior and Evolution Society*, Albuquerque, New Mexico.

Trivers, R.L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871 - 1971* (pp. 136-179). Chicago: Aldine.

Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly review of biology*, 35–57.

Turkle, S. (1997). *Life on the Screen: Identity in the Age of the Internet* (1st Touchstone ed.). New York: Simon & Schuster.

Underwood, H., & Findlay, B. (2004). Internet relationships and their impact on primary relationships. *Behaviour Change*, *21*, 127–140.

UNICEF, (2011). *From 'What's your ASLR' to 'Do You Wanna Go Private?'* (p. 32). UNICEF. Available from http://www.unicef.org/southafrica/resources_9714.html

Valkenburg, P. M, Schouten, A. P., & Peter, J. (2005). Adolescents' identity experiments on the Internet. *New Media & Society*, *7*, 383.

Valkenburg, P. M., & Peter, J. (2008). Adolescents' Identity Experiments on the Internet Consequences for Social Competence and Self-Concept Unity. *Communication Research*, *35*, 208–231.

Valkenburg, P. M., & Peter, J. (2007). Who Visits Online Dating Sites? Exploring Some Characteristics of Online Daters. *CyberPsychology & Behavior*, *10*, 849–852.

Valkenburg, P. M., & Peter, J. (2011). Online Communication Among Adolescents: An Integrated Model of Its Attraction, Opportunities, and Risks. *Journal of Adolescent Health*, *48*, 121–127.

Vigil, J. M. (2007). Asymmetries in the friendship preferences and social styles of men and women. *Human nature*, *18*, 143.

Wade, J. T. (2009). Women's direct opening lines are perceived as most effective. *Personality and Individual Differences*, *47*, 145.

Whitty, M. T. (2003). Cyber-Flirting Playing at Love on the Internet. *Theory & Psychology*, *13*, 339–357.

Whitty, M. T. (2004). Cyber-flirting: an examination of men's and women's flirting behaviour both offline and on the internet. *Behaviour Change*, *21,* 115 - 126

Whitty, M. T. (2005). The Realness of Cybercheating Men's and Women's Representations of Unfaithful Internet Relationships. *Social Science Computer Review, 23,* 57–67.

Young, K., Pistner, M., O'Mara, J., & Buchanan, J. (1999). Cyber disorders: the mental health concern for the new millennium. *CyberPsychology & Behavior, 2,* 475–479.

Young, K. S., Griffin-Shelley, E., Cooper, A., O'mara, J., & Buchanan, J. (2000). Online infidelity: A new dimension in couple relationships with implications for evaluation and treatment. *Sexual Addiction & Compulsivity: The Journal of Treatment and Prevention, 7*, 59–74.

Zarbatany, L., Conley, R., & Pepper, S. (2004). Personality and gender differences in friendship needs and experiences in preadolescence and young adulthood. *International Journal of Behavioral Development, 28,* 299–310.

Appendix A
Online Screening Measure

Hello!

This survey is part of a study that explores the use of social media in South Africa.

Thank you for participating. Your help is invaluable, and we appreciate it.

Please read the following page VERY carefully:

*1. INFORMED CONSENT

Please read the information below carefully regarding informed consent to participate in this study. At the end, please select whether or not you give your consent to participate. Thank you!

Dear Participant,

We are conducting research on the use of social media among young adults in South Africa. Please complete the questionnaires below, which shouldn't take you more than roughly 20 or 30 minutes. Your responses will be kept completely confidential so please reply as honestly as possible.

There are no right or wrong answers, so please respond honestly. You are first required to fill out some biographical details on the next page. Please note that we need your correct student number in order to award you course credit. All personal information will be kept separate from your survey responses, so that those survey responses remain completely confidential.

You will also be asked on the final page of the questionnaire if you would like to participate further, in the second phase of the research. If you respond YES, we require you to provide us with your name and contact details. These details will be used for the sole purpose of the research and will be confidential.

****NB****
If you are selected to participate in the second phase of the research, you will required to log onto a chat room with a chat name provided by the researcher. Once in the chat room, you will be asked to chat to the other students, with the aim of meeting new people and inviting another chatter to chat privately. You will be asked to keep a record (the chat name) of whom you wished to get to know further, and chatted privately with. To ensure the anonymity of all the participants, no personal details such as names will be discussed.

You will be asked to chat for a 1 hour chat sessions and will be awarded 2 SRPP points. You will also be entered into a prize draw to win a R500.00 Cavendish Gift Voucher. To be eligible for this prize draw you must complete the screening measure as well as participate in the chat room for the full hour.

I have read and understood the above:

- I agree to participate
- I do not agree to participate

***2. Student Number:**

5

6

3. What is the course code you would like your SRPP points to be allocated to?

5

6

4. Are you currently in an <u>exclusive</u> (monogamous) relationship?

- Yes
- No

***5. Sex:**

- Male
- Female

***6. What is your sexual orientation?**

- Heterosexual
- Homosexual
- Not sure

***7. Age:**

5

6

***8. Race:**

- Black
- Coloured
- Indian
- White
- Other

***9. Where did you spend most of your childhood and teenage years?**

(Area and
City/Town) E.g: Claremont, Cape Town

5

6

***10. What term best describes the neighborhood you live in?**

- Urban
- Suburban
- Township
- Intermediate

***11. How many people live(d) in your parental home?**

5

6

***12. Do you own a cell phone?**

- Yes
- No

***13. Are you familiar with Mxit?**

- Yes, I use Mxit and currently have it on my cell phone
- Yes, but I currently do not have Mxit on my cell phone
- No

***14. Do you access your email from your mobile phone?**

- Yes
- No

***15. Do you meet new people via social media, (such as Mxit, BBM, FaceBook, Google)?**

- Yes
- No

16. What proportion (or percentage) of your time on social media do you spend talking to friends you know in real life?

0% 100%

***17. What proportion (or percentage) of you time on social media do you spend meeting new people?**

0% 100%

***18. In South Africa, there remain vast differences in individual wealth and status.**

In the following question, wealth and status (social standing in relation to others) is represented on a 1-10 rating scale.

<u>Thehighertherating,themorewealthandsocialstatusonehas.</u>

	In Poverty with no status									Very Wealthy and have status
In terms of status and wealth, where do you feel your peers and fellow class mates are on the following rating scale?										
In terms of status and wealth, where do you feel you and your family are on the following rating scale?										
Where do you think you and your family SHOULD be on the rating scale?										

***19. The following section asks you to think about your ratings given in the previous section, and the feelings you may have about answers.**

***When you think about your peers and fellow class mates in relation to yourself and your family, do you feel:**

	Definitely No	No	Yes	Definitely Yes
Anger				
Frustration				
Satisfaction				
Helplessness				
Anxiety				

***20. When you think about your current position on the rating scale, and what you think you deserve, do you feel:**

	Definitely No	No	Yes	Definitely Yes
Anger				
Frustration				
Satisfaction				
Helplessness				
Anxiety				

*21. Please indicate how strongly you agree or disagree with the following statements.

For any item that does not apply to you, please select the "Not Applicable" option.

	Disagree Strongly	Disagree Somewhat	Disagree Slightly	Dont Know or Not Aplicable	Agree Slightly	Agree Somewhat	Agree Strongly
I can often tell how things will turn out.							
I try to understand how I got into a situation to figure out how to handle it.							
I often find the bright side to a bad situation.							
I dont give up until I solve my problems.							
I often make plans in advance.							
I avoid taking risks.							
While growing up, I had a close and warm relationship with my biological mother.							
While growing up, I had a close and warm relationship with my biological father.							
I have a close and warm relationship with my own children.							
I have a close and warm romantic relationship with my sexual partner.							
I would rather have one than several sexual relationships at a time.							
I have to be closely attached to someone before I am comfortable having sex with them.							
I am often in social contact with blood relatives.							
I often get emotional support and practical help from my blood relatives.							
I often give emotional support and practical help to my blood relatives.							
I am often in social contact with my friends.							

I often get emotional support and practical help from my friends.

I often give emotional support and practical help to my friends.

I am closely connected to and involved in my community.

I am closely connected to and involved in my religion.

***22. Great, you have now completed the 1st phase of the study. In the second phase, we will ask you to join a chat room on Mxit or a chat site named Chatzy and chat to other students.**

You will be given a simple task to complete while in the chat room. Those individuals who complete the second phase of the study successfully will be compensated with 2 SRPP points.

Youwillalsobeenteredintoaprizedrawtowin aR500giftvoucherforCavendish!

Would you like to participate in the chat room (Phase 2 of the study)?

Yes

No

***23. If you would like to participate in the second phase of the study, please provide us with the following contact details.**

Please ensure these details are correct, so that we may contact you if you are selected.

****These details will be kept confidential; they will only be used for the purposes of the current research study, and will not be shared with anyone outside of the research team.**

Name

Cell Number

Email Address

Appendix B

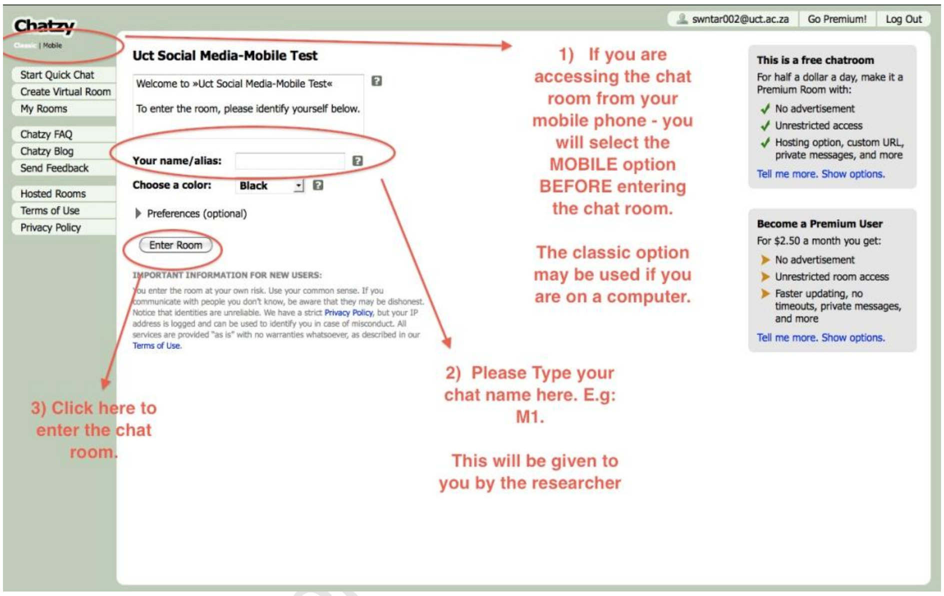
Instructions for Chatroom Session

Hi there, thank you again for participating in the chat room phase of the study. You will be rewarded with a further 2 SRPP points if you successfully complete this phase of the study on Social Media in South Africa.

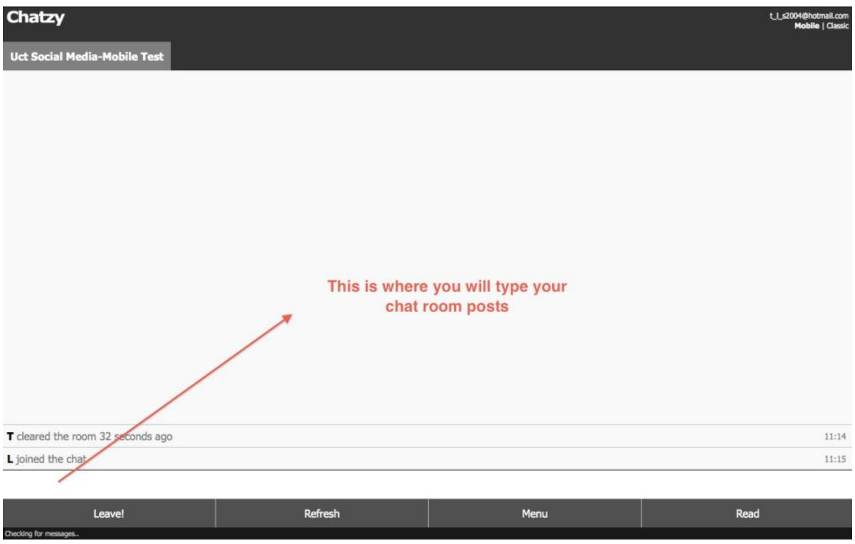
Below are some instructions to help you access the chat room and familiarize yourself with how it all works.

Firstly, you will make use of the link- http://www.chatzy.com/45464966109836 at the date and time given to you.

The link will open the following window:



If you select the MOBILE version of the chat room, your chat room will look like this:



If however, you are accessing the chat room from a computer, and keep your chat room on the CLASSIC version, the chat room will look like this:

Please remember to not give out ANY identifying information about yourself, even in private chat. We would like everyone participating in the study to remain ANONYMOUS.

Have fun, and feel free to express yourself. If you have any questions at all, or have difficulty accessing the chat room, please email Tarah:

Tswanepoel.uct@gmail.com

Appendix C
<Autobot> Generic Prompts

Prompt 1a:
<Autobot>:

Welcome to the second phase of the Social Media in South Africa study. Please note we want to **maintain STRICT anonymity**, at no time are you allowed to give your real name. We want you to be able to chat as freely as possible. Chat and have fun, and remember you are required to get to know <u>at least</u> one other chatter. Record the screen names of those you successfully chat with and email them to tswanepoel.uct@gmail.com

Prompt 1b:

<You are welcome to start, the time is not rigid, you are just required to chat for the hour in order to be awarded your SRPP points>

Prompt 2:

<Please Note: ASL = Age / Sex / Location>

Prompt 3:

<We apologize for the inability to chat privately, but as this is an anonymous space, please feel free to ask and discuss the things you may have chatted about in a private room within the open forum>

Prompt 4:

<Remember you are required to email the screen names of those you wished to get to know better - email the chat name to thalia1003@gmail.com. You are welcome to continue using this chat room for the evening. **Just no real names!>**

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Appendix D

Debriefing Sheet

Debriefing Information Form

Study: Social Media in South Africa
Conducted by: Tarah Swanepoel & Thalia Ferreira

Dear Participant,

Earlier this year, you took part in a study in the University of Cape Town's Psychology Department entitled " Social Media in South Africa". We appreciate your participation in the study, as without participants the research is not possible. We feel it is our ethical duty to tell you a few things regarding the purpose of the study.

The study we are still conducting currently aims to examine online behaviour in an anonymous and real-time interaction platform, such as the *Chatzy* chat room you would have been asked to join.

Further, in the study in which you participated we wanted to examine the ways in which individuals chatted with one another within an environment that had no non-verbal cues (such as tone of voice, facial expression) and no physical cues (such as race, gender and so forth).

We hypothesised that the complete anonymity of the chat room would allow individuals to present themselves in ways they may not be able to in the real world. By asking participants to select someone they wished to get to know better or to chat privately with, we wanted to determine how successful individuals were in engaging with others when they could present themselves in any way they chose.

This task you were asked to complete also allowed us to see the ways in which people successfully engaged with one another across races and across genders without these cues being physically evident in the interaction.

We hope you enjoyed the study. If you wish to give us any feedback, or if have any further questions, please do not hesitate to contact us via email.

Kind Regards

Tarah Swanepoel (tarahswanepoel.uct@gmail.com)
Thalia Ferreira (thalia1003@gmail.com

Appendix E

Coding System

Variable	Definition
Visibility	The visibility of a participant was measured by tallying the total number of comments or posts made by an individual participant in the chat (regardless of content), and then converting this number into a percentage out of the total comments or posts in the chat.
Seeking Style – Direct Address	A specific interaction or *direct address* was defined as an interaction where, for example, participant A sought attention from participant B by initiating a dialogue with him/her. Asking a question or giving a lengthy response in reaction to a post which then called for a response was considered a specific interaction.
Seeking Style – Generalised Address	A *general interaction* or *general address* by one participant to the group of participants was defined as a comment or question that called for a response from the group. Generalised interactions included the words: (you) *guys, peeps, you (guys), anyone, everyone, we, us, all, who (all)* or any plural form of address to the group.
Same-Sex Popularity	A participant was defined as popular if they were selected for post-chat interaction (i.e., getting to know someone better or would like to chat privately with) by another same-sex participant in the chatroom.
Opposite-sex Desirability	Desirability was measured by calculating the number of times a participant was selected for post-chat interaction (i.e., getting to know someone better or would like to chat privately with) by an opposite-sex participant in the chatroom.

Appendix F

Example of coding participant engagement patterns

E8: yohh i found the spe quite hard 20:14

E1: nebody working on clinical assignment for tomorrow? 20:14

> Step 1: When coding for E1, in this example his *Interactivity* score is derived by count the number of times E1 posts in the chat session divided by the total number of posts.
>
> Step 2: In this posts, E1 makes a *generalised address* to the group.

E15: hey E2 where do you get that it's due on the 14th yo? 20:14

> When coding for E15, this post would be coded as a *male specific address*, as the post is directed to E2 (male).

E21: so, who's a guy and who's a girl? 20:14

E4: haha...now we talking 20:14

E2: maybe cos i am in 1006F 20:14

E1: male 20:14

E2: male 20:14

E15: male ma niggars where them girls at? 20:15

E4: damn...hoped you were a girl e1 20:15

E4: female 20:15

E5 joined the chat 20:15

E15: hahaha chow that thing E4 lol bru 20:15

E1: hahahahahahaha sorry to let you down dude. 20:16

E5: male 20:16

E4: haha..its akay...yeah,wher emgals at? 20:16

E1: sausage fest.....awkwaaaard 20:16

E15: hey E8 movement sciences aint as easy as i anticipated 20:16

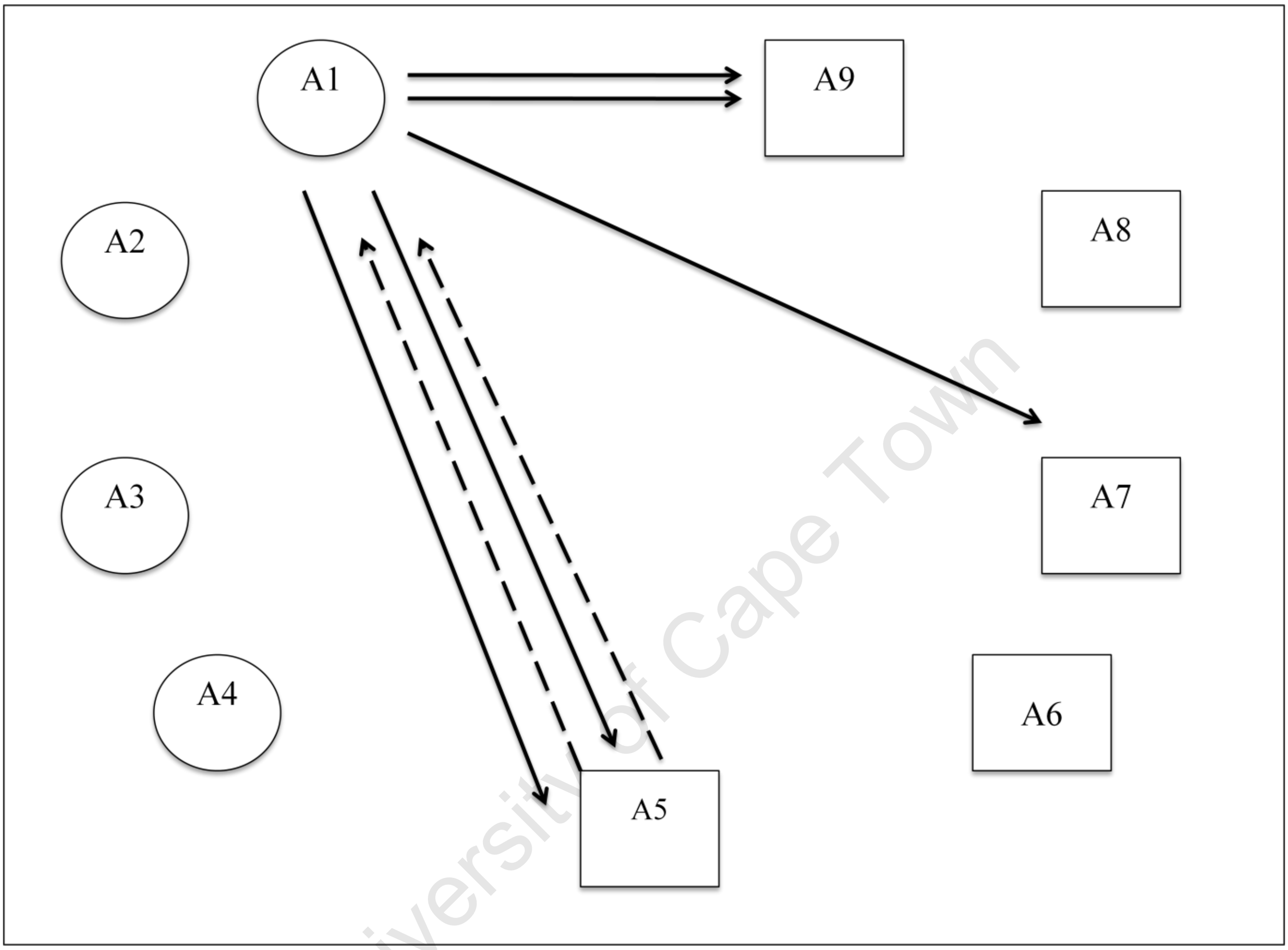
E5: lol i gues we dnt have girls here. or? 20:17

> This post made by E15 is directly addressed to E8 (female) and thus would be coded as a *female specific address*.

E8: yeah woah it was a bit of a killer. same with the theory test! 20:17

Appendix G

Example of an Inter-rater coding map



In the current example, participant A1 is being coded for. The circles represent all the male participants present in the chatroom, and the squares represent female participants. From the interaction map we can see A1 made Female Specific Addresses to 3 separate women (A9, A7 and A5). However participant A5 was the only women that responded to his posts directed at her.

Appendix H

Example of coding participant posts according to content

E15: male ma niggars where them girls at? 20:15

Coded as a fast LHS comment as it demonstrates sexual seeking.

E4: damn...hoped you were a girl e1 🙁 20:15

E4: female 20:15

E5 joined the chat 20:15

E15: hahaha chow that thing E4 lol bru 20:15

E1: hahahahahahaha sorry to let you down dude. 20:16

E5: male 20:16

E4: haha..its akay...yeah,wher emgals at? 20:16

Coded as a fast LHS comment as it demonstrates sexual seeking.

E1: sausage fest.....awkwaaaard 20:16

E15: hey E8 movement sciences aint as easy as i anticipated 20:16

E5: lol i gues we dnt have girls here. or? 20:17

E8: yeah woah it was a bit of a killer. same with the theory test! 20:17

E2: anyone here play any instruments? 20:19

E4: hey e13..you'r female right 😃 20:19

E8: ohh can i say my model??? 20:19

E13: lol yea i am 20:20

E8: wait what group number were you? 20:20

E11: yes i play the drums 20:20

E15: i do!keyboard 20:20

E4: haha..game on fellas 20:20

E2: nice, how long you been playing for? i am an axeman 20:20

Coded as a slow LHS comment as it demonstrates a commitment to self-betterment and the accumulation of cultural capital