



# THE SOCIAL GEOGRAPHY OF GENDER-SWITCHING IN VIRTUAL ENVIRONMENTS ON THE INTERNET

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## Abstract

The virtual social worlds of the internet give people unparalleled control over the construction and presentation of their identities. Gender-switching is perhaps the most dramatic example of how people exercise this control. It occurs when people present a gender that is different from their biological sex. While gender-switching figures prominently in academic commentaries and popular writings about on-line social life, there is little systematic research on the phenomenon. On-line surveys of two stratified random samples ( $N$ 's = 233 and 202) of MOO users were conducted. The majority of participants (60 per cent) in social MOOs (popular text-based internet social venues) had never engaged in gender-switching, while the majority in role-playing MOOs were either gender-switching currently (40 per cent) or had done so in the past (16.7 per cent). More than half of those who currently gender-switched did so for less than 10 per cent of their time on-line. In spite of the freedom to use indeterminate or even plural gender identities, most participants who switched genders (78.7 per cent) did so within traditional binary conventions (male to female, female to male). The primary reason for gender-switching was the desire to play roles of people different from one's self. The primary barrier to gender-switching was the belief that it is dishonest and manipulative. Attitudes toward gender-switching and on-line participation were better predictors of gender-switching than personal background demographics or personality measures. The images of gender-switching that emerge from this first systematic study of the phenomenon are considerably more benign than that usually portrayed in the literature. Gender-switching appears to be practised by a minority of MOO users for a small percentage of their time on-line. Gender-switching within MOOs of all kinds might best be understood as an experimental behaviour rather than as an enduring expression of sexuality, personality, or gender politics.

## Keywords

computer-mediated communication, gender, identity, internet,  
multi-user dimensions, sex

## INTRODUCTION

People possess extraordinary freedom to construct their identities in the electronic environments of the internet. In face-to-face interaction one cannot easily escape being categorized according to age, race, biological sex, and a host of other social factors. Many of these can also be readily identified in telephone conversations. In the virtual text-based social worlds of the internet, however, people possess unparalleled control over the construction and presentation of their identities (Parks 1998). Perhaps the most dramatic example of how people exercise this control is the case of on-line gender-switching. Gender-switching occurs when one presents a gender that is different from his or her biological sex. Thus, men may present themselves as women, women as men, and either sex may use plural, indeterminate, or non-gendered identities.

The fluidity of gender presentation on-line, coupled with the intense popular and academic interest in gender, has made the internet a prime site for gender studies. The topic has yielded an increasing number of academic commentaries (including those of Bruckman 1993; O'Brien 1997; Savicki *et al.* 1996; Senft 1997) and has figured prominently in popular writings about the social aspects of on-line life. The phenomena of gender-switching has been discussed extensively in books like Rheingold's *Virtual Community: Homesteading on the Electronic Frontier* (1993), Turkle's *Life on the Screen: Identity in the Age of the Internet* (1995), Stone's *The War of Desire and Technology at the Close of the Mechanical Age* (1995), and a variety of edited volumes (e.g. Benedikt 1994; Cherny and Weise 1996; Jones 1995). In short, gender has been 'problematized' by the freedom afforded by the internet and gender-switching has become a standard topic in discussions of the internet.

It is surprising, therefore, that so little is actually known about gender-switching in an empirical sense. Most discussions focus on controversial cases, on anecdotal data, or on critical commentaries about limited data sets. Basic information about how often gender-switching occurs, who is doing it, and why they are doing it is lacking. The purpose of this study is to begin to fill these gaps in the empirical record. We begin by situating the process of identity construction in general and gender presentation in particular within the social environment of the internet. We then advance several basic research questions and address them by drawing on two data sets gathered in a variety of MOOs, popular on-line social venues.

THE NATURE OF ON-LINE IDENTITIES

The internet is best understood not as a single medium but rather as a digital metamedium that carries several different types of distinctive media including e-mail, hyperlinked webpages, file transfer protocols, and a variety of virtual social environments. The virtual social environments range from the descriptively spare textual worlds of chat rooms and discussion groups to the more contextualized worlds of graphical and textual MUDs (Multi-User Dimensions or Dungeons). MUDs provide a virtual environment, usually described in text, in which participants create and describe characters, virtual places and objects. They allow synchronous discussion among geographically dispersed participants. While MUDs tend to be oriented around social role-playing games, MOOs (a type of MUD that uses object oriented programming) are frequently purely social (Parks and Roberts 1998). We focus on these virtual social venues because they have figured so prominently in the academic and popular discussions of gender in computer-mediated communication (including Bruckman 1993; Rheingold 1993; Turkle 1995, 1998).

To illustrate the diversity of MOO environments, we will briefly describe two MOOs and the types of activities undertaken in each setting. LambdaMOO is the original and largest social MOO. Currently there are more than 5000 people from more than fifty countries with characters on LambdaMOO. More than half of these users reside in the USA. Each person is assigned a character that they can name, gender and describe in text. In addition to their primary character, individuals can create any number of 'morphs', alternate characters with their own names, genders and descriptions, that can be switched between instantaneously. At any one point in time there are usually in excess of 100 people logged in to the MOO. LambdaMOO's virtual setting is a large house and grounds. Users socialize in groups in popular areas of the house (the lounge room, the hot-tub and Sensual Respites), or interact in smaller groups in private rooms. The social dynamics of LambdaMOO have been described by a number of observers in the popular literature (including Dibbell 1998).

Ghostwheel is a smaller roleplay MOO that provides a game world set in a post apocalypse wasteland 600 years in the future. Critters on the wasteland include 'rous' (rats the size of small dogs), 'executioner birds', and 'cougarites'. Each individual is assigned one main character and one alternative character that are developed for roleplay purposes. There are different classes of characters including 'soulmech', 'dragonrider', 'mage', 'crystal hunter', 'submariner', 'recomb' and 'bionic' (see Ghostwheel MOO's homepage: <http://www.nexus.net/~bholmes/>). Characters, their body parts, and clothing are

described and character points are used to buy advantages and skills. The predominant activity on Ghostwheel is roleplaying, with combat rules based on off-line roleplay gaming. Players must differentiate between in character (when roleplaying) and out of character (social and casual) communication.

Several features of these environments combine to make them places where people can exercise maximal control over their own self-presentations. Nonverbal cues regarding vocal qualities, bodily movement, facial expressions, and physical appearance are simply missing in these textual worlds. Cues regarding social position or social status may also be missing. Several theorists have suggested that this reduction in cues might account for the relative nonconformity of on-line behaviour relative to face-to-face behaviour (e.g. Culnan and Markus 1987; Sproull and Kiesler 1991). Although these previous investigators have focused on the anti-social aspects of this nonconformity, it is important to appreciate that reduced cues also create freedom for people to explore alternative aspects of their identities or even entirely alternative identities. Two other features of virtual environments contribute to this freedom (Parks 1998). In many instances it is impossible to crosscheck personal descriptions given on-line. There is usually no reliable way to verify that the person who claims to be a 22 year old female really is either 22 years old or female. Finally, on-line presentations do not generally create automatic off-line consequences. In most cases on-line identities remain separate from off-line 'real' lives. This is partly the result of the relative anonymity of on-line activity, but it is also partly the result of simple physical separation. One may type seductive and sexually inviting text, for example, without typically having to worry about actually being physically touched in return. All of these factors combine to turn MOOs, MUDs, and their on-line relatives into 'identity workshops' (Bruckman 1992) where people are free to explore new aspects of self, including the freedom to experiment with gender.

### **Gender-Switching in Virtual Social Environments**

Few aspects of self have been explored as extensively or with as much controversy on-line as gender. Cases of gender-switching have been reported since MUDs were first developed (see Rheingold 1993: 164) and some, like Van Gelder's (1996) 'strange case of the electronic lover,' have become net legends. Given this, the first and most basic research need is to determine just how often gender-switching occurs. Considering the amount of discussion devoted to the topic, we might hypothesize that gender-switching is indeed a frequent on-line event. Rheingold (1993) claimed that the prevalence of

deceptive gender play in on-line social environments like MUDs and MOOs was a major reason that many administrators of college computer systems banned their use. Others (including Turkle 1995) suggest that gender-switching is a natural and comfortable extension of the desire to explore one's on-line identity and thereby imply that gender-switching should be a rather common phenomenon. To evaluate these claims, we asked two questions: what proportion of respondents report having switched gender (RQ<sub>1</sub>) and, for those who switch, what proportion of their on-line time do they spend in a switched state of some kind (RQ<sub>2</sub>)?

Assuming that gender-switching occurs with sufficient frequency to permit further analysis, we will next turn our attention to the nature of 'the switch' itself. In its simplest form one merely adopts an identity opposite of one's biological sex. This has been called 'on-line transvestism' by one commentator (Tamosaitis 1995). But one may also 'gender' themselves in any of a variety of other ways. LambdaMOO, for example, the largest and oldest of the MOOs, offers a choice of eight additional designations beyond male and female – spivak, neuter, either, splat, egotistical, plural, second and royal. Or, one may simply choose to say nothing about gender. The ability to go beyond a 'binary' approach to gender has been touted by some feminist commentators as an important political feature of virtual environments (including Rodino 1997). It is therefore useful to determine what proportion of the time people switch to a gender opposite their stated biological sex and what proportion of the time they switch to some neutral, plural, or otherwise 'non-binary' gender (RQ<sub>3</sub>).

In addition we wished to determine if there were demographic differences between those who had never switched, those who were currently switching, and those who had switched in the past but had not done so recently (RQ<sub>4</sub>). Some observers (e.g. Rheingold 1993; Turkle 1995), for example, imply that gender-switching should be more common among younger players, usually single college students. Some cases highlight gender switching by males (e.g. Van Gelder 1996), while others have commented on gender switching by both males and females (e.g. Bruckman 1992; 1993). To date, however, researchers have not described the demographics of those that do and do not switch in any systematic fashion.

It is possible that the deliberate misrepresentation of one's gender in an on-line setting reflects something about one's personality. We were particularly interested in determining if those who switched differed from those who did not in terms of how shy they were, how extraverted they were, and how neurotic they were (RQ<sub>5</sub>). It has been suggested that shy (Roberts *et al.* 1997)

and introverted (Carduccio and Zimbardo 1995) individuals are less inhibited on-line than in the rest of their lives. As far as we know, there is no research on the personality correlates of gender-switching. There is, however, no shortage of speculation in popular commentaries. Slouka (1995), for instance, suggests that developing an on-line identity of any kind, particularly one that is different from one's 'real' identity is a sign of dysfunction. Given the potential impact of influential commentaries like Slouka's, it is vital that we begin to explore the personality correlates of gender-switching.

It is equally important to understand the reasons people give for switching or not switching and their more general attitudes about gender-switching. Gender-switching appears to be a multi-functional social act with a diversity of attitudes surrounding it. A wide range of attitudes was revealed in exploratory interviews (Roberts 1999) and in existing literature (see Bruckman 1993; Rheingold 1993; Turkle 1995). Some focus on the social function of gender-switching (e.g. to avoid harassment), while others emphasize more personal motives (e.g. to explore masculine and feminine sides of self). Some view gender-switching as a deliberate political act in defiance of gender stereotypes. One person advocating this view referred to the phenomenon as 'gender fucking' (Senft 1997). Some motivations are decidedly more pro-social than others (e.g. to increase empathy with the opposite-sex vs to control others). Our research thus focused on two final questions: What reasons do people give for engaging in or avoiding gender-switching (RQ<sub>6</sub>)? What attitudes distinguish those who have never switched, those who are currently switching, and those who have switched in the past but have not done so recently (RQ<sub>7</sub>)?

It is conceivable that gender-switching on-line may have off-line analogues in transgendered behaviours such as cross-dressing, transvestism, and transsexualism. Do models of transgenderism in 'real life' shed light on gender-switching on-line? King (1993) outlined four models used to explain transgendered behaviour based on their ontology (essentialist versus constructionist) and tenability (theorists' views on the acceptability of the behaviours). Essentialist models view transgenderism as persistent phenomena across cultures and history. The tenable existentialist model views transgenderism as an innate orientation or sexual preference that should be celebrated. The untenable essentialist model views transgenderism as a condition that requires correction. The psychological and medical literatures, for example, view transgenderism as gender dysphoria, deviant from the 'normal' gender identity development and gender role behaviour. Gender Identity Disorder is classified as a mental illness in the Diagnostic and Statistical Manual of Mental Disorders: DSM IV (American Psychiatric Association 1994), and is theorized to have its

basis in a combination of biological factors and family and situational factors during early childhood (Bradley and Zucker 1997).

In contrast to the essentialist models constructionist models view transgenderism as social constructions specific to temporal and cultural location. The tenable constructionist model views the range of transgendered behaviours as socially constructed categories that require no treatment or censure. Butler (1990), for example, described gender as a culturally prescribed act, and identity as a 'signifying practise'. The untenable constructionist model views transgenderism as a 'false consciousness' or delusion on the part of the individual that requires treatment. The findings from the seven research questions will be re-examined in light of the four models presented here.

### *Method*

This report is based on data collected in two separate studies. Study I was intended to determine the basic frequency of gender-switching and some demographics associated with gender-switchers. Study II replicated some features of study I, but was intended to explore the personality correlates, attitudes, and rationales of gender-switchers, former gender-switchers, and those who had never gender-switched. As the studies overlap with respect to the research questions, however, they will be discussed together.

### *Participants*

*Study I* Participants in study I came from a stratified random sample of participants in seven popular social MOOs. The biggest social and biggest educational MOO were selected on *a priori* grounds. Five additional MOOs were randomly selected from a list of MOOs available on the World Wide Web<sup>1</sup> and then participants were randomly sampled within each MOO.<sup>1</sup> Participants ( $N = 233$ ) were almost equally divided between males (51.9 per cent) and females (48.1 per cent). They ranged in age from 13–74, but averaged just over 27 years. Most had never been married (63.3 per cent), although nearly a third were either married or cohabiting (29.7 per cent). The typical respondent had been using the internet for over two and a half years and had been using MOOs for almost two years.

*Study II* Participants in the second study were also drawn from a stratified random sample. The three largest social and role-playing MOOs using the standard MOO program structure were selected from lists available on the World Wide Web and two additional role-play MOOs were selected at

random.<sup>2</sup> Responses were received from 202 individuals (53 per cent male, 47. per cent female). Of those who could be identified, about one third (34.3 per cent) were active in a role-playing MOO. Participants ranged in age 16–53, but more than three-quarters were aged between 18 and 30 years of with a mean of twenty five and a half. Participants in study II were similar to those in the first study in terms of marital status (67.5 per cent never married, 26.4 per cent married or cohabiting, 6.1 per cent separated, divorced or widowed). Although the duration of internet use was not assessed in study II, the length of time respondents had been using MOOs was. The typical respondent in study II had been active in these venues for about a year longer than the typical respondent in study I.

### *Procedures*

MOO characters who had connected to the selected MOOs within the previous 14 days were randomly selected. The MOOs' internal e-mail systems were used to send letters soliciting participation in a survey on communication patterns. The survey could be completed by research participants on a World Wide Web site or by e-mail.

A total of 1 200 MOO characters were solicited in the first study, while 1 000 were solicited in the second. Of these, 233 responded in the first study and 202 responded in the second study. The apparent response rates (19.5 per cent and 20.2 per cent) likely underestimate the actual response rates as a result of two factors. First, the surveys contained disclaimers discouraging participants under 18 years of age. An indeterminate, but possibly large, number of participants would not have met this age requirement. Second, many people have characters on more than one MOO and have more than one character on a given MOO (particularly in role-playing MOOs). We received several notes from participants suggesting that our sampling contained redundancies. Although a precise correction is not possible, we estimate that the actual responses were approximately 30 per cent when these factors were taken into account.

### *Measures*

*Study I* Study I comprises a previously unreported part of a larger survey on the development of social relationships on MOOs (see Parks and Roberts 1998). The measures relevant here include demographic items regarding the participants' age, sex, marital status, and on-line experience, as well as two items dealing directly with gender-switching. In the first participants were asked if they had ever 'gender-switched' (used a character whose gender was



different from your 'real life' gender). A second question asked people who responded affirmatively to the first question to report the percentage of time on the MOOs in the last month that had been spent using a gender-switched character.

*Study II* Participants were asked to classify themselves according to whether they had ever used a MOO gender other than their biological sex and, if they had, whether they had done so in the last month. They were then presented with an open-ended item asking for one or two main reasons for their choices regarding gender-switching. Participants were also asked to respond to a series of 39 attitude statements about gender-switching. These items were developed from books and articles that examined gender-switching (Bruckman 1993; Germain 1993; Jaffe 1995; McRae 1996; Turkle 1995; Van Gelder 1996) as well as from interviews with MOO participants by the first author as part of an unpublished grounded theory study of social interaction on MOOs. Responses were recorded on seven-point Likert scales. In addition to a series of demographic questions participants were asked to complete three personality measures: the Extraversion and Neuroticism scales of the Eysenck Personality Questionnaire-Revised (EPQ-R) short scale (Eysenck *et al.* 1985) and a shortened version of the Shyness scale developed by Cheek and Buss (1981).

## Results

### *Prevalence of gender-switching*

Participants were classified into one of three categories with respect to their history of on-line behaviour: those who had never gender-switched, those who currently gender-switched at least some of the time, and those who had not gender-switched during the month previous to the study. Most participants were not using gender-switching as part of their on-line self-presentations. Indeed, the clear majority of participants in social MOOs in both study I (62 per cent) and study II (58.3 per cent) had never engaged in gender-switching. A minority were currently gender-switching (study I 22.6 per cent; study II 19.1 per cent), or had tried gender-switching previously (study I 15.4 per cent; study II 22.6 per cent). This was not true of those who participated in role-playing MOOs. Here the majority were either currently gender-switching (40 per cent) or had gender-switched previously (16.7 per cent), with a minority never having tried gender-switching (43.3 per cent). In study II, people participating in role-playing MOOs were significantly more likely to gender-switch than those who participated in purely social MOOs.

We asked gender-switchers to report what percentage of their time on MOOs in the last month had been spent in a gender-switched state. In study I (social MOOs only) 60 per cent of those who were currently switching did so for 10 per cent or less of their time on-line. Only 22.6 per cent of current switchers (5.5 per cent of the total study I sample) spent more than 60 per cent of their time on-line in a switched state. In study II 40 per cent of those who were currently switching did so for 10 per cent or less of their time on-line. Almost a third of those who switched (31.5 per cent), however, spent 70% or more of their time in a switched state and 20% reported spending all their on-line time in a switched state. Among those who switched, there was no significant difference in the percentage of time spent gender-switched on role-playing and social MOOs.

### *Types of gender switches*

In spite of the freedom to use indeterminate or even plural gender identities, most participants who switched genders did so within traditional binary conventions. Men presented themselves as women and women presented themselves as men. These conventional switches to the opposite sex accounted for 78.7 per cent of the cases among those that were currently or had previously switched in study II. The remaining 21.3 per cent fell into 'non-binary' categories. The most common of these were 'neuter' (6.4 per cent) and 'spivak' (4.3 per cent). Others included 'second,' 'the opposite,' 'plural,' 'neither,' 'shehe', 'royal', 'shemale' and self-made genders. None of these, however, was represented by more than one case.

### *Demographic correlates of gender-switching*

There were few differences in personal background demographics across the three categories of gender-switching (never, current, previous). There were no significant differences between categories on the basis of age, sex or marital status. Only two personal characteristics were associated significantly with gender-switching. Respondents in the second study were asked to report their sexual orientation (heterosexual, homosexual, bisexual or other). Heterosexuals were significantly less likely to have gender-switched than MOOers with different sexual orientations. Respondents in the first study were asked if they had some disability that affected their 'functioning or communication' when they were not on the internet. Of those who reported a disability, 50 per cent were currently gender-switching compared to only 21 per cent of those of did not report disabilities.

The demographics of on-line participation were better predictors of gender-switching. It was not, however, the total length of time respondents had been using the Internet that counted. There were no significant differences in the number of months respondents had been using the internet across the three groups in study I. The groups *did* differ in terms of their experiences with MOOs. Current and former gender-switchers had been using MOOs significantly longer and spent more hours per week on MOOs than those who had never tried gender-switching. In both studies, people who were currently switching visited a greater number of MOOs in the past month than people who did not gender-switch.

#### *Personality correlates of gender-switching*

Scores on the personality measures we examined in study II did not differ between those who had never switched gender, those who were currently gender-switching, and those who had switched gender in the past. There were no overall differences on Eysenck's extraversion scale or his neuroticism scale. Nor did the three groups differ on the Cheek and Buss (1981) shyness scale.

It may be useful to set these findings in the broader context of how MOO users compare to the general populace. We compared the extraversion and neuroticism scores observed in our study to the normative data provided by Eysenck *et al.* (1985). Comparisons were made across three age groups (16–20, 21–30, 31–40) with separate comparisons by sex within each age group. This allowed six comparisons between observed and normative means for each of the two scales. Out tests showed that only one mean was statistically significant. Female MOO users between the ages of 16 and 20 were significantly less extraverted than females in the same age group in the general population. Levels of extraversion among females in the other age groups did not differ from those in the general population. There were no differences in extraversion among males and no differences for neuroticism among any of the age groups for either sex.

#### *Reasons for gender-switching behaviour*

Respondents in each of the three groups in study II were asked to supply their one or two main reasons for their behaviour around gender-switching. These reasons were then grouped into more general categories by the senior author, and are presented in table 1.

A total of 105 respondents indicated that they had never gender-switched, and together they provided 178 reasons for not gender-switching. By far the

Table 1 Reasons given for decisions regarding gender-switching

Reasons given	Responses (%)	
<i>Reasons for not gender-switching</i>		
No interest in or reason to gender-switch. Example: 'No desire to be a member of the opposite sex in real life or on the MOO.'	23%	
Gender-switching is dishonest and deceitful. Example: 'I feel it is dishonest and wouldn't want to think someone was doing it to me.'	14.6%	
Desire to present the 'real' self on line. Example: 'I believe in presenting myself in as accurate a way as possible.'	12.9%	
Strong identification with own gender. Example: 'My characters are each taken from little facets of myself and I am all female.'	12.4%	
Doubts about success. Example: 'I wouldn't know how to act like a guy.'	11.8%	
There is no benefit to gender-switching. Example: 'Don't really see any point in doing so.'	11.8%	
<i>Reasons for gender-switching</i>		
Role-playing. Example: 'Allows for more possibilities in role-playing games.'	Current	Former
Curiosity about gender. Example: 'I wanted to experience what it was like to be male.'	24.0%	13.4%
Fun. Example: 'It's fun.'	13.5%	34.3%
To avoid sexual harassment. Example: 'To have a conversation without someone trying to hit on me.'	12.5%	10.4%
Challenge. Example: 'I thought it would be a good challenge to my acting skills.'	7.3%	7.5%
Sex. Example: 'Much easier to find sexual fantasies when playing a female.'	7.3%	0
<i>Reasons for no longer gender-switching</i>	5.2%	10.4%
Curiosity was satisfied. Example: 'I did it a couple of times and had my answers so never felt like doing it again.'	18.3%	
Prefer characters that match real sex. Example: 'I have an established character who is female that I like to interact as.'	16.7%	
Spend less time MOOing in general or using the MOO containing the switched character. Example: 'I haven't been on the MOO much lately.'	15.0%	
Easier to play a character consistent with real sex. Example: 'It's too much work to remember that I'm playing male.'	8.3%	
Did not like the way I was treated as a gender-switched character. Example: 'I realized that female acquaintances weren't joking about being frequently hit on by strangers.'	6.7%	

most common reason given was that respondents simply had no interest in doing so. They either had no desire (23 per cent) or saw no benefit (11.8 per cent). Other respondents either voiced a strong identification with their real gender (12.4 per cent) or expressed a desire to present themselves accurately on-line (12.9 per cent). A seventh (14.6 per cent) believed that gender-switching was dishonest. A tenth (11.8 per cent) expressed doubts as to whether they would be successful if they tried to gender-switch.

A total of 97 respondents were either currently gender-switching or reported that they had gender-switched at some point in the past. The 55 individuals currently gender-switching provided 96 reasons, and the 42 individuals who had previously gender-switched provided 67 reasons for gender-switching. For those who currently gender-switch the most common reason (31.3 per cent) related to roleplaying: that it was part of role-playing (24 per cent), or a challenge to their acting or interpersonal skills (7.3 per cent). The next most common reasons involved a desire to satisfy curiosities about gender or to experiment with gender (13.5 per cent). In contrast, the most common reason for previous gender-switchers to begin gender-switching was curiosity or experimentation with gender (34.3 per cent), with roleplaying (13.4 per cent) less important. A closer inspection of roleplaying responses revealed that the vast majority came from people who were involved in MOOs that were structured as role-playing games. More than 10 per cent of responses from each group reported that gender-switching was a fun activity. Gender-switching was also used to engage in sexual talk and fantasies, or alternatively to avoid gendered responses, usually sexual harassment. Almost all of those who said they switched genders to avoid sexual harassment were women.

The 42 respondents who fell into the category of former gender-switchers – those who had not gender-switched in the previous month – provided 60 reasons for no longer gender-switching. The most common reason (18.3 per cent) for stopping was that it was no longer interesting or that their initial curiosity about gender-switching had been satisfied. Gender-switching stopped for many respondents (15 per cent) simply because they no longer spent as much time on the MOOs. The remaining reasons for stopping all expressed some sort of dissatisfaction with gender-switching. For some (16.7 per cent) it was expressed as a desire to be more authentic with regard to gender, while for others the reason was that gender-switching had been unpleasant (6.7 per cent) or required too much effort (8.3 per cent).

*Attitudinal correlates of gender-switching.*

The final set of analyses explored attitudes about gender-switching gathered from the extant literature and interviews. Our goal was to determine if there were systematic attitudinal differences between those who did not gender-switch, those who did, and those who did but stopped. Participants indicated their level of agreement with 39 attitudinal items using seven-point scales. Significant differences were observed among gender-switching categories for the majority of items. Rather than detailing all the items here, we will focus here on several themes that run through the results. The first of these is that there are comparatively few differences between current and former gender-switchers. These two groups differed significantly on only less than a third of the items. Compared to current gender-switchers, former gender-switchers viewed switching as less honest and more manipulative and deceitful. Compared to current gender-switchers, they were less comfortable and experienced less enjoyment interacting with gender-switchers, having a higher expectation that people on MOOs were the same gender in real-life as their MOO character. They rated gender-switching less highly as an opportunity for identity and emotional exploration. They were also less positive about it as a form of role-play. Moreover, they were less likely than those currently switching genders to see it as a way to overcome gender stereotypes. They were more likely, however, to say that they had gender-switched just to see if they could get away with it.

Those who had never gender-switched differed from current gender-switchers on a majority of items. The largest factor separating these two groups appears to be an ethical perspective. Compared to those who were currently gender-switching, those who had never switched viewed switching as dishonest, deceitful, and manipulative. They expected people to use their biological sex and were upset and uncomfortable when they did not. A second factor separating those who were currently switching from those who never did was an enjoyment of role-playing. Those who switched viewed gender-switching as a form of role-play and were more likely to endorse statements suggesting that gender-switching made life on the MOOs more interesting. Current gender-switchers also registered greater agreement with items suggesting that gender-switching created opportunities for self-exploration and growth. They gave stronger endorsements, for instance, to statements about the potential for gender-switching to enhance one's emotional range, learn about the opposite-sex, and explore additional facets of their own identities.

We also sought to identify those attitudes that distinguished most powerfully between those who had never switched and those who were current or former gender-switchers. Current and former gender-switchers were placed in

the same group. An analysis to discriminate between items was then run to determine which items most sharply distinguished them from those who had never gender-switched. This procedure yielded five significant discriminators. Compared to those who switched genders on-line, those who maintained their biological sex on-line were more likely to believe that gender-switching was manipulative, that it was a way unwary people were lured into 'netsex', and that it was a way to create trouble for members of the opposite sex. They expected people they met in MOOs to be the same gender on- and off-line. Those who switched genders, in contrast, were much more likely to hold the belief that it was fun to play a different gender on-line.

## DISCUSSION

The image of gender-switching that emerges from this first systematic study of the phenomenon is considerably more benign than the portrayals of both its harshest critics (including Slouka 1995) and most avid advocates (Stone 1995). First of all, gender-switching appears to be a relatively infrequent behaviour practiced by a minority of MOO users. Approximately 60 per cent of social MOO and 40 per cent of role-play MOO users had never engaged in the behaviour. An additional 15–23 per cent had tried gender-switching, but had stopped. Even among those who were currently gender-switching, the majority was doing so infrequently. Less than 6% of the social MOO participants surveyed in study I spent over half their time as a gender-switched character.

The results of these studies also offer little ammunition for those who argue that on-line interaction is being used to 'break the binaries' in our approaches to gender (e.g. Rodino 1997). Most people presented their on-line gender in a way that matched their 'real-life' gender. Even those who switched genders usually switched to their binary opposite (e.g. men presenting as women, and women presenting as men) rather than to some indeterminate form. Indeed, only 20 of the 202 total respondents in study II (10 per cent) adopted an indeterminate or nonbinary gender of any kind.

Gender-switching could not be fully accounted for by the demographic factors in the two samples we gathered. Those who switched did not differ from those who had either never switched or who had stopped switching in terms of age, sex, or marital status. Heterosexuals and the non-disabled were less likely to gender-switch than people with other sexual orientations and those who reported disabilities. These findings counter speculation about gender-switching being primarily an activity of younger users (e.g. Rheingold 1993) or an activity done more by males than females (Stone 1995).

Nor could we account for the phenomenon of gender-switching by looking to personality factors. Gender-switchers and non-switchers did not differ on standard psychological measures of shyness, extraversion, or neuroticism. MOO users as a group closely matched the norms for the more general populations. Although a wider range of demographic and personality factors obviously needs to be examined in future studies, the results of this study suggest that demographic and personality factors may be poor predictors of gender-switching.

The results of this study suggest that better predictors of gender-switching are to be found in the experiences and attitudes of those on-line. Although switchers and non-switchers did not differ in how long they had been using the internet, they did differ in the particulars of their participation in MOOs. Those who switched had been using MOOs longer, spent more time on MOOs and visited more MOOs than those who did not.

The type of virtual environment one participated in was also a significant predictor of gender-switching. Those who participated in role-playing MOOs were approximately twice as likely to be gender-switching as those who participated in social MOOs. Roleplaying, including the role-playing of opposite gender characters, is the primary purpose of role-playing MOOs. Participants in a role-playing MOO are explicitly engaging in a 'shared fantasy' when they are 'in character'. They are seeking something besides a 'real life' (RL) character. Social interaction that is not 'in character' is marked as 'out of character' and is usually explicitly discouraged in the various 'help files' that guide participants and convey the MOO's rules. The 'Etiquette' tutorial, for example, on Ghostwheel MOO, one of the role-playing (RP) MOOs we sampled, explains that:

On an RP mud, it's considered rude to ask another player their RL name, RL gender, RL location, RL age or the names of their Alts. It might also be rude to volunteer your own information, because it puts an onus upon others to be mutually forthcoming.

Thus a certain amount of gender-switching occurs simply as an outgrowth of the expectations of the virtual environment and may say relatively little about the characteristics of the participants themselves.

Participants' attitudes, of course, may influence the types of MOOs they prefer as well as their willingness to experiment with gender-switching. We explored these attitudes both by seeking responses to a series of statements drawn from the literature surrounding gender-switching and by soliciting participants' own reasons for gender-switching or not gender-switching. Three



themes emerged in the analysis. First, the desire to play-roles of people different from one's self, usually within the context of a role-playing game, is one of the primary reasons for gender-switching. This was the most commonly given reason in the qualitative data and a significant discriminator in the multivariate analysis of the attitude items. Second, it appears that the primary barrier to gender-switching is the belief that it is dishonest and manipulative. Statements regarding the honesty of gender-switching both in terms of one's own behaviour and in terms of expectations for others were significant discriminators in the multivariate analysis. People also mentioned these same factors frequently as reasons for not gender-switching. Thus for many of the people in the group who did not switch, the largest group in both samples, gender-switching was viewed as ethically dubious and counter to the desire to be authentic on-line.

Although the majority of people surveyed in these two studies were not gender-switching on MOOs, it is noteworthy that a significant minority of individuals was. The social experimentation of gender-switching may have a range of effects on the lives of individuals. Future studies are required that longitudinally follow individuals who gender-switch.

Finally, we believe gender-switching for most people is best understood as an experimental behaviour rather than as an enduring expression of their sexuality or personality. Gender-switchers were more likely to endorse statements regarding the use of gender-switching as a tool for enhancing personal growth and understanding. They frequently mentioned fun and curiosity as reasons for gender-switching. And importantly, by far the most common reason people stopped gender-switching was that their curiosity had been satisfied.

The models of transgendered behaviour developed off-line offer little in aiding the understanding of gender-switching behaviour on-line. For most of the gender-switchers surveyed, the switched gender did not represent an underlying orientation, condition or delusion. In only one instance did a gender-switching respondent indicate their MOO gender reflected their off-line gender. Gender-switching on MOOs may be conceptualized as a social construction specific to the virtual environment.

There is much we still do not know about gender-switching in on-line environments. The data reported here looked only at one type of on-line venue, yet gender-switching occurs in chatrooms and other on-line social settings which may have different dynamics. We might also learn more about identity construction by studying unsuccessful attempts to gender-switch. Competent cross-gender role playing is transparent and thus often goes unnoticed (Antunes 1995). Less competent attempts may reveal much about the assumptions of the

participants and the structure of the interaction itself. Finally, although the results of this study suggest that gender-switching is often an experimental, transitory behaviour, longitudinal data on gender-switching is necessary before we can fully understand how gender-switching fits into the life history of participants in computer-mediated social environments.

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## NOTES

- 1 Several lists of MOOs are available on-line. We used 'Gurk's MOO page' (<http://www4.ncsu.edu/unity/users/a/asdamick/www/moo.html>). The MOOs included in the final sample were LambdaMOO, RiverMOO, BayMOO, IdMOO, Sprawl, Meridian and Diversity University. A MOO character named 'Surveyor' was set up as a research character on each of the selected MOOs to facilitate answering questions from potential respondents.
- 2 The three largest social and role-playing MOOs that use the LambdaMOO core were selected from Gurks' MOO List (see note 1) and the MUD Connector (<http://www.mudconnect.com/>). Permission was sought from the wizards of each MOO to conduct research on that MOO. Consent was obtained from five of the six MOOs. These five MOOs were LambdaMOO (social), BayMOO (social), RiverMOO (social), Ghostwheel MOO (role-play) and Angreal MOO(role play). As in the first study, a character named 'Surveyor' was set up as a research character on each of the selected MOOs to facilitate answering questions from potential respondents.

Editors note: To enhance accessibility for a wide academic audience and shorten the manuscript, the editors have removed the statistical test information typically included in social scientific studies of this type. Information on specific tests is available from the authors: l.roberts@psychology.curtin.edu.au or macp@u.washington.edu

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