

VIRTUAL WORLDS SURVEY REPORT

A TRANS-WORLD STUDY OF NON-GAME VIRTUAL WORLDS – DEMOGRAPHICS, ATTITUDES, AND PREFERENCES

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ABSTRACT

This Report presents results of a virtual world (VW) survey conducted in the summer of 2012, and subsequent analysis through summer of 2014. The aim of this study was to enhance our understanding of demographics, attitudes, activities and play preferences across a variety of non-game, social virtual worlds, also referred to as metaverses. The need for this study arose out of our observation that, while multiple surveys have been conducted on these aspects of a variety of different massively multiplayer games (MMOGs), only a few single-world, topical surveys have been conducted of equivalent non-game worlds, such as Second Life and There.com. Our past qualitative and mixed-methods research in multiple virtual worlds indicated that there were significant differences in both demographics and play patterns between open-ended worlds and the more studied game-style worlds. The survey included over 800 denizens of 36 different virtual worlds – recruited via Facebook, virtual world forums and blogs, as well as inworld networks – and focused on four key areas:

- *Demographics*: including age, gender, race/ethnicity, sexual orientation, marital and family status, income and employment status, religion, region of residence, and disability.
- *Avatar Presentation*: including form, dress, role, use of alts, and cross-gender play
- *Activities and Play Patterns*: including amount and times of day spent, favorite activities, and social interactions including dating, sex, and the fluidity of relationships between virtual worlds and real life
- *Creativity and Commerce*: including creative activity, real estate ownership, virtual item transactions, virtual currency transactions, and income from virtual world activities

The report also includes a comparative analysis of similar results from game-based surveys to better understand the similarities and differences between these forms of virtual worlds. We conclude with a summary of the findings, a description of a planned supplement dealing with responses to open-ended questions, and suggested topics for further research. This report covers primarily multiple-choice questions across these subject areas, and a summary of responses to open-ended questions. A subsequent supplement will be released with more detailed analysis of open responses.

AUTHORS

Celia Pearce is a game designer, author, teacher and researcher with expertise in multiplayer games and virtual worlds, as well as independent and art games, and games and gender. This study was conducted while she was an Associate Professor of Digital Media at Georgia Tech; she has recently joined the faculty of Northeastern University as an Associate Professor of Game Design.

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Carl Symborski is a Chief Engineer at Leidos, Inc., where he is a program manager and technologist leading science and technology programs, including training games-related research programs. His research interests include serious games, virtual communities, and computer networking.

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INTRODUCTION: WHY A “VIRTUAL WORLDS” SURVEY?

The aim of this study is to enhance our understanding of demographics, attitudes, activities and play preferences within non-game social virtual worlds (VWs). Over the past fifteen years, massively multiplayer games and virtual worlds have become a growing subject of academic research. Massively multiplayer online games (MMOG) are networked games in which large numbers of people can interact simultaneously around collective goals. These game worlds tend to emphasize point systems and leveling mechanisms which propel players towards goal-oriented activities. MMOGs have been well-studied, and there have been a number of surveys and demographic studies concerning their players, their behavior and psychology. (These will be discussed in more detail in the background chapter). When an MMOG survey is deployed, it typically targets denizens of a single game. Nonetheless, since so many of these surveys have been done to date, we have a vast resource of knowledge about the profile of the typical MMOG player.

On the other side of the spectrum from the MMOG is the non-game or so-called “metaverse”-style virtual world. This is typically a graphical world which, like MMOGs, large numbers of people may inhabit to engage in social and creative activities; however, non-game virtual worlds have an open ended structure, wherein denizens participate in a wide variety of non-goal-oriented activities, such as building, dancing, hosting events, exploring, informal socializing, and, in some instances, games, many of which are actually designed and built by users themselves. It should be noted here that while the term “player” is commonly used to describe individuals who frequent these worlds, some respondents to our survey felt the term “player” was an inaccurate depiction of their virtual world experience. For the purposes of this report, we interchangeably use the term “denizens” and “residents,” borrowing from Tom Boellstorff (2009). These are more neutral terms that apply to a wide array of potential VW uses.

Non-game virtual worlds are of increasing interest to sociologists, anthropologists, Human Computer Interaction (HCI) experts, economists, and video game scholars. However, they have been understudied relative to game-based worlds. While a number of ethnographic studies have been done (Pearce 2009A, Boellstorff 2009), there has been little research into the demographic mix of these worlds, as well as larger play and activity patterns. The surveys that have been done tend to focus on a specific world, such as Second Life¹ (e.g., Bell et al. 2009) or a specific use area, such educational uses of Second Life (New Media Consortium 2007). There have also been a number of Second Life surveys the results of which are unpublished. While much of this research has been useful within a given domain area, we still know little about the player population and larger patterns of these worlds.

Thus, one of the most important contributions of the present study is that it is trans-ludic, meaning it spans multiple virtual worlds. Pearce (2010) has written about the need for more trans-ludic research and the tendency to over generalize about all games and all players when analyzing data from a single game. Although some trans-ludic surveys have been conducted on MMOGs (Seay et al. 2001-2008), this is the first time, to our knowledge, that such a study has been done across multiple non-game virtual worlds.

The impetus for this study arose from prior research by the authors, which turned up a number of interesting questions through qualitative, quantitative and mixed-methods research. Pearce’s earlier ethnographic studies of communities within virtual worlds (2009A, 2009B), suggested a higher percentage of women than is typically seen in MMOGs, which are roughly 10%-20% female (Yee 2001, Castronova 2001, Seay 2001-2008, etc.) In unpublished research comparing games and virtual worlds, Symborski and Pearce found that residents of virtual

¹. Second Life and SL are trademarks of Linden Research, Inc. The authors are not affiliated with, or sponsored by, Linden Research, Inc.

worlds seemed to skew towards higher ages than those of MMOGs. That research also found that there was actually more roleplaying in Second Life (SL™) than in massively multiplayer *roleplaying* games. Game-players were primarily concerned with gameplay efficiency, and typically ignored content and eschewed roleplaying; whereas, Second Life residents were more focused on creative and social activities, including roleplaying and dancing, which was, by far, the most popular activity observed among SL players.

Based on these observations, we formulated the following research questions, to be deployed via trans-ludic (multi-world) survey instrument across multiple non-game virtual worlds:

1. What is the demographic profile of non-game virtual world residents?
2. What types of activities do they commonly engage in?
3. What are their spending patterns? What types of commerce are they involved in?
4. What are their general attitudes and perceptions of why and how they play?

Having formulated these questions, we set about creating a highly detailed survey instrument (which can be found in Appendix B), in which we asked a series of questions designed to provide insights to the topics above.

The survey was deployed via online forums that targeted residents of various virtual worlds, as well as Facebook ads targeted to members of specific groups pertaining to virtual worlds. We also deployed the survey in-world through networks of study participants from previous research studies. The survey attracted 858 respondents, of which 794 completed the survey.

This remainder of this document is divided into the following subsections:

- **Background and Prior Research**
- **Methodology**
- **Results**
- **Conclusions**

The next section will look at prior research into MMOGs and virtual worlds.

WHAT IS A VIRTUAL WORLD?

In *Communities of Play*, Pearce (Pearce & Artemesia 2009A, 18-20), provides a definition of virtual worlds that forms a compendium of other prior virtual worlds definitions (Damer 1997; Aarseth 2000; Bartle 2003; Klasturp 2003; Klasturp 2003; Castronova 2005, Mulligan and Patrovsky 2003, Taylor 2006) that is comparable to other equivalent descriptions. This definition encompasses both non-game virtual worlds and massively multiplayer online games, and includes the following characteristics (paraphrased from the original text):

- *Spatial*: By definition, a virtual world exists as a spatial representation, whether this be graphical or textual.
- *Contiguous*: Virtual worlds are typically geographically contiguous, possessing a sense of spatial continuity. Most virtual worlds are mappable.
- *Explorable*: residents may go wherever they want, although their movements may be constrained by their level or status in the world, or by available transportation modes, although the vast majority of virtual worlds are primarily pedestrian. Exploring can be either goal-oriented, as in a game (what Richard Bartle [2000] calls the "Dorothy" style of exploration) or open-ended (Bartle's "Alice" style).
- *Persistent*: Persistence means that the world remains "on" at all times, and that actions taken within it are cumulative, allowing residents to maintain and develop a character from one visit to the next.
- *Populous*: A virtual world is by definition a social world, typically inhabited by a large number of concurrent residents.
- *Embodied Persistent Identities*: All virtual worlds include resident representations, also known as avatars, which residents can typically see as they traverse the world.
- *Inhabitable*: The world is inhabitable and participatory (Damer et al. 1999; Klasturp 2003), meaning one may enter the world and live inside it, actively contributing to its culture.
- *Consequential Participation*: The outcome of inhabitation is the consequential participation of the resident in the world itself. This means is that your presence is actually a part of the world and of other residents' experiences of it.
- *Worldness*: Perhaps the most amorphous quality of virtual worlds, "worldness" is used to express a sense of coherence, completeness and consistency within the world's environment, aesthetics and rules. Worldness can be gauged in terms of the "collective creation of belief," (Murray 1997) which becomes a co- conspiracy between designers and residents.

This is similar to the definition by Betsy Book (2006) of the Virtual Worlds Review web site: A virtual world is an interactive simulated environment accessed by multiple users through an online interface. Virtual worlds are also called "digital worlds," "simulated worlds," and "MMOG's." There are many different types of virtual worlds; however, according to Virtual Worlds experts from both academia and industry, virtual worlds have the following features in common:

1. *Shared Space*: the world allows many users to participate at once.
2. *Graphical User Interface*: the world depicts space visually, ranging in style from 2D "cartoon" imagery to more immersive 3D environments.
3. *Immediacy*: interaction takes place in real time.
4. *Interactivity*: the world allows users to alter, develop, build, or submit customized content.
5. *Persistence*: the world's existence continues regardless of whether individual users are logged in.
6. *Socialization/Community*: the world allows and encourages the formation of in-world social groups like teams, guilds, clubs, cliques, housemates, neighborhoods, etc.

The definitions above can be applied to both non-game and game-based virtual worlds, and Pearce (2009A, 32) goes on to define these along a spectrum (see Figure A). On one end is the “fixed synthetic” style of world, a theme-park like game where all the elements of the game and story are designed and fixed by the designer. These typically have some kind of meta-goal, supported by proscribed tasks that players must complete in order to level or achieve progress in the game. In most cases, fixed synthetic worlds do not have affordances for residents to actually change the world; in fact, in many cases narrative or game sequences will reset as soon as the resident has completed them. At the opposite end of the spectrum is the open-ended co-created world, in which everything is in flux and much of the content is resident-generated. These worlds seldom have over-arching goals, although some, such as There.com, do have point and leveling systems for activities like organizing social events, exploring, or “fashionista” points for buying and changing clothes. Activities tend to focus more on open ended socializing, events (such as dances, festivals or contests), and content creation, some of which can come in the form of games within the world. Some virtual worlds fall along the middle of the spectrum, most notably *Minecraft*² (which had not yet been released at the time *Communities of Play* was written), which sits roughly at the center point of this diagram.

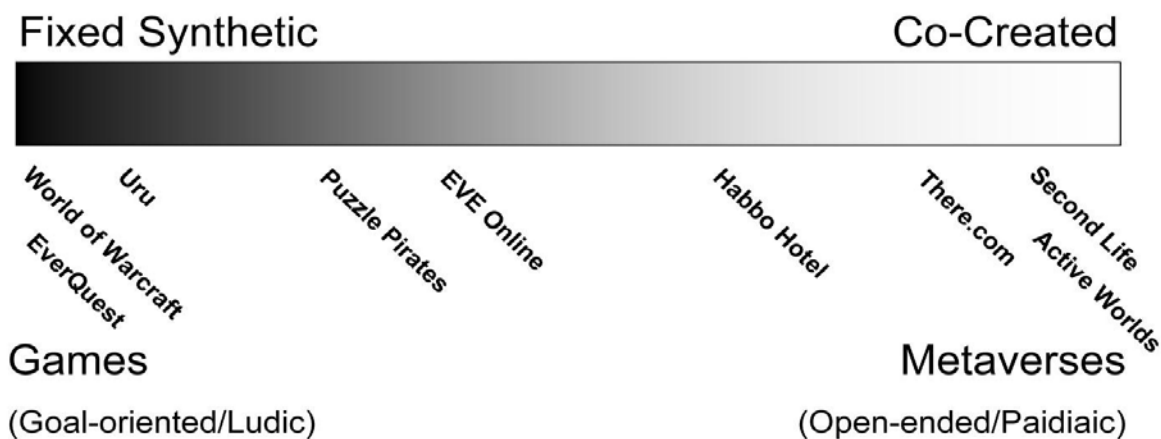


Figure A. Reprinted with the Author’s Permission from *Communities of Play*, p. 32

This study concerns itself primarily with the right-most region of this spectrum, the open-ended co-created world, although we will also include some comparison at the end of this paper between the two styles of virtual world.

PRIOR RESEARCH

The impetus for this study arose from prior research conducted by the authors. Pearce’s early work in virtual worlds research, notably on the Uru Diaspora and its immigration into virtual worlds as “game refugees”, introduced the idea of trans-ludic research, in which residents were followed across multiple virtual worlds (Pearce 2009A, 2010). Previous research tended to focus on a single world. Additionally, the demographics of the subject pool were unusual for an MMOG: half of the participants were women, and the primary age group was in the Baby Boomer Demographic.

This spurred a follow-up study on Baby Boomer Games, which included a survey from which a number of questions were adapted for the current project. Notable findings included the fact that Baby Boomers were community-oriented; even if they played principally single-player games, they valued friendliness and cited helping newcomers as one of their favorite activities in online games and game forums (Pearce 2008). A

² Minecraft is a trademark of Notch Development AB Corporation of Sweden, recently purchased by Microsoft.

subsequent study of a virtual, resident-run university in the virtual world There.com also turned up notable results (Pearce 2009B). Once again, the subject pool included a disproportionately high percentage of women as compared with typical MMOGs, where female participation typically caps at around 20%. Staff, faculty, and students also included a high percentage of disabled residents.

Additionally, Rosier and Pearce (2011) found that virtual worlds residents tend to perceive there to be more women than men, a questionable perception since it is well known that a certain percentage of female avatars are typically played by men. At the time the Rosier/Pearce study was conducted, no robust demographic studies had been done to validate the gender mix, but the results of the present study confirm that, indeed, women outnumber men in metaverse virtual worlds.

The combined results of these four studies suggested that the demographic mix of virtual worlds might differ from that of online games well studied by researchers such as Yee (2001, and 2014) Seay et al. (2001-2008), and Castronova (2001), which are typically around 80% male with the predominate age between 23 and 39 (Williams et al. 2008). The latter also found that MMOG players were motivated to play for achievement, immersion, and social reasons, with achievement as the strongest predictor of high playing time. Prior surveys of non-game virtual world denizens have been limited to single-world studies, such as Bell et al.'s (2009) survey of Second Life, which is consistent with many of our results. Additionally, some surveys have been conducted which cover a single-use scenario for a single virtual world, such as the Educators Surveys conducted by the New Media Consortium (2007, 2008), which focus specifically on educational uses of Second Life. We also found a few miscellaneous surveys of Second Life by college students but were unable to locate results associated with these. There are a number of publications specifically concerning research methods, including ethnography (Boellstorff 2010, Boellstorff et al. 2012) and experimental research (Hill et al. 2014), but to-date we are not aware of any other trans-ludic, pan-world survey that delves into demographics and practices in multiple virtual worlds.

In addition to Pearce's prior research, Pearce and Symborski had contributed to a mixed methods study conducted by Leidos, Inc. (formerly known as SAIC) and Georgia Tech that included both virtual worlds and games. An as-yet unpublished portion of the study concerned the virtual world Second Life. Once again, we were seeing a higher age skew than one typically sees in games. Interestingly, we also found that metaverse denizens were more likely to roleplay than players of massively multiplayer "roleplaying" games. The most popular activity among Second Life residents in that study was dancing, regardless of other activities or foci. Creative activities, exploring, and hosting events were also among the most popular activities and appeared to be more prevalent among older residents. That project was supported by the Air Force Research Laboratory, and included five other groups, some of whom also turned up similar findings. For instance, Martey and Consalvo (2011) found that the average age of Second Life residents was 37, with 31% under 30 and 13% over 50, and 51% female.

These studies led us to a series of questions that we wished to explore further. In particular we were interested in the demographic makeup of virtual world denizens across multiple virtual worlds, and also in what activities people were engaged in, including creative and commercial activity, as well as their perceptions and attitudes. These questions formed the impetus for this study, which was made possible by a gift from Leidos (formerly SAIC) to Georgia Tech.

WHY A SURVEY?

While a variety of different methods can be used in studying virtual worlds, because the main aim of this study was to collect demographic data as well as wider patterns of behavior and representation, a survey instrument was developed to capture this data. It should be noted that survey instruments are limited by the fact that they entail self-reporting, which has limitations for some types of data collection. Notably, even on questions which might have been considered sensitive, such as cross-gender play and people's romantic or sexual experiences, participants provided surprisingly candid answers. Many of the responses opened up questions for new research, which will be discussed at the end of this section and in the conclusion section of this report.

WHERE QUESTIONS CAME FROM

The questions used in the survey instrument came from a variety of sources, including the previously cited MMOG demographic studies, particularly Seay et al. (2001-2008) and Williams et al. (2008), in part because our aim was to compare virtual world demographics with those previously culled from MMOG denizens. We also borrowed some questions from the survey instrument developed for Pearce's Baby Boomer study (2008).

ADVERTISING / RECRUITMENT

This Survey ran from 17 April 2012 - 17 September 2012, administered through SurveyMonkey³ and linked from our Landing Page http://egg.lmc.gatech.edu/vw_survey/ and our FacebookTM⁴ page <https://www.facebook.com/VirtualWorldDemographicSurvey>. A total of 858 people completed all, or portions, of the survey, and responses are based on the number of respondents who answered each individual question.

The survey was promoted through several outlets, including Facebook advertisements (ads) targeting only U.S. citizens who identified themselves as being members of virtual world related groups; via paid advertisements and banner ads in popular virtual world publications and outlets; as well as forum posts and articles in virtual world blogs, such as New World Notes and TerraNova. We also drew from word of mouth through outreach to individuals we knew to have extensive followings in the virtual world space, such as Bruce Damer, author of *Avatars* (1997), and popular virtual world blogger Betsy Book. In-world recruitment was also done by placing recruitment materials at active field stations within virtual worlds we had previously studied. Artifacts at field stations dispensed a notecard or virtual brochure to recipients. Additionally, Pearce and Blackburn are members of several virtual world groups on Facebook and sent out personal messages to their own networks recruiting participants.

Advertising was challenging due to the fact that different publications had vastly different advertisement formats, and most were exceptionally small, providing little room for descriptive content. Some included text description. Although we did not have comprehensive tracking from all of our advertising outlets (not all of these sites tracked exposure or pass-throughs), we do have data from our Facebook ads which suggest that the vast majority of our respondents came via Facebook. While we limited our targeted Facebook ads to U.S. citizens due to

³ SurveyMonkey is a registered trademark of SurveyMonkey, Inc. and its affiliates in the United States and other countries.

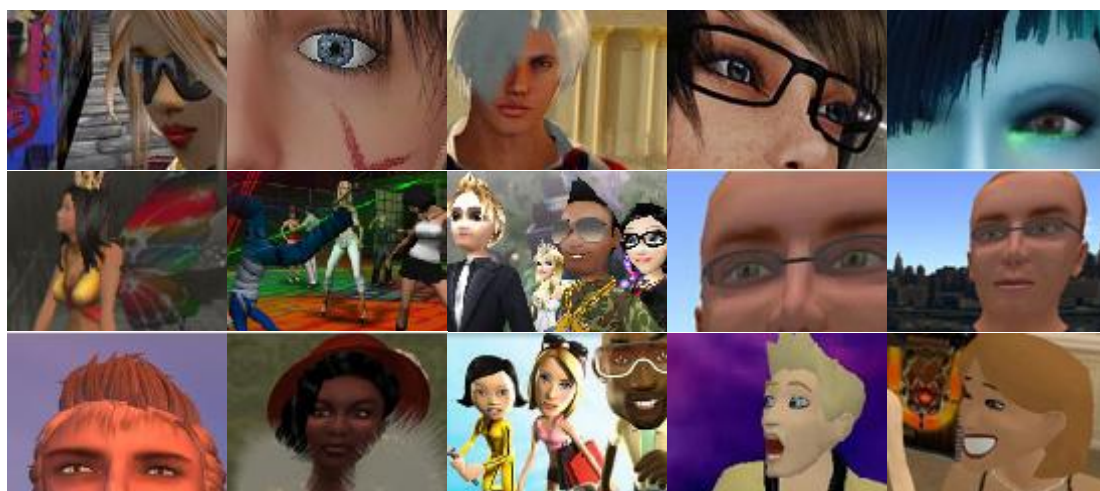
⁴ Facebook is a trademark of Facebook, Inc. in the United States and/or other countries.

budget constraints, advertising on blogs, forums, and other publications reached mixed U.S. and international audiences.

The advertisements were crafted in a very particular way with the following criteria:

- Attractive illustrations of diverse avatars (including various genders, races and avatar forms) in a wide variety of virtual worlds.
- Minimal text.
- Facebook ads linked to a Facebook page describing the survey, all other ads linked to our landing page, which included a link to the survey, as well as a link back to our Facebook page.
- The following text was included either within or below the ad graphic: “How do *you* choose to live in a Virtual World? Tell us about your experience in this voluntary Research Survey. Click here (must be 18 or older)”

FACEBOOK (<http://facebook.com>)

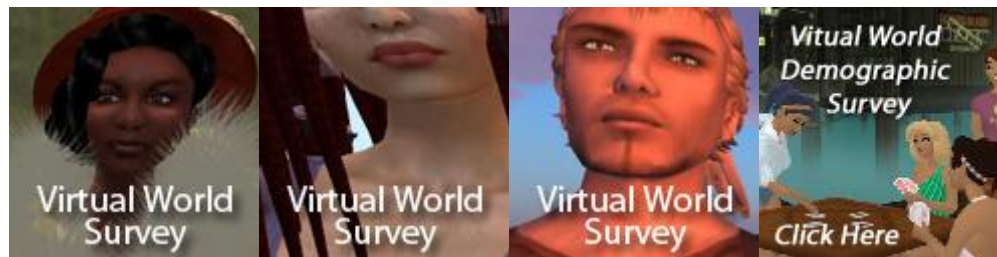


Through Facebook, we created targeted advertising campaigns geared towards people who had “Liked”: Kaneva, Second Life, BlueMars⁵, Onverse⁶, There.com, Smallworlds, OSGrid and other large groups related to these and other non-game virtual worlds and communities. Over 2.3 million people saw the Facebook advertisements but only about 3,000 clicked on them resulting in 724 “likes” of the Virtual World (VW) Survey Facebook (FB) page; 794 people fully completed the survey (out of 858 who started the survey) which is strikingly close to the number of people who “liked” our Facebook page. We chose to Pay per Click, which turned out to save us nearly 16 cents per person that clicked on our ads - the Cost Per Click (CPC) was \$0.39 and the Cost Per (thousand) Impressions (CPM) was \$0.55. (110X80 pixels)

THUMDAR (<http://thumdar.com/>)

⁵ Blue Mars is a registered trademark of Avatar Realty, Inc. in the United States and/or other countries.

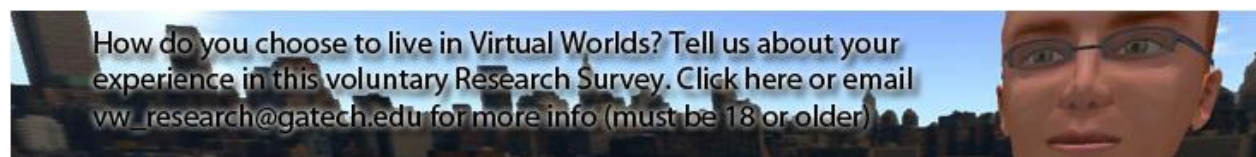
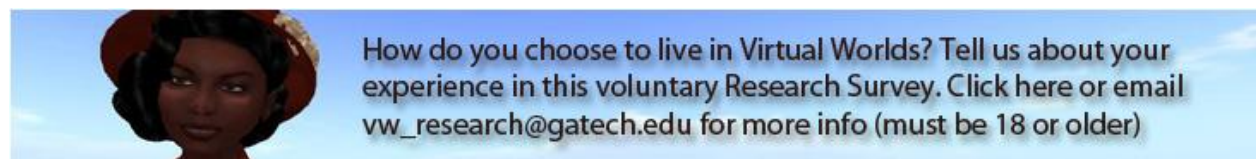
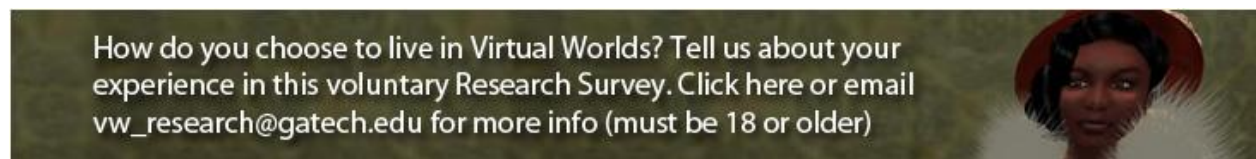
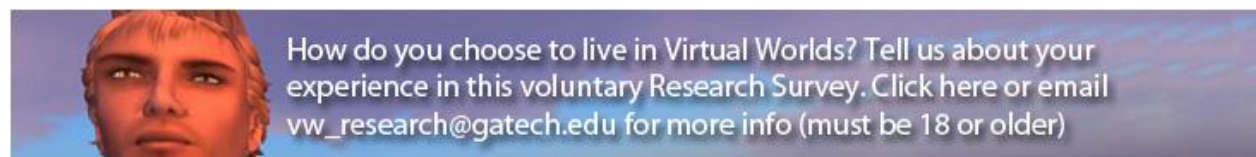
⁶ Onverse is a registered trademark of Stephen Pierce in the United States and/or other countries.



Thumdar is a popular site for plug-ins and add-ons for the virtual world There.com. Above are graphical ads that appeared on the Thumdar accompanied by the ad text. (Standard ad size 125X125 pixels)

SLU - SECOND LIFE UNIVERSE (<http://www.sluniverse.com/php/>)

SLU is the largest community site for Second Life and other virtual worlds. Costs are based on rotation (how often it is shown) during a fixed duration. We selected a 90-day high-rotation cycle at \$80.00. (Top Banner 728X90)



FORUMS

Announcements were posted to the following virtual world forums: Kaneva, There.com, Second Life, and Onverse Forums.

VIRTUAL WORLD PUBLICATIONS

A Press Release style announcement was sent to authors of popular blogs including: New World Notes <http://nwn.blogs.com/>, Second Style, Terra Nova ([now defunct](#)), Dwell On It <http://dwellonit.taterunino.net/About/> (they also write for), Metaverse Issues <http://www.metaversejournal.com/>, and the Alphaville Herald <http://alphavilleherald.com/>

EMAIL LISTS

Announcements were sent via the following in-world and extra-virtual email lists: Second Life Educators, Virtual World Researchers, Virtual Ethnography (in-world Second life list), University of There List/Forum.

IN-WORLD RECRUITMENT

In-world recruitment was done via groups in Second Life and There.com through notecards and in-world brochures respectively.

INDIVIDUAL CONTACTS

We also promoted the survey to people with ties to other virtual worlds, including OnLive^{®7}, ActiveWorlds^{®8}, Real Life Plus, and others.

CHALLENGES

The largest challenge with promoting an online survey is perceived legitimacy or lack thereof. Because our survey was conducted by a trusted research university, our splash page was located on a Georgia Tech URL, and the splash page was approved by Georgia Tech's Institutional Review Board, most people seemed to take it seriously; however, a number of people may not have taken the survey or avoided answering specific questions (i.e., sex in VWs) due to concerns about possible phishing scams or privacy issues.

Because of our limited advertising budget and hence our target scope, our survey is more representative of the demographic of VW denizens in the United States than other countries; however, we did have some success in international outreach through forums such as SLU, Kaneva, Onverse, and Thumdar. There were a total of 858 unique respondents to our survey and 794 completions, a 92% success rate.

One participant pointed out that "We must be careful to note that the results could tell us more about the advertising strategy and who takes surveys more than an accurate depiction of all VW Users," however, given our broad recruitment strategy and diverse advertising outlets, as well as the high response rate, we feel fairly confident that the survey represents a well-rounded sample of virtual world participants with a primary emphasis on those based in the U.S.

FUTURE MODIFICATIONS

All surveys are limited, and, in spite of our extensive domain knowledge (or perhaps because of it), we managed to overlook some important areas of activities which warrant further study. Although we asked extensive questions about commerce, we failed to include Shopping as an "activity;" in addition to a form of transaction, shopping can also be considered an entertainment, or play activity, in and of itself, especially in light of the fact

⁷ OnLive is a registered trademark of Onlive, Inc. and OL2, Inc.

⁸ ActiveWorlds and AW are registered trademarks of Activeworlds, Inc.

that shopping often coincides with avatar design, fashion and costuming, as well as decorating and building, all of which fall into larger play patterns included in the study. Although we covered exploration broadly as an activity category, we overlooked transportation, travel, traversal and vehicular sport activities, which are dominant in virtual worlds that include such affordances.

The survey has a very short section on creativity, an area that has been a major topic of our previous research. A particular shortcoming is that, although we talked about how artifacts were created, we did not delve into much detail about what was being made. A future, more focused study targeted to virtual world developers/creators would be useful in developing a deeper understanding of “productive play” practices.

One finding that will influence further surveys was respondent controversy over the term “player.” Some respondents felt that the term did not accurately describe their virtual world activities, which also included working, teaching, socializing, building, and so forth. Some of these activities, such as working, were seen as “professional” (for hire) and therefore not play; but even players involved in purely recreational activities, such as planning communities, did not necessarily perceive these activities as “play.”

In future surveys, it would be nice to create conditional response trees connected to specific questions. For instance, lists of activities may differ depending on which virtual world respondents identified as participating in.

The survey did not account for varying usage patterns, which might be something we want to add in future surveys. Most questions were couched in “do you” or “have you ever” types of terms, rather than defining a specific time frame of activity, or changes over time (which is difficult to capture in a survey format.)

Based on common survey practice and feedback from some participants, it would have been preferable to place the demographic section at the end, as people are more likely to adopt stereotypical answers if this information is requested first. However, we are less concerned about this since our survey put minimal focus on opinion, which is where this type of issue is of most concern.

RESULTS

The results are divided into 6 sub-sections:

- Section 1: Demographics
- Section 2: Avatar Appearance, Gender and Cross-Gender Play
- Section 3: Activities and Play Patterns
- Section 4: Creativity and Commerce
- Section 5: Game vs. Non-Game Virtual Worlds
- Section 6: Comparative Research

SECTION 1: DEMOGRAPHICS

Q1: AGE

(Appendix B – RAW Survey Q3)

Although we used slightly different age ranges than are used by the U.S. Census, as we had hypothesized, we found the age skew of metaverse virtual worlds to be higher than that of games. The largest demographic sector fell into the “Generation X” category, which is 29-47, with 45.2% of our respondents identifying as members of this age group. This figure is high when compared to the overall population, which is only 26.8% Gen Xers, according to 2011 Census Data. Our second largest age segment was, unsurprisingly, Baby Boomers (48-66), who made up over a third of our respondents at 36.2%, also high for this demographic, whose representation in the population according to Census Data is 19.3%. Interestingly, “Generation Y,” defined as 18-28, which is the primary audience for MMOGs, was only represented by 17.5% of respondents, roughly equal to their representation in the population overall at 16.6%. We also had a small percentage of the so-called “Silent Generation” (67+) at 1.1%, less than a tenth of their representation in the population as a whole of 12.8%.

Age of Users

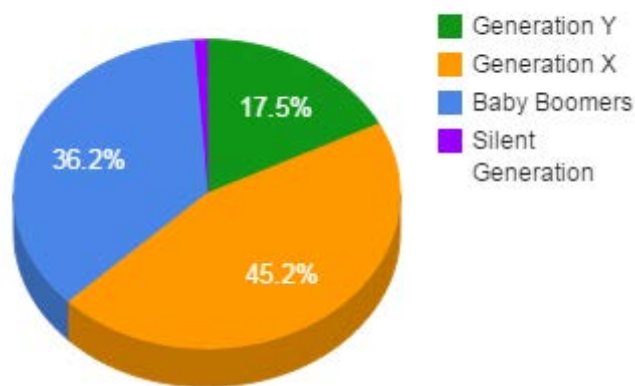


Figure 1.1 Age of Users - Virtual World Demographic Survey

Generation	Birth Year	Ages	Response Percent	Response Count
Generation Y	1984-2002 (1994)	18-28	17.5%	139
Generation X	1965-1983	29-47	45.2%	358
Baby Boomers	1946-1964	48-66	36.2%	287
Silent Generation	1927-1945	67+	1.1%	9
Answered:				793
Skipped:				65

Table 1.1 Age of Users - Virtual World Demographic Survey

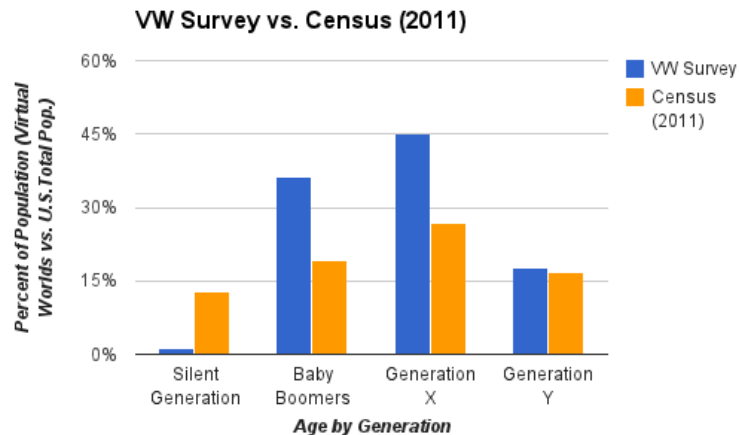


Figure 1.2 Generational Data - VW Survey (2012) vs. Census (2011)

Generation	Birth Year	VW Survey	Census (2011)
Generation Y	1984-2002 (1994)	17.5%	16.6%
Generation X	1965-1983	45.2%	26.8%
Baby Boomers	1946-1964	36.2%	19.3%
Silent Generation	1927-1945	1.1%	12.8%
17 or younger			24.5%

Table 1.2 Generational Data - VW Survey (2012) vs. Census (2011)

NOTES

- Our survey only dealt with persons 18+ Census Data was adjusted.
- The age data from our survey and the 2011 Census did not exactly match up when splitting data into Generation categories as seen in *Table 1.3*.

VW Survey Ages	Census Age Data
18-28	18-29
29-47	30-49
48-66	50-64
67+	65+

Table 1.3 VW Survey vs. Census (2011) Age Ranges

- More Generation X (deviation 1.683) and Baby Boomers (deviation 1.876) using VWs (in our survey) vs. the Total U.S. Population
- Nearly the same percentage of Generation Y - VW users compared to Total U.S. Population (deviation 1.054)
- Very small percentage of Silent Generation (Age 65+) users in our survey vs. Total U.S. Population (deviation 0.086)

Q2: REAL-LIFE GENDER

(Appendix B – RAW Survey Q4)

Based on our prior research, we hypothesized that people whose real-world sex was female would make up 50% of the virtual world population. As mentioned earlier, we knew that residents often perceived there to be more *women* in virtual worlds, but we attributed this in part to the phenomenon in which both men and women perceive there to be more women in a group that is roughly equally divided by gender. However, we were somewhat surprised to find the percentage of our respondents who identified as female to be higher than 50%. In fact, 59.8% of our participants identified as real-life women, which the U.S. Census identifies as comprising 50.8% of the U.S. population, while 37.9% of our respondents identified as male. This figure was consistent with some of our other research, which found that the majority of content creators in co-created virtual worlds are female (Pearce 2009B). Since a large percentage of virtual goods bought and sold are women's fashion, we can also hypothesize that women make up the majority of customers for these items.

In addition to male and female, we also gave the participants the option to identify as transgender. While the percentage was small—only 2.3% of our respondents selected this option—this figure is extraordinarily high when compared to the general population—nearly 8 times (7.66) that of their representation within the overall population, which is 0.3%. This was less surprising to us than the majority female finding, due the fact that our past research included incidents of real life transgender persons using virtual worlds to experiment and practice as part of their transition process. Interestingly, as a later section will show, many residents who do not identify as transgender also experiment with gender and sexuality in virtual worlds, but the use of these worlds as a kind of “testbed” for gender reassignment is an interesting emergent phenomenon that warrants further study.

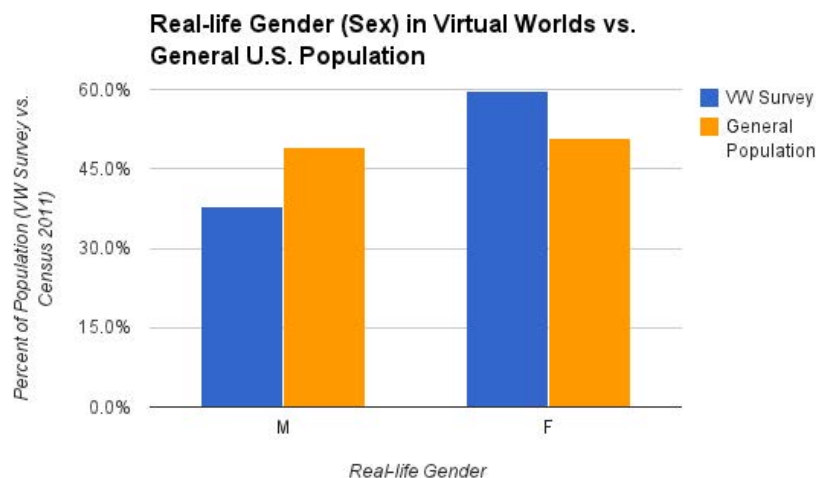


Figure 2.1 Real-life Gender - VW Survey vs. General U.S. Population (Census 2011)

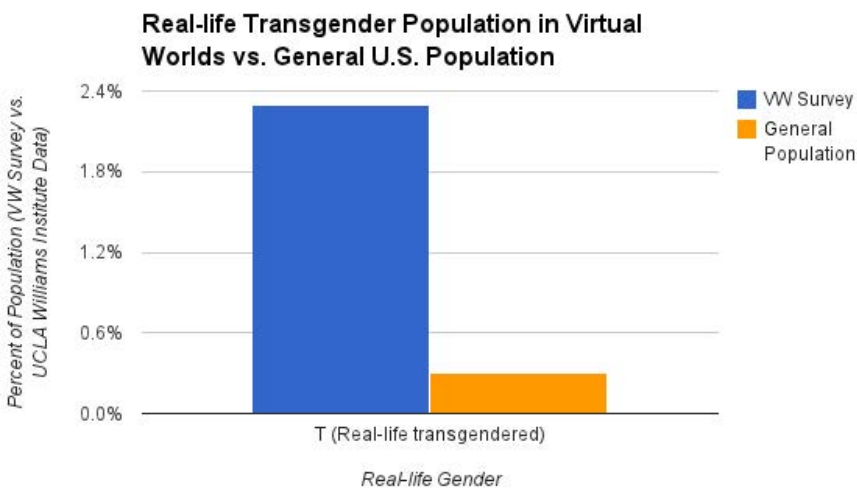


Figure 2.2 Real-life Transgender Population - VW Survey vs. U.S. General Population (Williams Institute and National Center for Transgender Equality)

Real-life Gender (Sex)	VW Survey	General U.S. Population
M	37.9%	49.2%
F	59.8%	50.8%
T (Real-life transgender)	2.3%	0.3%

Table 2.1 Real-life Gender - VW Survey vs. General U.S. Population (Census 2011 and UCLA Williams Institute 2011)

Real-life Gender (Sex)	Response Percent	Response Count
M	37.9%	301
F	59.8%	475
T (Real-life transgender)	2.3%	18
Answered:		794
Skipped:		64

Table 2.2 Real-life Gender (Sex) of Participants in VW Survey (Only)

Transgender People and Virtual Worlds

Perhaps one of the most notable findings of this research is the use of virtual worlds by transgender people. Numerically speaking, the percentage of transgender denizens of virtual worlds is exceptionally high, roughly 7.7 times higher than their representation in the population overall. As seen elsewhere in this report, cross-gender play is commonplace, but should not be conflated with the real life experience of being transgender, also termed “gender dysphoria,” in which an individual feels misaligned with their biological sex assigned at birth. In previous studies, we had observed transgender virtual world residents using cross-gender play to explore gender roles, and even prepare for gender reassignment (Pearce 2009A). Based on both the data in this survey, and responses to open-ended questions, the survey seems to indicate that this is extremely common among this population, and that transgender people are emergently using these worlds for a variety of social and therapeutic uses. Respondents identifying as transgender reported that virtual worlds allowed them to “express myself as my gender, instead of my sex,” served as a site for “companionship” and “an outlet for my sexuality,” and provided an environment “free from social criticism or danger, just to be myself as I want to be (and slimmer too!).” One

respondent humorously compared this to the television show “How I met your Mother⁹” by pointing out that a similar virtual world narrative could be “How I transitioned into a woman.”

Some transgender respondents reported that virtual worlds helped them to deal with emotional challenges. As one put it, “It has allowed me to express my inner identity and consequently relieved much inner turmoil.” More than one transgender respondent reported that virtual worlds “saved their lives”: “I was on the verge of suicide before i found them and they allowed me to be myself before I started transition.” This is significant considering that the transgender population has a much higher rate of suicide and suicide attempts than the general population; according to the Williams Institute, 41% of transgender persons attempt suicide (Haas, A. et al. 2014). Because of the flexibility of gender representation, virtual worlds provide a unique affordance that has powerful therapeutic implications, and may even have the potential to save lives. Virtual worlds and virtual reality have been used successfully to treat phobias such as fear of heights, arachnophobia, PTSD, as well as other psychological applications, but we are not aware of therapeutic uses of virtual worlds for either gender dysphoria or transgender suicide prevention.

Q3: REAL-WORLD SEXUAL ORIENTATION

(Appendix B – RAW Survey Q9)

Sexual orientation is an interesting phenomenon in virtual worlds since, as indicated in this and other sections, residents often experiment with or adopt both different genders and different sexual persuasions than those they practice in the real-world. Nonetheless, it is interesting to note the relatively high percentage of respondents who identified as homosexual or bisexual as compared to the general population. According to a 2011 survey by UCLA’s Williams Institute, 96.2% of the population identifies as heterosexual, 1.8% as bisexual and 1.7% as homosexual. Respondents to our survey however, were disproportionately higher in the latter two categories. Only 71.4% of respondents who answered the question identified as heterosexual, while 14.9% identified as bisexual, eight times that of the general population) and 7.9% as homosexual, nearly five times the percentage of the general population. This echoes the findings above concerning the disproportionately high numbers of transgender people in virtual worlds relative to the population as a whole. Across all categories, therefore, LGBTQ (Lesbian, Gay, Bisexual, Queer, Transsexual/Transgender) participation in virtual worlds is much higher than the population average overall. As we’ve also seen from the high incidence of transgender residents, this suggests that virtual worlds may be particularly attractive to people whose gender or sexual preference falls outside of “standard” social norms. Moreover, it may explain why people who fall within those norms are also using virtual worlds to experiment with the boundaries of their real-world genders or sexual preferences. It is also worth noting that only ten respondents chose to skip this question.

⁹ How I Met Your Mother is a registered trademark of Twentieth Century Fox Film Corporation.

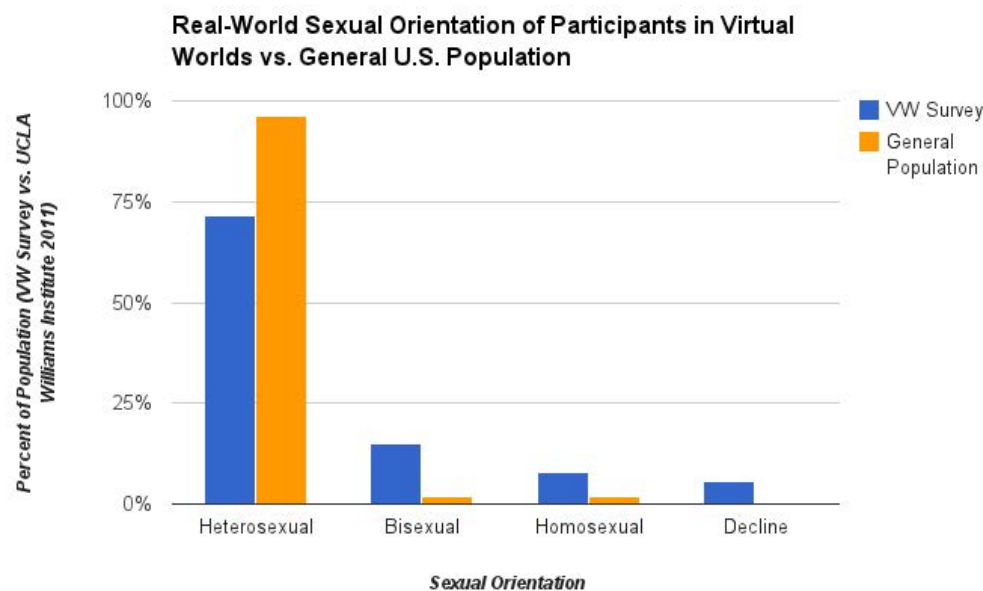


Figure 3.1 Real-World Sexual Orientation of Participants - VW Survey vs. General U.S. Population (UCLA Williams Institute 2011)

Real-World Sexual Orientation	VW Survey	General U.S. Population
Heterosexual	71.4%	96.2%
Bisexual	14.9%	1.8%
Homosexual	7.9%	1.7%
Decline	5.7%	N/A

Table 3.1 Real-World Sexual Orientation of Participants - VW Survey vs. General U.S. Population (UCLA Williams Institute 2011)

Real-World Sexual Orientation	Response Percent	Response Count
Heterosexual	71.4%	560
Bisexual	14.9%	117
Homosexual	7.9%	62
Decline	5.7%	45
Answered:		784
Skipped:		74

Table 3.2 Real-World Sexual Orientation of Participants in VW Survey (Only)

Q4: MARITAL STATUS

(Appendix B – RAW Survey Q5)

A little over one-third of our respondents identified as single, 36%, with 12.8% identifying as divorced. According to the U.S. Census, adults who have never been married comprise 27.4% of the general population, and divorced persons comprise 10.6%. Thus it would appear that the percentage of adults in virtual worlds who are unmarried is higher than the national average. Similarly, participants who identified as married made up 34.5% of our respondents, as compared to their percentage in the overall population, which is 53.6%. The number of people cohabitating was similar, 12.8% of our respondents vs. 10.6% in the general population.

It is interesting to note the divergence between married and unmarried persons with that of the general population, especially when looking at the later data on sex and relationships, which we found to be quite prevalent. Prior research, as well as responses within this survey, also indicates that some people are meeting and forming relationships online which later transition into real-world relationships.

Real-life Marital Status of VW Survey Participants

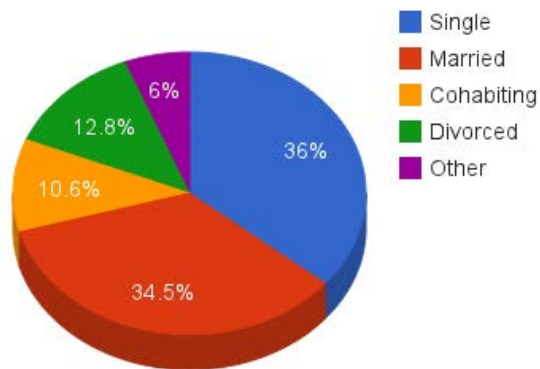


Figure 4.1 Real-life Marital Status of VW Survey Participants

Marital Status	Response Percent	Response Count
Single	36.0%	286
Married	34.5%	274
Cohabiting	10.6%	84
Divorced	12.8%	102
Other	6.0%	48
Answered:		794
Skipped:		64

Table 4.1 Real-life Marital Status of VW Survey Participants

Marital Status of Population 18+ Census (2011)

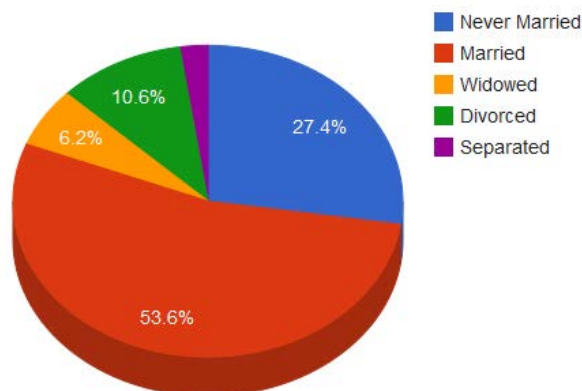


Figure 4.2 Marital Status of Population 18+ Census (2011)

Marital Status	Census (2011)
Never Married	27.4%
Married	53.6%
Widowed	6.2%
Divorced	10.6%
Separated	2.3%

Table 4.2 Marital Status of Population 18+ Census (2011)

NOTES

- Census Data was modified to only include data for people ages 18+
- The Census categories for Marital “State” do not exactly match up with the data gathered in our VW Survey, thus we have presented both sets of data as individual Figures and present them in *Table 4.3*.

VW Survey	Response Percent	Census (2011)	Census (2011)
Single	36.0%	Never Married	27.4%
Married	34.5%	Married	53.6%
Cohabiting	10.6%	Widowed	6.2%
Divorced	12.8%	Divorced	10.6%
Other	6.0%	Separated	2.3%

Table 4.3 Marital Status of Population 18+ VW Survey and Census (2011)

Q5: CHILDREN

(Appendix B – RAW Survey Q6)

Among those who took the survey, close to half identified as parents; 51.39% had had no children. Among those that did, 23.3% identified having at least some children living at home; 21.8% say they had children not living at home; and 3.53% say they had children both at home and away. The incidence of children is consistent with the demographics; one would expect people in the Generation X or Baby Boomer Demographic to have children. This is also consistent with the number of participants who said they were married or divorced. The high incidence of virtual world residents with children refutes the stereotype of the lonely geek with “no life” spending time in virtual worlds. In a later section we will also look at how child-rearing impacts use patterns, particularly with respect to duration and times of day spent online.

Type of Household for Participants in VW Survey

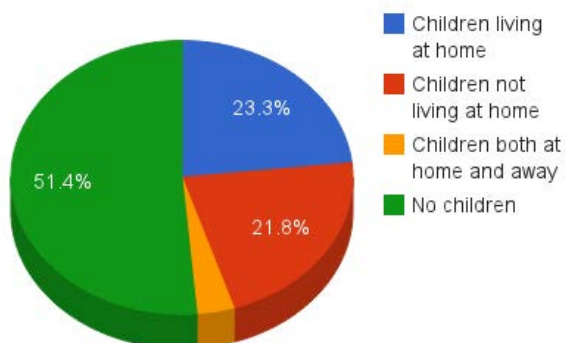


Figure 5.1 Type of Household of Participants in VW Survey

Type of Household	Response Percent	Response Count
Children living at home	25.1%	199
Children not living at home	23.6%	187
Children both at home and away	3.5%	28*
No children	51.4%	408
Answered:		794
Skipped:		64

* excluded from "Answered" count

Table 5.1 Type of Household of Participants in VW Survey

NOTES

- Corrected *Table 5.1* accounting for Overlap of people who answered "Children living at home" and "Children *not* living at home" (-3.5% total from children categories).
 - Table 5.1* still represents all people who answered "Children living at home" and "Children *not* living at home" but also shows the overlap.
 - If added together, response percent = 103.6%, this is because the "Children both at home and away" category is just for our reference, but doesn't add to the total.

Q6: HIGHEST LEVEL OF EDUCATION COMPLETED

(Appendix B – RAW Survey Q7)

Generally speaking, the education level of virtual world denizens is higher than the average for the population at-large; 15.2% had an advanced degree as compared to 9.6% in the general population; 23.7% reported having a Bachelor's degree, as opposed to 18.1% in the general population; and 46.2% reported having some college (we can assume that some of our college-age participants fall into this category), as opposed to 28.5% of the general population. People with only a high school diploma comprised 12.2% of respondents, less than half of the U.S. population rate of 30.4%. Only 2.6% identified as not having graduated high school, in contrast with 13.3% of the general population.

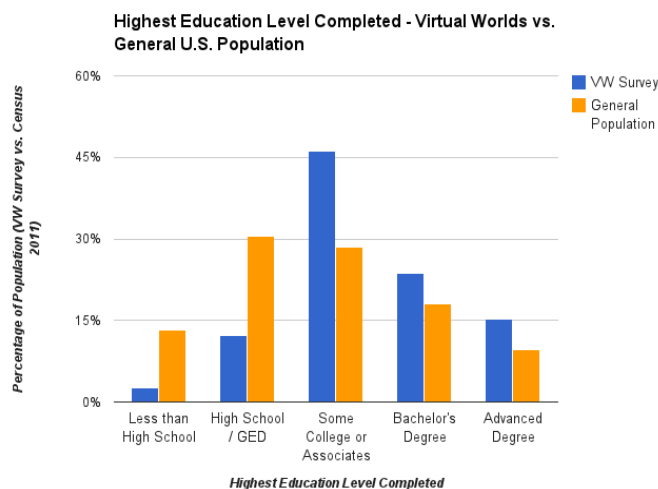


Figure 6.1 Highest Education Level Completed - VW Survey vs. General U.S. Population (Census 2011)

Highest Education Level Completed	VW Survey	Census (2011)
Less than High School	2.6%	13.3%
High School / GED	12.2%	30.4%
Some College or Associates	46.2%	28.5%
Bachelor's Degree	23.7%	18.1%
Advanced Degree	15.2%	9.6%

Table 6.1 Highest Education Level Completed - VW Survey vs. General U.S. Population (Census 2011)

Highest Education Level Completed	Response Percent	Response Count
Less than High School	2.6%	21
High School / GED	12.2%	97
Some College	31.2%	248
2-year College Degree (Associate's)	15.0%	119
4-year College Degree (BA, BS)	23.7%	188
Master's Degree	12.6%	100
Doctorate Degree	1.1%	9
Professional Degree (MD, JD)	1.5%	12
Answered:		794
Skipped:		64

Table 6.2 Highest Education Level Completed - VW Survey (Only)

NOTES

- Exact Values from Census (2011) adjusted to reflect only people over the age of 18.
- We were much more specific with the degrees listed in VW Survey, categories were grouped together under the category headings used in the Census.
 - ex. Some College and 2 Year Degree (Associate's) were grouped together
 - and Master's, Doctorate, or Professional Degrees were all grouped under "Advanced Degree"

Q7: RELIGION

(Appendix B – RAW Survey Q8)

While nearly 80% of the U.S. population identifies as participating in some religious practice (U.S. Census Bureau), only 21.5% of our respondents identified as such, with 68.9% saying they did not attend religious services, and 9.7% declining to answer the question.

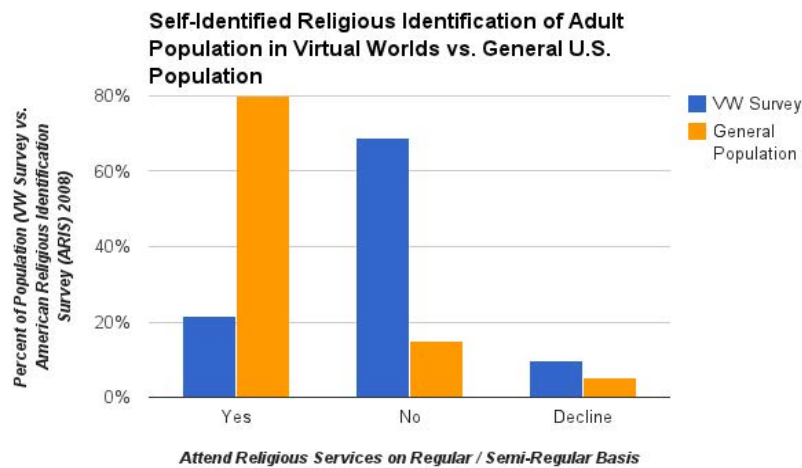


Figure 7.1 Self-Identified Religious Identification of Adult Population in VW Survey vs. General U.S. Population (American Religious Identification Survey 2008)

Attend Religious Services	VW Survey	General Population
Yes	21.5%	79.9%
No	68.9%	15.0%
Decline	9.7%	5.2%

Table 7.1 Self-Identified Religious Identification of Adult Population in VW Survey vs. General U.S. Population (American Religious Identification Survey 2008)

Attend Religious Services	Response Percent	Response Count
Yes	23.7%	184
No	76.3%	591
Answered:		775
Skipped:		83

Table 7.2 Self-Identified Religious Identification of Adult Population in VW Survey

NOTES

- In *Table 7.1* Data from the VW Survey was adjusted to reflect the “Declined” responses in the total percentage.
 - originally 23.7% YES, 76.3% NO
 - all “skips” on this question were regarded as “Decline” only for this particular question and in order to give us a comparison against the General Population Data.
- Worth noting that, in the Open Response Questions, some people said that they attend “in-world” religious or spiritual events / services.
- Data from the census grouped to reflect self-described religious identification as either “Religious”, “Non-Religious” (Unaffiliated), or “Declined”.
 - in correlation to our question of whether participants attend Religious Services on a Regular/Semi-Regular Basis
 - if “Yes” assumed to be self-identified as “Religious”
 - if “No” assumed to be self-identified as “Non-Religious” (Unaffiliated)

Q8: RACE / ETHNICITY

(Appendix B – RAW Survey Q12)

It is not surprising that the majority of respondents to our survey identified as Caucasian, 81.9%, as compared with 74.1% of the general US population. Only 3.8% of VW Survey participants identified as Black, less than a third of the general population at 12.6%. Asians made up 1.8% of respondents, as opposed to 4.8% of the population at-large, and 7.8% identified as Mixed, compared with 2.8% of the population at-large, so this figure was high compared to other minority groups. The survey also included 4.0% Hispanics, a group not covered by the census, and 0.8% of respondents identified as being of Middle-Eastern descent.

It should be noted that participants gave us mixed reviews for our approach to this question. While some chastised us for using the term “Caucasian,” others saluted our use of the term. Some participants pointed out that there is an abundance of research as to the efficacy of placing the Demographic Information at the end of the survey, because thinking about your race / ethnicity / demographics can affect the way participants respond to further questions, placing them in gender or race roles. This is less of a concern to us since the remaining questions were not geared to gender or ethnicity-related behaviors, but it is something to take into consideration in further surveys.

Real-life Race of Participants in VW Survey

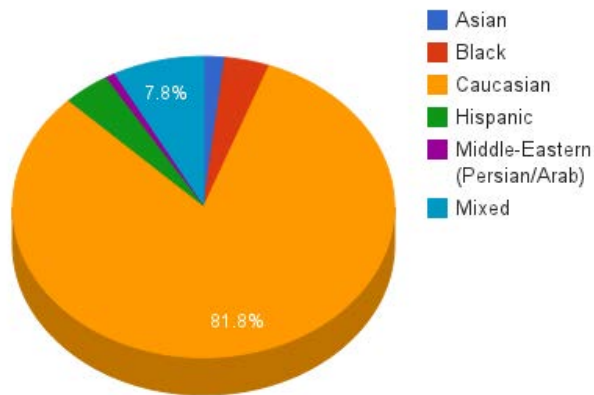


Figure 8.1 Real-life Race/Ethnicity of Participants in VW Survey

Race / Ethnicity	Response Percent	Response Count
Asian	1.8%	14
Black	3.8%	30
Caucasian	81.9%	650
Hispanic	4.0%	32
Middle-Eastern (Persian/Arab)	0.8%	6
Mixed	7.8%	62
Answered:		794
Skipped:		64

Table 8.1 Real-life Race/Ethnicity of Participants in VW Survey

Real-life Race of Participants in VW Survey vs. U.S. Total Population

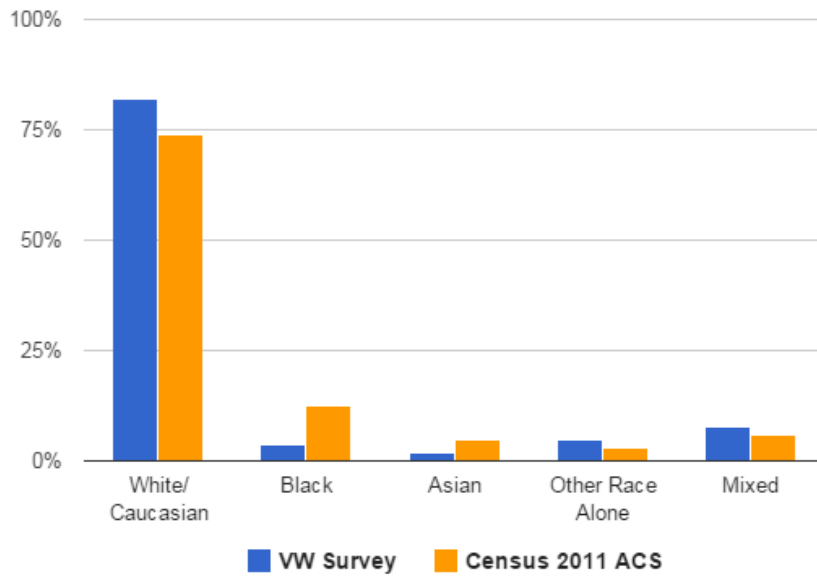


Figure 8.2 Real-life Race/Ethnicity of Participants in VW Survey vs. U.S. Total Population (Census 2011 ACS)

Race / Ethnicity	VW Survey	Census 2011 ACS
White/Caucasian	81.9%	74.1%
Black	3.8%	12.6%
Asian	1.8%	4.8%
Other Race Alone	4.8%	2.8%
Mixed	7.8%	5.7%

Table 8.2 Real-life Race/Ethnicity of Participants in VW Survey vs. U.S. Total Population (Census 2011 ACS)

Q9: REGIONAL PLACE OF RESIDENCE

(Appendix B – RAW Survey Q13)

Nearly 90% of the participants in our survey were residents of the United States at the time of the survey, which should not be surprising since most of our recruitment efforts were based on predominantly US-based outlets such as Facebook and various VW forums. 87.7% identified as being within the U.S. Even so, 10.8% identified as being outside the U.S., in spite of the fact that our primary recruitment targets were US-based, and 1.5% had inconclusive answers.

Interestingly, U.S. respondents were fairly equally divided between Midwest, Northeast, Pacific, and Southeast, ranging from 12.2%-15.1% of respondents. A smaller number were from the Southwest, and 21.8% of U.S. respondents did not give a region. The Southwest represented the smallest percentage of US-based respondents, at 8.1%. Of the remaining 10.8% of those outside the U.S., the majority—3.7%—were based in the U.K.

Current Region of Residence (2012)	Response Percent	Response Count
USA	87.7%	696
Midwest	15.1%	120
Northeast	12.2%	97
Northwest	1.8%	14
Pacific	14.5%	115
Southeast	14.2%	113
Southwest	8.1%	64
USA (nondescript)	21.8%	173
Outside USA	10.8%	86
Canada	2.0%	16
UK	3.7%	29
Other	5.2%	41
Outliers (didn't make sense)	1.5%	12
Answered:		794
Skipped:		64

Table 9.1 Current Region of Residence (2012) of Participants in VW Survey

NOTES

- *Table 9.1* - Definitions of U.S. regions vary. For the purpose of this study, Arizona, Louisiana-Arkansas-Missouri-Kansas (all states west of the Mississippi) are all counted as Southwest. Pacific includes Hawaii, Alaska, and Pacific Northwest states. "East" evenly distributed between Northeast and Southeast, primarily states that are East of the Mississippi.
- The important part of the chart is really the % responses from the U.S. since that is what our Demographic data is compared with.

Q10: TYPE OF RESIDENTIAL AREA

(Appendix B – RAW Survey Q14)

At first glance this may seem like an extraneous question, but the reason we asked it is that we had found in our past research that a large number of virtual world denizens were living in rural areas where they had little engagement with a community and limited social interaction. In some cases, they were farmers, or lived in remote areas due to retirement or job requirements, and the virtual world became a way for them to engage with a community.

Suburban dwellers were by far the largest group, at 41.2% of respondents, followed closely by urbanites at 27.5% and rural dwellers living near a town 24.3%. Only 5.9% identified as rural, either living on a farm, ranch, or in a remote area; therefore, our hypothesis that we would see a higher number of VW residents living in remote areas was incorrect.

Residential Area of Participants in VW Survey

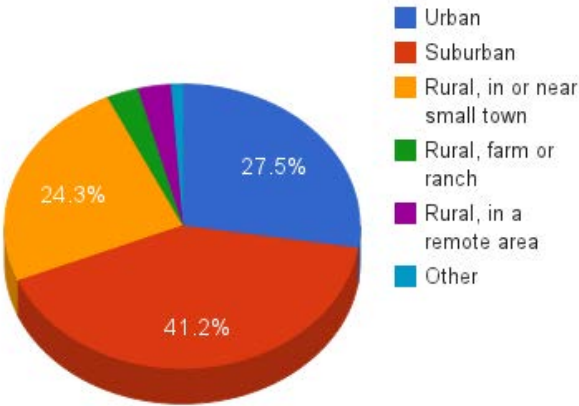


Figure 10.1 Residential Area of Participants in VW Survey

Residential Area	Response Percent	Response Count
Urban	27.5%	218
Suburban	41.2%	327
Rural, in or near small town	24.3%	193
Rural, farm or ranch	2.9%	23
Rural, in a remote area	3.0%	24
Other	1.1%	9
Answered:		794
Skipped:		64

Table 10.1 Residential Area of Participants in VW Survey

Q11: DISABILITY

(Appendix B – RAW Survey Q15)

Prior research into the University of There (UOT) (Pearce 2009B) found that subjects who identified as having a disability were represented in a disproportionately high percentage compared to the general population. This may have been due, in part, to the high incidence of older residents, principally Baby Boomers, within the UOT community, but we wondered if this was indicative of a larger pattern across virtual worlds. We also had findings from prior qualitative research showing that disabled people used the affordances in a variety of creative, emergent ways to compensate for, or address, their disabilities (Pearce 2009A, 2009B). For instance, an individual who could no longer walk but who had previously been highly active enjoyed exploring and dancing in virtual worlds. People with hearing impairments used text chat to communicate. And a woman who had a brain injury due to a car accident used There.com's voice chat affordance to re-learn how to speak.

As expected, the percentage of respondents who identified as having a disability—20.1%—was slightly higher than the national average of 14.7%, although not as high as expected given previous research. We assume this figure correlates, at least in part, with age, since 20% of older adults have disabilities. Only 8.8% of respondents reported being unable to work due to a disability (see employment section).

Real-life Disability of VW Survey Participants

Yes No Decline

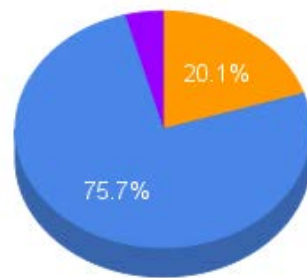


Figure 11.1 Real-life Disability of VW Survey Participants

Do you have a disability? (Optional)	VW Survey	Response Count
Yes	20.1%	154
No	75.7%	581
Decline	4.2%	32
Answered:		767
Skipped:		91

Table 11.1 Real-life Disability of VW Survey Participants

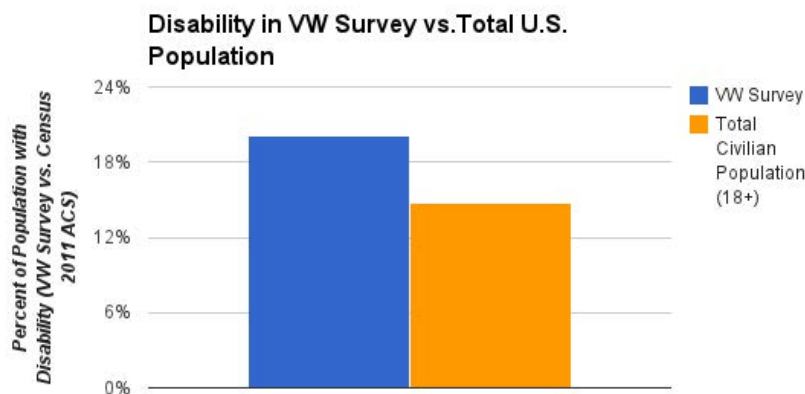


Figure 11.2 Disability of VW Survey Participants vs. Total U.S. Population (Census 2011)

Disability Status - Ages 18+	VW Survey	Census 2011
Have a Disability	20.1%	14.7%

Table 11.2 Disability of VW Survey Participants vs. Total U.S. Population (Census 2011)

We also know from our previous research that there are disability groups within virtual worlds. Several disability activism groups have chapters within Second Life. The University of There (Pearce 2009B) had a program for disabled residents, and also had methods for accommodating residents with disabilities in their classes (such as using text instead of voice chat for deaf residents, or allowing residents with problems typing to use voice).

As T.L. Taylor (2006) has pointed out, avatars are not disembodied; rather, they comprise one of “multiple bodies,” including real-world bodies. This is particularly poignant for people whose real-world bodies limit their activities. Virtual worlds provide an expansive environment that allows them to move beyond their physical limitations. The use of avatars can also provide disabled people with increased social agency. We don’t typically

think of the physical body in terms of social agency, but for many, limited mobility or communication constraints caused by a disability can also strongly limit a person's social life.

While Open Ended Questions on this topic will be explored in more detail in a supplemental report, it is interesting to note here that a number of respondents who identified as having disabilities wrote lengthy narratives about their experiences, providing deeper, and in many cases moving, insight into the power of a prosthetic body in a virtual world. Many disabled residents cited their disability as a major motivator for going into virtual worlds in the first place. Within that, a number of more specific motivations emerged, including loneliness, boredom, ability to do things you could not do in the real-world, mitigating the depression caused by a disability and chronic illness, and pain management. The latter is supported by research that shows that playing games can help distract people from physical pain. As one disabled resident eloquently described it:

"I don't know if people realize what a large community of disabled people [are in virtual worlds]. It gives me a feeling of freedom that I don't have in RL. I don't feel as trapped within my own body and apartment. I have heard other disabled people say the same. I can run, fly, swim, and be anything I feel like that day. It is my freedom that I lost due to my disability. Certainly it can't completely replace the physical abilities I have lost, but it does help a great deal. It (and other online activities, such as discussion boards) comprise the bulk of my social activities. It opened up the world for me by stimulating my mind and providing social contact."

The "extended body" afforded by virtual worlds thus allows disabled people to engage in a wide range of "physical activities", virtually, that they may not have access to in real life. Said one resident, "my disability keeps me from doing the things I can do in the game, like dancing, running, shopping [sic]." Another stated that "as a slightly disabled person there are a lot of RL things that I cannot do. By joining Second Life and Inworldz¹⁰ I can socialize, dance, sail, have deep relationships that I could not in RL" According to another, "It has given me interest in life again. It gives me mobility where I am almost immobile in real life. It has given me back my self esteem in that I can be creative and productive."

Some disabled residents also talked about VWs as an alternative to other more passive media: "well being disabled, it makes me feel active. without a virtual world to be in. I would just sit in front of a TV and watch old tv shows all day. [sic]" Residents can also translate real-world hobbies and activities that they performed prior to their disability into virtual activities: "When I heard of Second Life, I thought it would be a good place to develop my roleplay game. I'm not healthy enough to stay up long hours to play in physical life." Some residents also develop new hobbies in the VW context. To quote one resident, virtual worlds "...gave me a hobby and social outlet my health prevents me from having in real life. [sic]" A resident with a vision impairment said "I am legally blind due to a condition called retinitis pigmentosa. I cannot get around well in the real world due to my limited vision but in a virtual world that is no problem, I can create beautiful things that others appreciate I cannot do this in real life as well either." Having an avatar also puts disabled people on a "level playing field" with their peers, a phenomenon we found in our prior research. (Pearce 2009A) "To some degree, I feel like I can 'hide' who I am in real life. No one can see the person behind my avatar, so I am less self-conscious about my appearance or speech problems."

For disabled people who may be constrained or immobile, virtual worlds provide a remedy to loneliness and isolation, as well as supportive communities of people with similar issues. One resident described the motivation for going into virtual worlds as ... "Honestly, loneliness and the need to fill time. I am home bound, so I do not have many people in my RL. Second Life helps to fill my life with color and love and friends." Another said, similarly, "I'm not healthy enough to play in physical life. I'm seventy-one with chronic health problems that keep

¹⁰ InWorldz is a registered trademark of Inworldz, LLC within the United States and/or other countries.

me housebound. SL is my only creative/social outlet.” Virtual worlds can also help to deal with the depression that sometimes arises out of a disability or prolonged illness. “I have MS and had reached a point in my life where I was unable to practice my profession (ceramic artist) I had become depressed and withdrawn. A friend encouraged me to join Second Life.” Due to the fact that there are so many disabled and chronic disease communities in Second Life, residents can also find support groups: One resident cited her motivation for staying in a virtual world as “The wonderful friends I have made that are supporting me during my cancer battle.”

It’s interesting to note that in our previous research, we discovered extensive real-world philanthropic activities in virtual worlds, and some residents with disabilities or chronic illness are devoting energy towards fundraising drives related to their illnesses, such as cancer and arthritis. Joining virtual worlds provides a sense of usefulness, although some also felt that excessive time spent in virtual worlds was affecting their real life responsibilities and relationships. As one respondent put it, “I feel useful and wanted and that people really care about my well being. On the negative side, I spend so many hours in world, that I neglect my normal routines, and caring for my real life family. [sic]” Another disabled resident echoed the pros and cons, saying “At first it was a life-saver because I was housebound. Now it’s interfering with my health, which has gotten worse. I’m missing other web opportunities because SL is so rich in possibilities.”

In addition to mitigating loneliness and creating a sense of social agency for disabled people, a number of respondents cited using virtual worlds as a way to overcome social phobias or practice social skills. As one resident put it, “it’s easier to interact virtually than face to face for me,” and for some residents, typing is easier than speaking or dealing with body language as a means of interacting. This may be because virtual worlds narrow the sensory input bandwidth, which can be particularly useful for people with conditions that include sensory integration issues, such as Asperger’s syndrome. In some cases, these social experiences can also have a positive effect on real-world social interaction. As one resident put it, “I seem to have opened up a bit in RL. I used to just keep to myself, but now I am more open, and I share my ideas, as well as my slightly absurd sense of humor.” Another resident said that “it has opened up my life to experiences, relationships, personal growth, that I would never have had without VWs. I learn a great deal about relating to people, about activities, about myself in VWs, that I would never have gotten without the VW experiences and freedoms.” Roleplaying was also cited as a method for developing social skills: “I think my in-world character’s development has actually inspired me to become a better friend and conversationalist in the ‘real world’.”

Responses to this question also highlighted an aspect of disability that may be overlooked, the formation of romantic connections. Some of our disabled respondents reported having romantic partners in virtual worlds, some of which actually transitioned into real-world relationships. Although we will go into more detail about VW relationships in the section on sex and romance, as well as the Open-Ended Question supplement, we thought this was an interesting benefit particular to disabled people. As one respondent described it, “I have met the love of my life there. We have met in RL and plan to visit more and live together in the future. Prior to meeting him, SL had been and continues to be an important way to do things I cannot do in RL. I am disabled in RL. IN SL I can look the way I want to, dance, fly, have the kind of living space I wish, and wear the kind of clothes I wish. It’s an important outlet to keep me from being so depressed and angry in the RL.” This was echoed by other disabled residents, who said that being in a virtual world allows them to have more control over their appearance and the way they are seen and judged by others.

One interesting and unexpected discovery came from residents who were responsible for a sick or disabled person. One woman talked about caring for a mentally ill spouse, and that virtual worlds allowed her to have a normal social life, and even form an auxiliary romantic relationship to compensate for the loss of “normal” relations with a loved one.

NOTES

- In this question 20.1% of Participants admit to Disability, but only 8.8% of participants are unable to work because of disability according to Q12.
- The American Community Survey (ACS) census data from this table has been modified with simple addition and division to account for only the population 18 years and older with a disability.
 - 14.7% Estimate of the Total Civilian Population (18+)
- There are disability groups within VWs like SL and many people discussed the limitations of their disability as their reason for starting or continuing using VWs as seen in responses to Open Ended Questions (VW Survey Q 42-45); this data will be published in a Supplemental Report.

Q12: EMPLOYMENT STATUS

(Appendix B – RAW Survey Q16)

Employment status was of interest to us for a couple of reasons. First, we wanted to understand more about the types of people who frequent virtual worlds, and to assess if there were any patterns in terms of employment. Second we wanted to understand the relationship between their work lives and their virtual world lives—how much time and effort were devoted to each, and also the extent to which their play life had become “professionalized,” a phenomenon we discovered in prior research, in which people earn some or all of their income through VW activities.

One immediately evident pattern is that only a little over one-third of our respondents had conventional full-time jobs. 37.5% identified as having full-time employment for wages. 20.4% identified as being self-employed, 14.5% were students, 11.3% were employed part-time, 9.9% identified as homemakers, 8.8% were unable to work due to a disability, and 8.8% identified as retired or semi-retired. 13.4% of participants identified as unemployed, which is a higher percentage than the population at-large at the time of the survey, which was around 8.6% (Jacobe 2012). It is interesting to note that a little over 60% of our respondents were people who did not conform to the standard framework of full-time employment, and that 20% identified as self-employed. This suggests the virtual world denizens come from a range of alternative economic lifestyles. In a later section we will also look at the phenomenon of “professionalization” to learn more about the extent to which people are earning some or all of their real-world income from their virtual world activities.

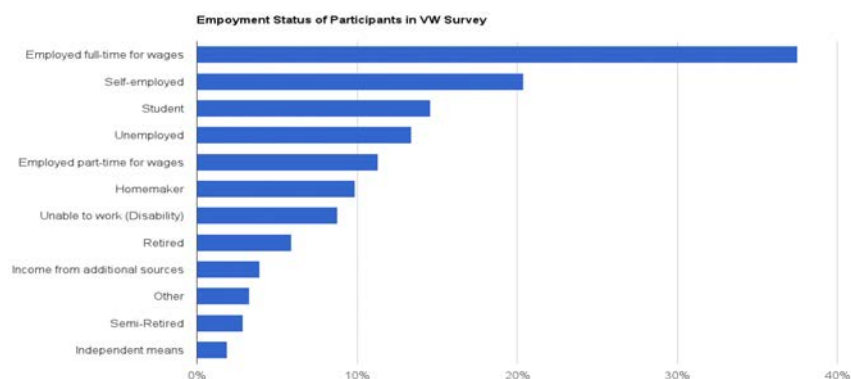


Figure 12.1 Employment Status of Participants in VW Survey

Employment Status of VW Survey Participants (All that apply)	Response Percent	Response Count
Employed full-time for wages	37.5%	298
Self-employed	20.4%	162
Student	14.6%	116

Unemployed	13.4%	106
Employed part-time for wages	11.3%	90
Homemaker	9.9%	79
Unable to work (Disability)	8.8%	70
Retired	5.9%	47
Income from additional sources	3.9%	31
Semi-Retired	2.9%	23
Independent means	1.9%	15
Other	3.3%	26
Answered:		794
Skipped:		64

Table 12.1 *Employment Status of Participants in VW Survey*

Q13: ANNUAL INCOME

(Appendix B – RAW Survey Q17)

Although this question had the highest rate of declines, of the 794 responses that we did get, it would seem that virtual world residents have lower incomes than the national average. The highest percentage, 14.5% reported incomes under \$10,000. In fact if you look at the diagrams below, the overall curve in our income reporting seems to be roughly the inverse of the national average, although in the lower end of the middle income ranges—roughly \$15,000-\$35,000 a year—VW denizen incomes are comparable to the U.S. national average; however, they then begin to taper off in the higher middle income ranges, showing at about half the national average in the \$35,000-\$60,000 range, and tapering off to an even lower percentage in the higher income brackets. This is surprising since virtual worlds can become very costly, especially in terms of real estate fees. In addition, for designers, there are often costs associated with content creation, such as submission fees (as in the case of There.com), real estate required to run a retail shop, or percentages taken from web-based sales.

However, as we will see when we look at expenditure patterns, we will notice that there are actually a relatively small number of people who are spending the majority of money in virtual worlds. This is a pattern we see elsewhere in what is called “freemium” or “free to play” games, in which basic gameplay is free, but players either pay for virtual items to enhance their gameplay, or for access to features or areas from which non-paying residents are barred. It’s fairly well established that, for most of these games, a relatively small minority of players are, in essence, bankrolling the experience the majority. In the case of virtual worlds, it can also be argued that this small group of elite residents is also largely responsible for providing entertainment for the remaining residents, since content creation typically involves some level of monetary outlay.

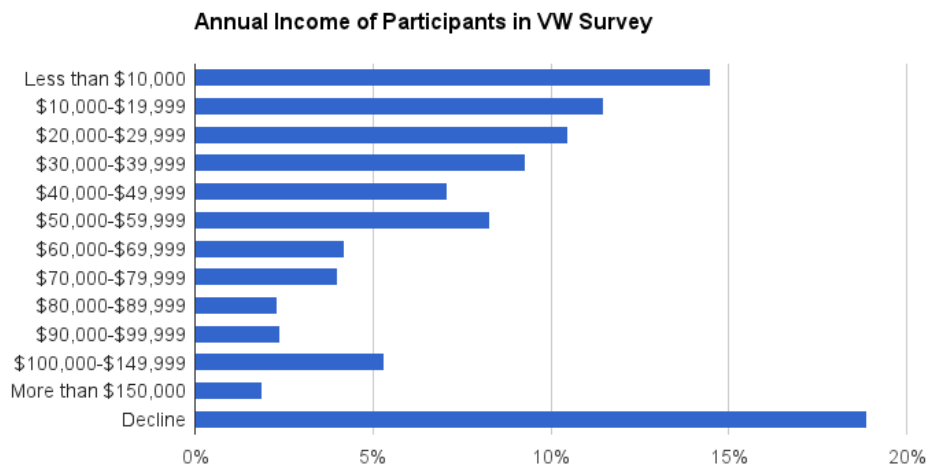


Figure 13.1.1 Annual Income of Participants in VW Survey

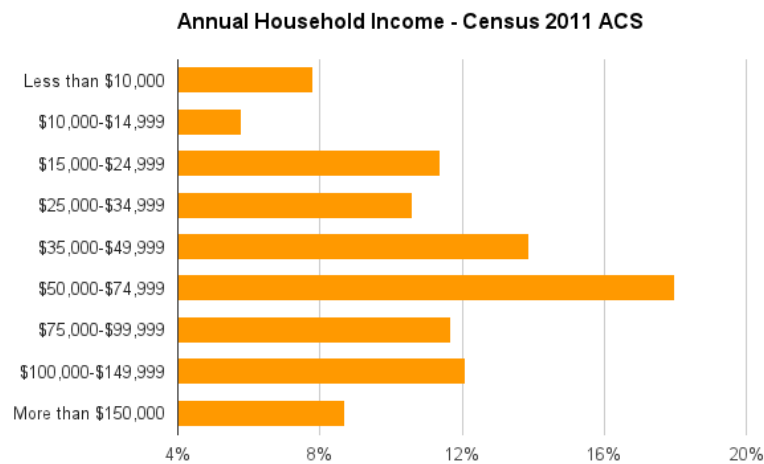


Figure 13.1.2 Annual Household Income - Census 2011 ACS

Annual Income of Participants in VW Survey	Response Percent	Annual Household Income - Census 2011 ACS	Population 18+ Response Percent
Less than \$10,000	14.5%	Less than \$10,000	7.8%
\$10,000-\$19,999	11.5%	\$10,000-\$14,999	5.8%
\$20,000-\$29,999	10.5%	\$15,000-\$24,999	11.4%
\$30,000-\$39,999	9.3%	\$25,000-\$34,999	10.6%
\$40,000-\$49,999	7.1%	\$35,000-\$49,999	13.9%
\$50,000-\$59,999	8.3%	\$50,000-\$74,999	18.0%
\$60,000-\$69,999	4.2%	\$75,000-\$99,999	11.7%
\$70,000-\$79,999	4.0%	\$100,000-\$149,999	12.1%
\$80,000-\$89,999	2.3%	More than \$150,000	8.7%
\$90,000-\$99,999	2.4%		
\$100,000-\$149,999	5.3%		
More than \$150,000	1.9%		
Decline	18.9%		

Table 13.1 Annual Household Income - VW Survey and Census 2011 ACS

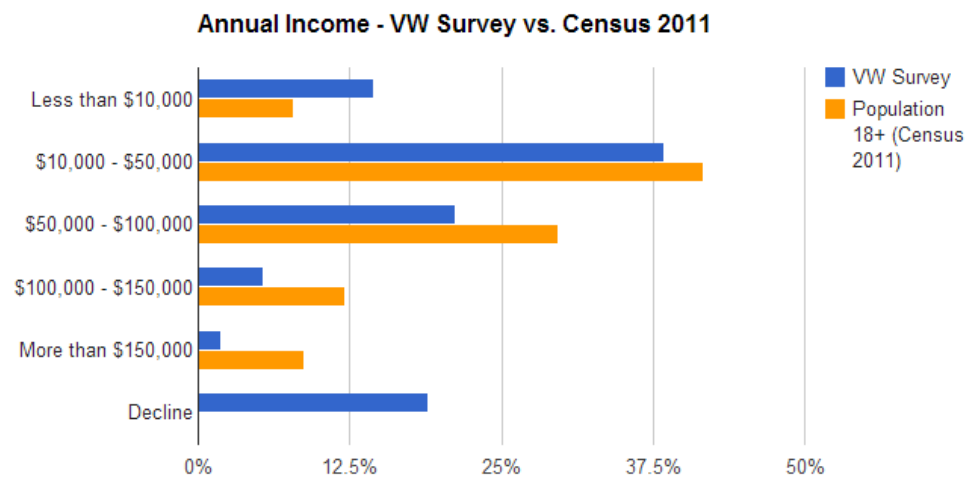


Figure 13.2 Annual Household Income - VW Survey vs. Census 2011 ACS

Annual Income of Participants in VW Survey vs. Annual Household Income Census 2011	VW Survey	Population 18+ (Census 2011)
Less than \$10,000	14.5%	7.8%
\$10,000 - \$50,000	38.4%	41.7%
\$50,000 - \$100,000	21.2%	29.7%
\$100,000 - \$150,000	5.3%	12.1%
More than \$150,000	1.9%	8.7%
Decline	18.9%	n/a

Table 13.2 Annual Household Income - VW Survey vs. Census 2011 ACS

NOTES

- A fairly high number of people declined to tell us their income, but we still had adequate results to draw conclusions.

SECTION 2: AVATAR PRESENTATION, GENDER AND CROSS-GENDER PLAY

Avatar presentation was one of the core areas we wanted to cover in the survey. We were interested in a number of questions including how many avatars residents had, whether or not they did gender cross-play, and other choices they made about avatar presentation. This is a complex topic, in part, because avatar presentation is highly idiosyncratic to the affordances of a given virtual world. For instance, in Second Life, residents can present as almost anything they want, and avatar design is a major area of user-content creation. Residents can be humanoid, humanoid animal, humanoid machine (e.g., robot), magical creatures such as unicorns or dragons, or hybrid human/magical creatures such as mermaids or centaurs. They can also present in other non-humanoid forms, such as a car or plant. Other virtual worlds, such as Kaneva and There.com, provide more constrained avatar customization options. In There.com, for instance, it is possible to be a furry (a humanoid, cartoon animal), but this would require a designer to make a furry costume (essentially an attachment) that you wear over your human avatar. Thus, some of what we will see in the following section will be influenced by the possibility space of a given world. It should also be noted that, although most virtual worlds (including games) explicitly forbid the sharing of avatars for most uses except land management, avatar sharing is a common practice for both online games and virtual worlds.

In the area of gender representation, we already knew from our and others' previous research that gender cross-play is a pervasive part of virtual world activities. In MMOGs in particular it has been well established by multiple studies that male-to-female cross-gender play is far more common than female-to-male cross-gender play (see the section comparing MMOG research and our study results for details). As we will see in this section and in the comparisons in Section 6, the incidence of cross-gender play is much lower in non-game virtual worlds, but is nonetheless pervasive.

Q14: NUMBER OF AVATARS

(Appendix B – RAW Survey Q35)

One of the areas we were interested in with this survey was the area of alts, or alternative avatars. Alts are common in MMOG's, due to the fact that a single account can include multiple avatars. In metaverse virtual worlds, we know from our own experience and past research that it is common for residents who play on a regular and ongoing basis to tend toward having multiple avatars. Typically, residents have a "main" or primary avatar, which is the avatar they use the most frequently and which is connected with a specific community or communities. They may also have alts for other purposes, such as roleplay, or for use in commerce. For instance, the use of a shared "mule" to which a business operation or community function is attached, is common. Residents may also wish to experiment with aspects of their identity, such as cross-gender play, playing as a child, or as an animal. Sometimes, especially for long-term players, an alt can also transition to a main if players become more engaged with a particular community or activity.

Alts create a particular challenge when trying to assess the actual resident participation in virtual worlds. Most virtual world companies tend to report the number of avatars registered for their worlds, rather than the number of actual subscribers. This number tends to be inflated due to two factors: First, the proliferation of alts among regular, savvy residents, as evidenced by our survey results as well as prior research; second, in cases where residents may create an avatar for free, there may be many residents who have a registered avatar but who rarely if ever come in-world. We also discovered in this study a small number of VW residents may have anywhere from 100-300 avatars. Granted we had only a small sample who reported this; however, it would not take a large number of people generating avatars in those quantities to throw off the "avatar population" numbers of a given world significantly.

Understanding how alts function also allows us to better understand residents' relationships to their avatar identities. As with disabled residents, alts present an example of what T.L. Taylor calls "multiple bodies" (2006). Avatars give residents the opportunity to experiment with different embodiments, different identities, and different social roles, a rich area for exploration within virtual worlds. Pearce's prior research also found that avatar identities are socially emergent; often arising out of unique interactions between individuals in a given group (2009A; Morie 2013).

The chart below clearly demonstrates the importance of alts in virtual world play patterns. Fully 46% of respondents said that they had multiple avatars in a single virtual world, while almost 25% said they had multiple avatars in multiple virtual worlds. Only 17% reported having only a single avatar in a single virtual world, while 12.1% reported one avatar in each of a number of virtual worlds. We can also extrapolate from this data that, among our respondents, 37% of residents subscribe to multiple virtual worlds simultaneously. Our prior research into "trans-ludic" cultures showed that it was quite common for people to move across virtual worlds, often carrying the same identities with them (Pearce 2009A). However, we were not aware how prevalent this practice has become in many communities, and our survey results confirm that this is a common practice among virtual world users.

Number of Avatars for Participants in VW Survey

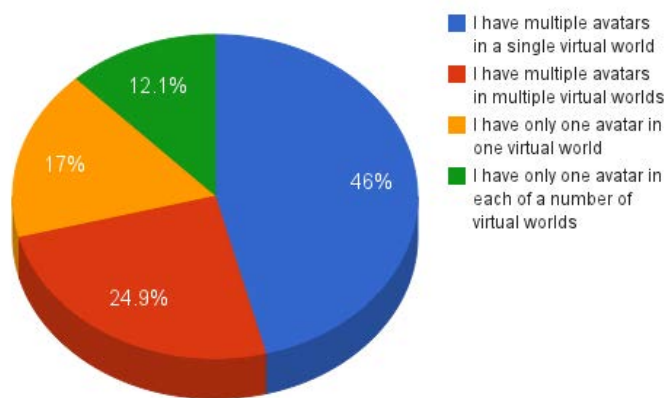


Figure 14.1 Number of Avatars for Participants in VW Survey

Number of Avatars	VW Survey	Response Count
I have multiple avatars in a single virtual world	46.0%	341
I have multiple avatars in multiple virtual worlds	24.9%	185
I have only one avatar in one virtual world	17.0%	126
I have only one avatar in each of a number of virtual worlds	12.1%	90
Answered:		742
Skipped:		116

Table 14.1 Number of Avatars for Participants in VW Survey

Q15: AVATAR USE BY FRIENDS AND FAMILY

(Appendix B – RAW Survey Q36)

We were curious about avatar sharing since it had come up in prior research. In MMOGs we have seen cases, for instance, where a resident will log in to another resident's avatar to "level up"—increase the avatar's skill level—for access to new areas of the game. We have also seen instances of family members sharing avatars, as well as

the use of “mules,” described above, which are shared avatars used for commerce or to manage community land or assets, for instance. Another example we have seen in our qualitative research is rules enforcement and administration. It’s common in RP settings, for instance, for rules to be monitored and enforced by a shared avatar. We have also seen spouses using each other’s avatars. In one case from Pearce’s research (2009A), a couple had initially started cross-gender playing as a couple (the male as a female, the female as a male), but when the virtual world they were in added a voice feature, they decided to swap avatars to conform to their real-world genders, although the male would sometimes come in-world as his wife’s avatar, which had formerly been his.

The vast majority of respondents, 84.6%, reported not sharing their avatars. Almost 30% reported never sharing an avatar with a spouse, and nearly that many, 27.8%, reported never sharing with a friend. 20% said they shared avatars with children or grandchildren. We also got reports of occasional avatar sharing while with the individual in the same room at about a 2%-3% rate among respondents. 4.7% said they shared an avatar with another person, and 4.3% reported sharing with a group. From these data we can conclude that avatars are, by and large, personal entities of which the majority of virtual world residents do not share with other people, but that a small amount of avatar-sharing does take place in metaverse style worlds.

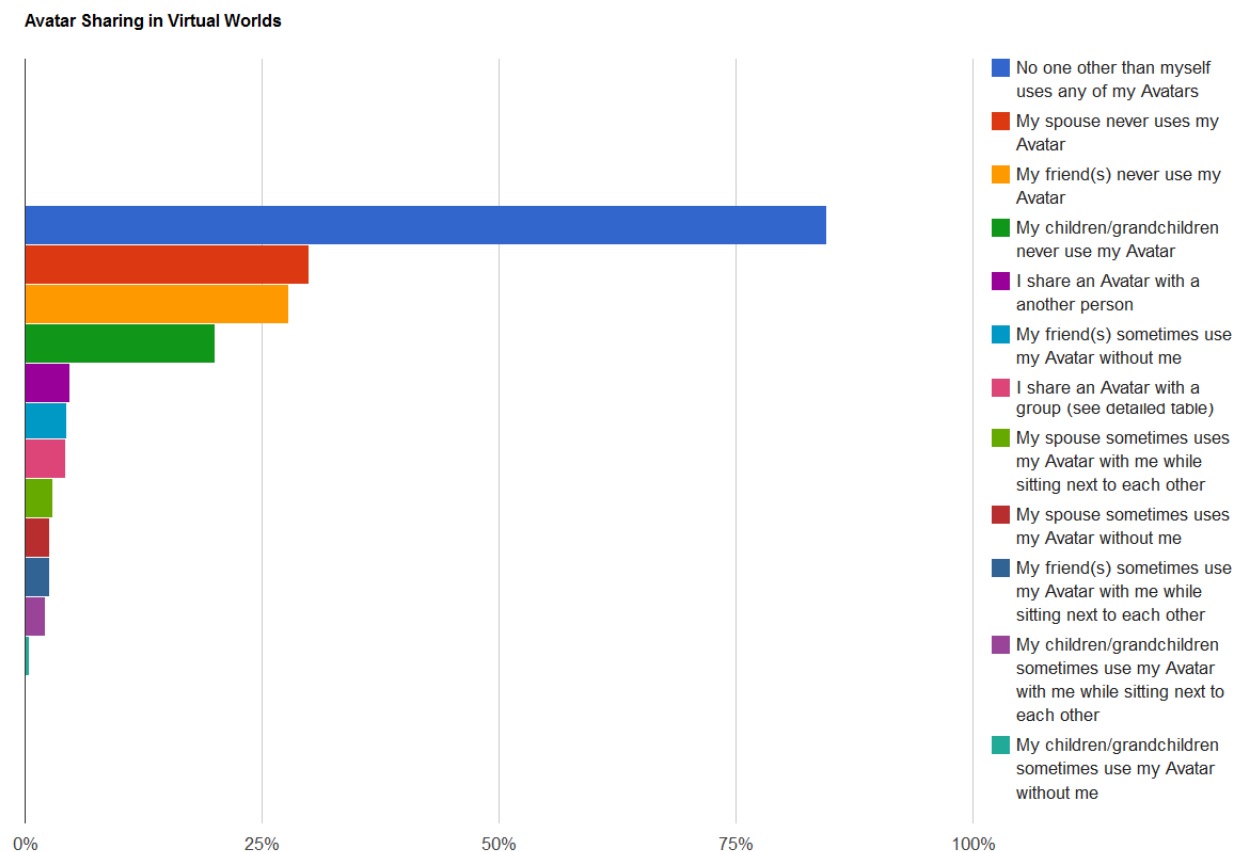


Figure 15.1 Avatar Sharing in Virtual Worlds

Avatar Sharing	VW Survey	Response Count
No one other than myself uses any of my Avatars	84.6%	617
My spouse never uses my Avatar	29.9%	218
My friend(s) never use my Avatar	27.8%	203
My children/grandchildren never use my Avatar	20.0%	146
I share an Avatar with a another person	4.7%	34

My friend(s) sometimes use my Avatar without me	4.4%	32
I share an Avatar with a group (see detailed table)	4.3%	31
My spouse sometimes uses my Avatar with me while sitting next to each other	2.9%	21
My spouse sometimes uses my Avatar without me	2.6%	19
My friend(s) sometimes use my Avatar with me while sitting next to each other	2.6%	19
My children/grandchildren sometimes use my Avatar with me while sitting next to each other	2.1%	15
My children/grandchildren sometimes use my Avatar without me	0.4%	3
Answered:		729
Skipped:		129

Table 15.1 Avatar Sharing in Virtual Worlds

Among those who shared an avatar with a group, a little over 25% reported sharing an avatar for purposes of land management and administration; a little over 22% reported sharing for group play, events and charities. Nearly 13% reported sharing for business or work-related uses, and 19.4% (a fairly high percentage) had other uses for sharing avatars.

Shared Avatar Groups

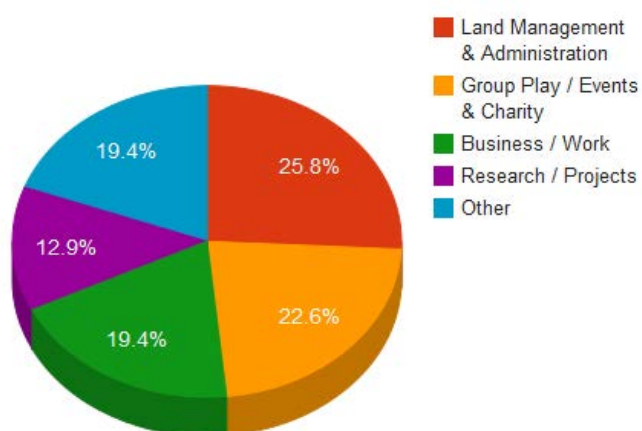


Figure 15.2 Shared Avatar Groups - Detailed Summary

Shared Avatar Groups	VW Survey	Response Count
Land Management and Administration	25.8%	8
Group Play / Events and Charity	22.6%	7
Business / Work	19.4%	6
Research / Projects	12.9%	4
Other	19.4%	6

Table 15.2 Shared Avatar Groups - Detailed Summary

NOTES

- These were the answers submitted by participants after selecting the "I share an Avatar with a group (please explain)" option for Q36 in *Appendix B*.

Q16: AVATAR GENDER - MAIN

(Q37 in SurveyMonkey Main Avatar Gender)

Cross-gender avatar play has been a pervasive emergent phenomenon since the inception of virtual worlds, both in games and non-game virtual worlds, whether text-based or graphical. As mentioned previously, cross-gender play is pervasive in MMOGs and most studies show that men play female avatars about 3-4 times as frequently as women (Yee 2010; 2012). The vast majority of cross-gender play in both games and social virtual world is done by residents who do not identify as transgender in the real-world, although as we have seen here and in our prior research, transgender residents often use virtual worlds to explore their gender identity and even to practice for gender reassignment.

What we found among our respondents was that, while only 7.1% identified as having a main avatar that was not their real-world gender, nearly half—45.4%—reported having at least one alt that was not. 10.6% of males reported a female main, as opposed to 3.3% of women with a male main avatar. With respect to alts, 49.3% of men reported female alts, while 42.3% of women did. Both of these are a differential of only about 7%, thus much lower than the ratio of men-to-women playing characters of the opposite gender in MMOGs.

Gender of Main Avatar - VW Survey

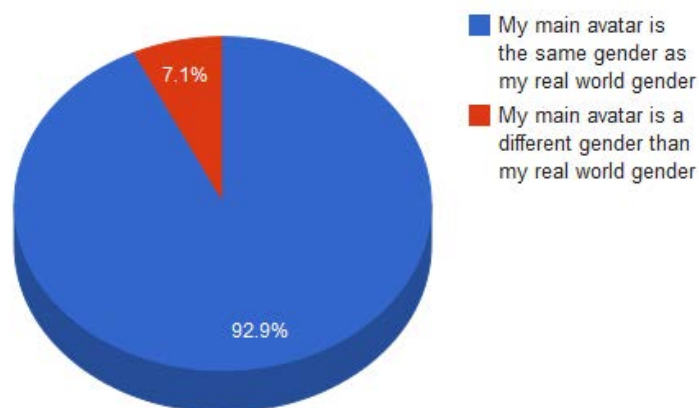


Figure 16.1 Gender of Main Avatar

Main Avatar Gender	VW Survey	Response Count
My main avatar is the same gender as my real-world gender	92.9%	689
My main avatar is a different gender than my real-world gender	7.1%	53
Answered:		742
Skipped:		116

Table 16.1 Gender of Main Avatar

Q17: AVATAR GENDER - ALT

(Appendix B – RAW Survey Q38)

Alt Avatar Gender - VW Survey

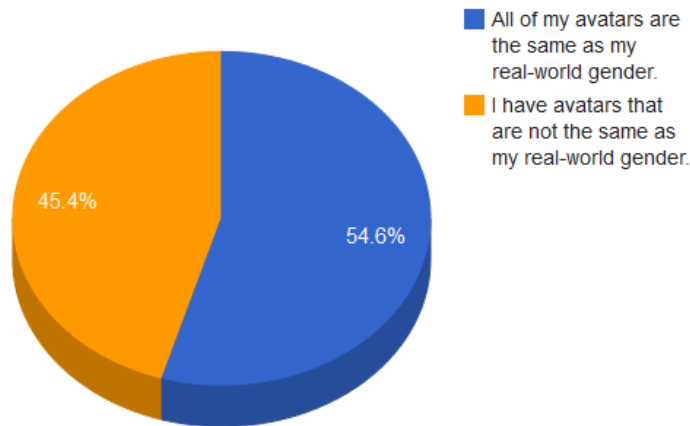


Figure 17.1 Alternate Avatar Gender

Alternate Avatar Gender	VW Survey	Response Count
All of my avatars are the same as my real-world gender.	54.6%	405
I have avatars that are not the same as my real-world gender.	45.4%	337
Answered:		742
Skipped:		116

Table 17.1 Alternate Avatar Gender

CROSS-GENDER PLAY IN VW SURVEY BY GENDER

Cross-Gender Play of Main Avatar and Alternate Avatars by GENDER in VW Survey	Males	% of Males	Females	% of Females	Total Response Count	Total Response %
My main avatar is the same gender as my real-world gender.	245	89.4%	437	96.7%	682	93.9 %
My main avatar is a different gender than my real-world gender.	29	10.6%	15	3.3%	44	6.1 %
All of my avatars are the same as my real-world gender.	139	50.7%	261	57.7%	400	55.1 %
I have avatars that are not the same as my real-world gender.	135	49.3%	191	42.3%	326	44.9 %
Answered:	274		452		726	
Skipped:					50	

Table 17.2 Cross-Gender Play of Main and Alternate Avatar Sorted by Gender

CROSS-GENDER PLAY IN VW SURVEY BY GENERATION

Cross-Gender Play of Main Avatar and Alternate Avatars by GENERATION in VW Survey	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GEN	% of SILENT GEN	TOTAL RESPONSES	TOTAL RESPONSE %
My main avatar is the same gender as my real-world gender.	114	95.0%	312	92.3%	255	92.7%	7	87.5%	685	92.9%
My main avatar is a different gender than my real-world gender.	6	5.0%	26	7.7%	20	7.3%	1	12.5%	52	7.1%
All of my avatars are the same as my real-world gender.	65	54.2%	190	56.2%	146	53.1%	3	37.5%	403	54.7%
I have avatars that are not the same as my real-world gender.	55	45.8%	148	43.8%	129	46.9%	5	62.5%	334	45.3%
Answered:	120		338		275		8		741	
Skipped:									52	

Table 17.3 Cross-Gender Play of Main and Alternate Avatar Sorted by Generation

Respondents were surprisingly forthcoming in their comments on cross-gender play, revealing a wide range of highly nuanced motivations and experiences. As mentioned earlier, the percentage of real-world transgender people in virtual worlds, though relatively small compared with the overall sample, was nearly ten times as high as the national average. For transgender people, virtual worlds provide an opportunity to explore and experiment in a relatively safe environment. In our prior research, we saw instances of this, and the survey supported many of these qualitative findings (Pearce 2009A). As one transgender resident explained “...virtual worlds allow me to express myself as my gender, instead of my sex.” Transgender residents also use cross-gender play as a way to experience their future real-world transitions and build identity and self-esteem. “My avatar is a tall, beautiful full-figured woman. I am transgendered, M2F, and I use her as a positive self image. Her facial features look like mine in RL, just a bit more gracile, as I can expect from the effects of hormone therapy. In short, she looks like she could be my sister.” Gender play can also be combined with fantasy play, as reported by this respondent: “In RL, I am transgender. In virtual worlds I am female in every avatar. Main avatar is normal, I’ve tried tiny, black, puckish, rabbit, and occasionally robot, or other.” While transgender residents such as these play their target gender, others play with the gender ambiguity associated with being transgender, as one resident who reported: “I am human shemale.”

Residents also reported using avatars in therapeutic ways vis a vis gender and sexuality. “It has allowed me to express my inner identity and consequently relieved much inner turmoil”; “I feel better about being able to express the hidden aspects of myself and have free artistic reign fro [sic] my art work” as well as sexual expression: “i continue to play for companionship and an outlet for my sexuality.” In addition, cross-gender and transgender play are expressed through community participation such as “Transgendered, BDSM, and Breeding communities.”

In addition to people exploring their real-world gender identities, gender ambiguity, and fluidity, people who do not identify as transgender or genderqueer (i.e., outside of binary gender norms) are also exploring gender and gender roles through avatar play (Rosier and Pearce 2011). “A friend mentioned the idea of cross-gendered people in Second Life. Much later, I decided to look into it and was quite surprised at how quickly I was drawn to it.” Another cited avatar play as “A chance to create and explore alternate realities and genders.” Many residents enjoy the diverse social interactions afforded by cross-gender play, such as this respondent who reported going to “Night clubs with my male avatars and Lesbian communities with my female avatars.” In past research we also discovered that avatar identity can be emergent and unexpected, and this is suggested by the following comment from a cross-gender resident (the avatar name has been changed to protect the subject’s anonymity):

“Loraine has a life of her own now, and I love her,” but also noted “I probably spend too much of my free time with/as Loraine.”

Beyond the binaries typically associated with gender, some virtual worlds, such as Second Life, afford enough flexibility for residents to explore other possibility spaces, such as ungendered, poly gendered, androgynous, and other forms of gender play. One resident was adamant in pointing out: “Main avatar: UNGENDERED Tiny Furry,” although the resident also reported having: “Alts: Female humanoid, Male humanoid, Female Furry.” Another resident reported an avatar as “Polymorph, and my main avs are always both genders, play male or female as required. Usually humanoid.” One respondent went into some detail describing their presentation as follows: “Given that in real life I am a slender 23 year old who does not conform to either gender extreme, my presentation is generally somewhat mixed. Both of my avatars are set to female bases but utilize slightly more male shapes and skins. Clothes are sometimes contemporary or industrial, ears usually pointed, skin somewhat pale, sometimes I wear accessories such as an Iron Man style heart.”

In the subsequent section, we also discuss the phenomenon of people creating avatars that approximate their real-world appearance. Interestingly, this can even be applied to residents who practice cross-gender play. As one respondent described it: “My [same as real gender] main avatar is similar to how I looked in real life when I was in my early 20s. My alt is an idealized version of what I would have looked like around the same age had I been female.”

Generally residents seem to be aware of the pervasiveness of cross-gender play. “After 3 years playing both as male and female it is shocking to see the number of RL men playing as female in Second Life. I have a test that I institute and if any female avatar throws up a red flag I avoid them.” It is interesting to note that this comment was made by a man who plays female avatars, and that this experience has made him wary of others who do the same.

Q18: AVATAR REPRESENTATION

(Appendix B – RAW Survey Q39)

Avatar representation is complex because it involves the confluence of multiple factors. First and most importantly, avatar representation is always constrained by the affordances of the software of a given virtual world. For this reason we looked not only at avatar representation across all worlds, but we also looked at avatar representation within each individual virtual world represented in the study.

In order to get the most nuanced responses in the survey, we broke down avatar presentation into two categories: form and attire. This was important since form has to do with the actual physical form of the avatar, versus the types of clothing the avatar wears. This also relates to roleplay, since avatars can also roleplay in different forms, such as Steampunk (alternative history meets science fiction a la Jules Verne) Tinies (small scaled animals) or Renaissance Vampires. In order to capture as much detail as possible, drawing from our prior research, as well as write-in responses from survey respondents, we created the following categories pertaining specifically to avatar “form” as distinct from dress:

- Humanoid / Fantasy
 - Mermaid (Human torso, fish tail)
 - Neko (A human with a tail and cat ears)
 - Robot (Humanoid form machine)
 - Vampire (Typically has fangs, pale skin and a goth-like appearance)
 - Werewolf / Lycan (Wolf-like creature that stands on its hind legs)
 - Elf

- Fae / Fairy
- Furries (Bipedal cartoon animals)
- Non-Human
 - Animal - Real (meaning presents as a real animal, such as a dog or an otter)
 - Animal - Fantasy (Includes Dragon, Animal Tinies (as opposed to human tinies))

What we found, in terms of form, was that a large majority of respondents, a little over 90%, had at least one human avatar, and nearly 60%—close to two-thirds—played only human avatars. Nearly 28% played humanoid fantasy characters, while close to 11% played non-human animals. Another 11% played Furries, the largest single category of fantasy creature we tracked. This is not surprising since Furries—that is, bipedal cartoon-style animals—constitute a large community in Second Life (the largest world covered in the study), and based on our respondents, comprise the single largest group of non-human avatars in virtual worlds, with Elves following a close second at 10.5%. As the table below indicates, these are followed closely by Tinies (small scaled animals) 6%, Nekos (human avatars with cat’s ears, tails and whiskers) just under 6%, Children at 5.4%. Fairies and Robots are equal at 4.4% and Vampires comprise a surprisingly low 3.8% of respondents. The table also shows a variety of other non-human avatar types represented by less than 3% of respondents.

Avatar Representation	Response Percent	Response Count
Human (Various RP)	90.4%	601
Human ONLY	59.0%	392
Humanoid / Fantasy	32.3%	215
Non-Human / Fantasy Animal	15.6%	104
Non-Human / Real Animal	11.0%	73
Furry	10.8%	72
Elf	10.5%	70
Tiny	6.0%	40
Neko	5.9%	39
Child	5.4%	36
Fae / Fairy	4.4%	29
Mech / Robot / Cyborg	4.4%	29
Vampire	3.8%	25
Dragon	2.9%	19
Pirate	2.7%	18
Demon	2.6%	17
Kitsune / Fox	2.6%	17
Mermaid	2.6%	17
Answered:		665
Skipped:		193

Table 18.1 Avatar Representation

Because avatar representation is so closely tied to software affordances, we thought it would be interesting to look across worlds at the human-only figures. Because some of our survey respondents said they were denizens of multiple virtual worlds, *Table 18.2* does not track a one-to-one relationship between a participant and a given virtual world. However, it is worth noting that the top six worlds listed in the table below are all worlds in which residents are constrained to a human avatar, but they can potentially enhance that avatar with attachments, such as ears—or in the case of There.com, an entire shell body—in order to take on other forms. Note that 60% or more of those who said they only use a human avatar are denizens of those worlds (although they may also

have avatars in other worlds.) Note that Second Life, ActiveWorlds, OS Grid and Traveler all have affordances for non-human avatars. It is interesting to note that even among those who play in worlds that allow for alternative representation, over half are still choosing to play exclusively as humans.

Virtual World	% Human Only	Human Only Response Count	Total Response Count
There.com	72.3%	112	155
Whyville ¹¹	69.2%	9	13
Kaneva	68.4%	67	98
Onverse	68.4%	54	79
Worlds.com	63.0%	17	27
Twinity ¹²	60.5%	46	76
Second Life	56.2%	340	605
Smallworlds	55.3%	21	38
Active Worlds	52.3%	23	44
VTR	50.0%	2	4
Traveler	50.0%	2	4
Blue Mars	48.9%	45	92
OSgrid	46.7%	42	90

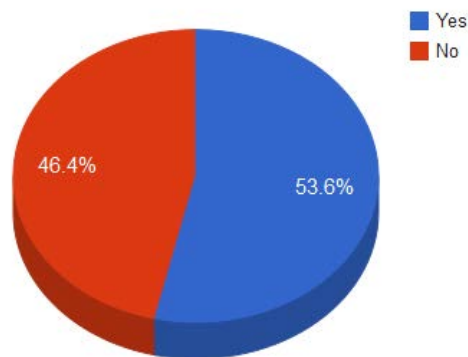
Table 18.2 Percent Respondents Who Only Represent as Human (Per VW)

Q19: AVATAR APPEARANCE

(Appendix B – RAW Survey Q40)

In past studies we observed a phenomenon in which people tried to approximate their real life appearance, often making younger, thinner or more glamorous versions of themselves. In our research on game refugees, we also found that residents often tried to approximate the same avatar appearance as they moved across virtual worlds (Pearce 2009A, 2009B). Among survey respondents we found that over half—53.6%—reported making avatars based on their real-world appearance. As we had seen in prior research, some reported an idealized version of the real-world appearance, as in this resident who said: “No restrictions, no rules. Your imagination, your life. I get to be me in SL just with a hotter body and sexier clothes. lol “

Have you ever tried to approximate your real-world appearance with your avatar design?



¹¹ Whyville is a registered trademark of Numedeon, Inc. within the United States and/or other countries.

¹² Twinity is a registered trademark of Metaversum GmbH LLC within the United States and/or other countries.

Figure 19.1 Avatar Representation - Approximating Real-World Appearance

Avatar Appearance: Have you tried to approximate your real-world appearance with your avatar design?	VW Survey	Response Count
Yes	53.6%	398
No	46.4%	344
Answered:		742
Skipped:		116

Table 19.1 Avatar Representation - Approximating Real-world Appearance

We also found that 14.9% of residents reported changing form with a single avatar, a behavior pattern which is excluded from most worlds since avatar form is difficult to change. However, in Second Life you can change your form or your gender easily. As one Second Life resident reported: "I have one main account in Second Life. You can buy many different avatars, and I have almost all of them--human, furry, elf, pixie, animals (snow leopard, otter, horse, raven, etc.), child, tiny, and so on. Other people are used to my changing avatars."

People who played humans in various roleplaying contexts also specified their avatar forms including: child; knight; pirate; cowboy; sheriff; pimp; dance hall girl; humans of different race, ethnicity and/or gender; ninja; gladiator; professor; student; hippie; artsy/hipster; steampunk; historical; goth; the person they wished they looked like; a younger thinner, more beautiful self; real-world appearance.

A very small minority of 0.6%—only four respondents total—reported having over 100 avatars. Their comments are of interest because they illustrate the level to which creating avatars is itself an entertaining and creative activity. As one resident noted "Human, Furry, Pirate, Elf, Tiny, Child, Purple, mermaid, PI, ninja, Samurai, house cat, Neko, vampire, dragon, priest, race car driver, robot, ghost, hobo, my favorite activity is creating the characters. I have over a hundred AVs." Another commented "i have about 5 thousand dollars invested in second life stuff. i have too many avatars to list. robots vampires lycans spiders skeletons tinys animals children whatever there is i probably have." Another reported having "...well over 300 avatars ranging from tiny insect through various human/humanoids to large animals and creatures of all kinds." It was not clear whether the player meant 300 accounts or simply 300 avatar forms tied to a smaller number of accounts.

SECTION 3: ACTIVITIES AND PLAY PATTERNS

The section that follows looks at resident activities, play patterns, and motivations. While extensive quantitative studies have looked at behaviors, play patterns and motivations in MMOGs, little commensurate work has been done on virtual world behaviors. However, from our own and others' qualitative and mixed methods research (Pearce, 2009; Boellstorff 2010, etc.), we were already aware that behavior and play patterns in non-game virtual worlds would be notably different than those in games. Even the term "player" proved problematic in our survey, as some participants did not consider this an accurate moniker for virtual world denizens.

Because games are more structured, rule and achievement focused, we know that game behavior significantly differs from non-game VW behavior. For instance, Pearce's earlier research identified the phenomenon of "productive play," that is, play activities that transition into creative or "work-like" activities. While it does occur in games—in the form of fan-created art, game modification, and commerce-related activities, such as gold-farming—productive play is far more common in open-ended virtual worlds that include affordances for creativity and business. In prior unpublished research, we also found that efficiency was a primary concern of players in game-based worlds, resulting in various types of standardized behaviors, such as weapons/attack rotations, and lack of interest in "flavor text" and other narrative content.

The following section deals with a variety of different virtual world play patterns and preferences. Later in this document we will compare some of our data to similar studies on MMOG's in order to better understand the relationships between these two genres.

Q20: PARTICIPATION IN NON-GAME VIRTUAL WORLDS

(Appendix B – RAW Survey Q18)

Because we know that residents inhabit multiple virtual worlds, we asked residents which worlds they visited, allowing for multiple answers. The vast majority of residents—just under 89%—reported being denizens of Second Life, which is currently the most popular non-game virtual world for adults and our primary targets for this survey. (Habbo Hotel is the most popular non-game virtual world for children; Whyville is also popular, although it is more of a hybrid virtual world/learning game.) There.com had the second largest representation on the survey, at 25%, possibly because we had the most contacts there from previous research with that community. The status of There.com in terms of virtual world usage has fluctuated over the years. The world officially closed in 2010 and later reopened in 2011. Our prior research suggested that it was, at one time, on par with Second Life in terms of subscribers (Pearce and Artemesia 2009). The most recent data available is from 2011 and indicates 1,158 subscribers total (Wilson, 2011). Kaneva was number three—just over 16% of our respondents reported playing there. Blue Mars, OSGrid (an open source Second Life spinoff), Onverse, and Twinity were reported by 10%-14% of respondents. A little under 7% of respondents also reported using ActiveWorlds, which opened in 1995 and is the oldest still operating graphical virtual world. All of the other worlds listed came in at under 6% of respondents. It's also useful to note that some of these worlds, such as Twinity, IMVU¹³ and Red Light Center are products focused on dating and/or sex. While this is also a common activity in other virtual worlds, these worlds specifically market to that audience.

Due to the way in which virtual worlds typically count their customers—by avatar rather than by person—it is difficult to draw a complete picture of the actual popularity of each of the virtual worlds represented—but our survey may provide some useful data in this respect. We know that Second Life is currently the most popular virtual world of the type on which this study focused. It's also important to look at these data in contrast with

¹³ IMVU is a registered trademark of IMVU, Inc. within the United States and/or other countries.

the hype that tends to be propagated. Irrespective of its actual popularity, Second Life is probably the most overhyped of all virtual worlds. At one point, for instance, There.com was close to equal to Second Life in subscribership; however, the company was not able to attract the same level of press attention as Second Life, so many people were not aware that There.com existed. While There.com eventually closed, it subsequently reopened due to audience demand. Currently, many believe that Second Life is on the decline. This may indeed be the case, but during the period of this research, at any given time, Second Life was attracting about 45,000-50,000 simultaneous users, and generating a large amount of business on its web-based marketplace.

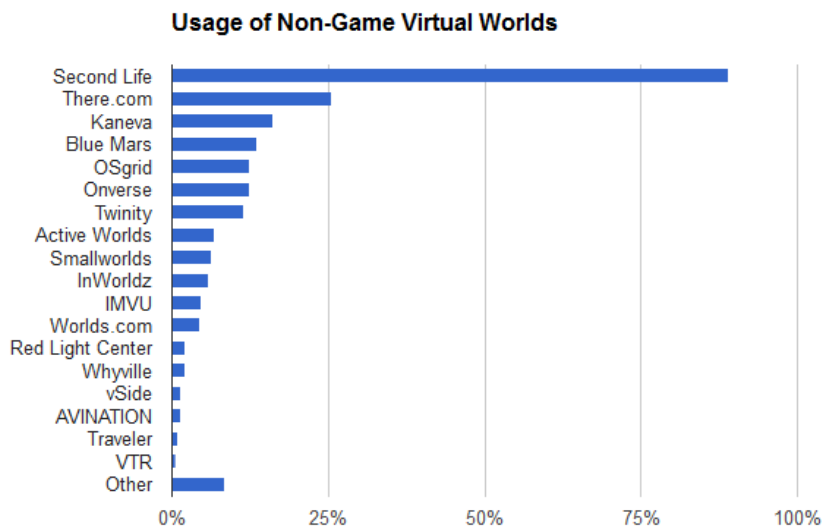


Figure 20.1 Usage of Non-Game VWs

Virtual Worlds (Non-Game) participated in (Check all that apply)	Response Percent	Response Count
Second Life	88.9%	680
There.com	25.6%	196
Kaneva	16.1%	123
Blue Mars	13.7%	105
OSgrid	12.4%	95
Onverse	12.3%	94
Twinity	11.4%	87
Active Worlds	6.9%	53
Smallworlds	6.4%	49
Inworldz	5.8%	44
IMVU	4.6%	35
Worlds.com	4.4%	34
Red Light Center	2.2%	17
Whyville	2.0%	15
vSide	1.4%	11
AVINATION	1.3%	10
Traveler	0.9%	7
VTR	0.5%	4
Other	8.5%	65
Answered:		765
Skipped:		93

Table 20.1 Usage of Non-Game Virtual Worlds

NOTES

- Compare with Table and Quotes from Question 44. Which is your favorite Virtual World and why? (Open Response)
 - 11.8% - 77/462 who chose Second Life - Only Know / Use SL
- The VWs highlighted in the chart were not on our list but still had a large portion of users and appear in *Figure and Table 20.1*
 - Inworldz, IMVU, Red Light Center, AVINATION
- There were many new/small Virtual Worlds that did not make our list and were not included in our survey. See *Appendix C* for a full list of relevant Virtual Worlds.

Q21: TIME SPENT IN VIRTUAL WORLDS PER WEEK

(Appendix B – RAW Survey Q19)

There was a fairly even distribution among respondents of the amount of time they spent in-world, but the highest number, just over 15%, reported spending 40+ hours a week in virtual worlds. The next highest, just under 15% were only spending 5-10 hours in-world per week. Between 10% and 15% were equally distributed within the other time frames provided, with the highest concentration in the 10-20 hour range. Much has been made of the amount of time people spend in virtual worlds, but these figures are actually comparable to, and in fact lower than the average time most Americans spend watching traditional television, which, according to Nielsen¹⁴ data, is around 35 hours per week (2013). Across our entire sample, respondents spent an overall average of 18.4 hours per week in virtual worlds. How this compares to hours per week for other media types is shown in table 21.2. Clearly our survey population spends more time utilizing virtual worlds than game consoles or watching videos on mobile devices. However, the time spent in virtual worlds is less than that spent watching traditional television, other media on a computer, or all media sources combined.

Average Number of Hours Spent in Virtual Worlds Per Week

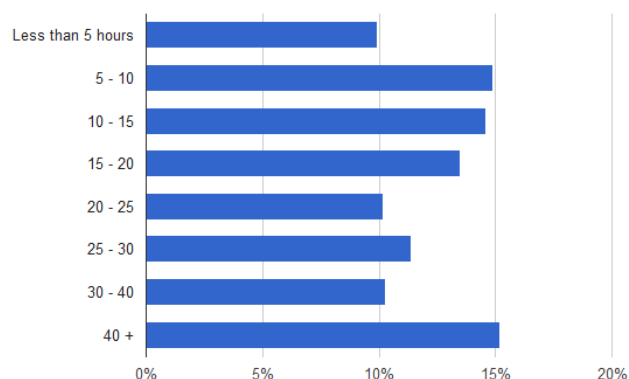


Figure 21.1 Average Number of Hours Spent (per week) in Virtual Worlds

Average number of hours spent (per week) in Virtual Worlds	Response Percent	Response Count
Less than 5 hours	9.9%	76
5 - 10	14.9%	114
10 - 15	14.6%	112
15 - 20	13.5%	103

¹⁴ Nielsen is a registered trademark of the A.C. Nielsen Company Corporation within the United States and/or other countries.

20 - 25	10.2%	78
25 - 30	11.4%	87
30 - 40	10.3%	79
40 +	15.2%	116
Answered:		765
Skipped:		93

Table 21.1 Average Number of Hours Spent (per week) in Virtual Worlds

Average number of hours spent per week consuming each Media Type	Hours Per Week	Source
Virtual Worlds	18.4	Virtual Worlds Survey (2012)
Game Console	1.5	Nielson (2013)
Video on Mobile	1.3	Nielson (2013)
Television (not on computer)	35.1	Nielson (2013)
Media on a Computer	24.6	USC Marshall School of Business (2013)
All Media	94.5	USC Marshall School of Business (2013)

Table 21.2 Media Comparison - Average Number of Hours Spent (per week)

TIME SPENT BY GENDER

(cross-data filter with Appendix B – RAW Survey Q19 and Q4)

We ran some cross analysis of time spent based by gender, which yielded the results shown in *Table 21.3.1*. In general, time spent in virtual worlds is similar between males and females; however, it's interesting to note that a slightly higher percentage of men are reporting hours spent as under 10 hours per week, and an equivalently higher percentage of women are reporting 20-40 hours a week. Note that in the 15-20 and over 40 hour ranges, the figures are almost identical.

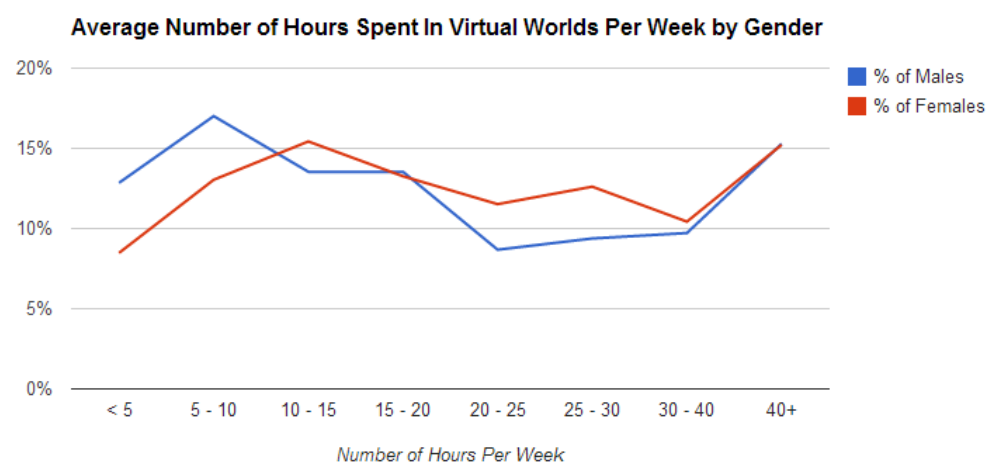


Figure 21.3.1 Gender of VW Survey Participants vs. Average Number of Hours Spent (per week) in VWs

Average number of hours spent in Virtual Worlds per week by Gender	Males	% of Males	Females	% of Females	Total Response %	Total Response Count
Less than 5 hours	37	12.9%	39	8.5%	10.2 %	76
5 - 10	49	17.0%	60	13.0%	14.6 %	109
10 - 15	39	13.5%	71	15.4%	14.7 %	110
15 - 20	39	13.5%	61	13.3%	13.4 %	100
20 - 25	25	8.7%	53	11.5%	10.4 %	78
25 - 30	27	9.4%	58	12.6%	11.4 %	85
30 - 40	28	9.7%	48	10.4%	10.2 %	76
40+	44	15.3%	70	15.2%	15.2 %	114
Answered:	288		460			748
Skipped:						28

Table 21.3.1 Gender of VW Survey Participants vs. Average Number of Hours Spent (per week) In VWs

Average number of hours spent in Virtual Worlds per week - Transgender	Transgender	% of Transgender Responses
Less than 5 hours	0	0.0%
5 - 10	5	29.4%
10 - 15	2	11.8%
15 - 20	3	17.7%
20 - 25	0	0.0%
25 - 30	2	11.8%
30 - 40	3	17.7%
40+	2	11.8%
Answered:	17	
Skipped:	0	

Table 21.3.2 Transgender Participants vs. Average Number of Hours Spent (per week) In Virtual Worlds

TIME SPENT BY GENERATION

(cross-data filter with Appendix B – RAW Survey Q19 and Q3)

Table 21.4 below, showing time spent by age, shows some subtle but notable patterns. Note the bubble in Gen Y duration at the lowest and highest ends of the spectrum. In the middle ranges, the 5-10 hour range is more or less equivalent for all groups, but then we see a bump in Baby Boomer usage at the 10-25 hour range. Note that 20% and 16.5% of Gen Y and Gen X respondents respectively are spending 40+ hours a week in-world.

Average Number of Hours Spent in Virtual Worlds Per Week by Age/Generation

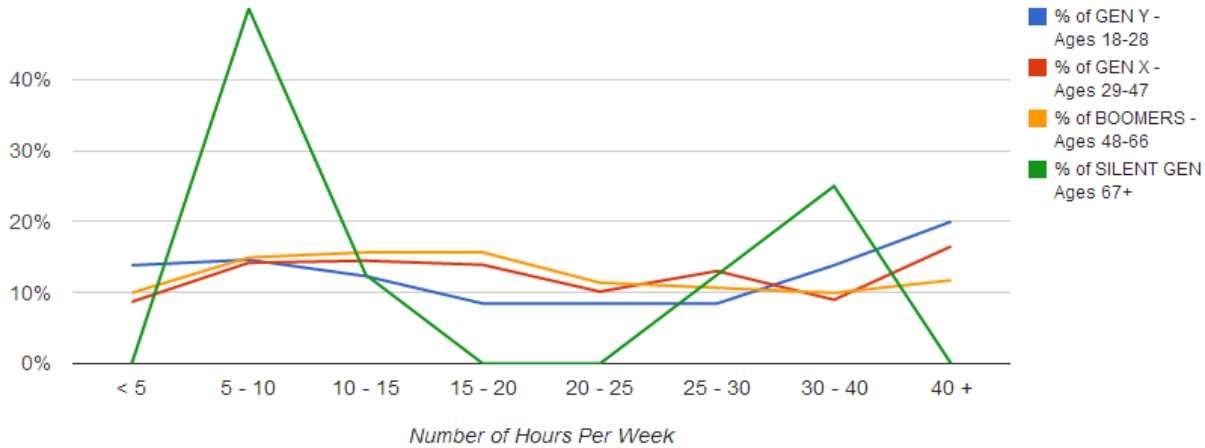


Figure 21.4 Age of VW Survey Participants vs. Average Number of Hours Spent (per week) In Virtual Worlds

Average number of hours spent in Virtual Worlds per week by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GENERATION	% of SILENT GENERATION	TOTAL RESPONSES
Less than 5 hours	18	13.9%	30	8.7%	28	10.0%	0	0.0%	76
5 - 10	19	14.6%	49	14.2%	42	15.0%	4	50.0%	114
10 - 15	16	12.3%	50	14.5%	44	15.7%	1	12.5%	111
15 - 20	11	8.5%	48	13.9%	44	15.7%	0	0.0%	103
20 - 25	11	8.5%	35	10.1%	32	11.4%	0	0.0%	78
25 - 30	11	8.5%	45	13.0%	30	10.7%	1	12.5%	87
30 - 40	18	13.9%	31	9.0%	28	10.0%	2	25.0%	79
40 +	26	20.0%	57	16.5%	33	11.7%	0	0.0%	116
Answered:	130		345		281		8		764
Skipped:									29

Table 21.4 Age of VW Survey Participants vs. Average Number of Hours Spent (per week) In Virtual Worlds

TIME SPENT BY THOSE WHO HAVE CHILDREN

(cross-data filter with Appendix B – RAW Survey Q19 and Q6)

Have Children vs. Average Number of Hours (per week) in VWs	Children living at home	Children not living at home	No children	Total Responses
Less than 5 hours	9.1%	9.2%	10.8%	9.9%
	19	18	42	76
5 - 10	15.4%	12.2%	16.0%	14.9%
	32	24	62	114
10 - 15	15.9%	14.3%	14.7%	14.6%
	33	28	57	112
15 - 20	15.9%	15.8%	11.1%	13.5%
	33	31	43	103
20 - 25	13.0%	8.2%	9.3%	10.2%
	27	16	36	78

25 - 30	11.0%	13.8%	10.6%	11.4%
	23	27	41	87
30 - 40	9.6%	11.2%	10.1%	10.3%
	20	22	39	79
40 +	10.1%	15.3%	17.5%	15.2%
	21	30	68	116
Total Respondents	208	196	388	765

Table 21.5 VW Survey Participants That Have Children vs. Average Number of Hours Spent (per week) in Virtual Worlds

TIME SPENT BY EMPLOYMENT STATUS

(cross-data filter with Appendix B – RAW Survey Q19 and Q16)

As shown in Figure 21.1, the amount of hours per week participants spend using virtual worlds peaks in the 5 to 15 hour ranges and also in the 40+ hour range. Responses broken out by participant employment status are shown in Table 21.6. Those who responded most frequently, in the 40+ hours per week category, were those participants who are self-employed, unemployed, unable to work, have sources of income other than wages, are independently wealthy, or are homemakers. Not surprisingly, those who responded most frequently in the 5 to 10 and 10 to 15 hours per week category are those participants who have less flexibility in how they are able to spend their time. These participants include those employed full or part time, students, and the semi-retired.

Employment Status vs. Hours Spent (per week) In VWs	Less than 5 hours	5 - 10 hours	10 - 15 hours	15 - 20 hours	20 - 25 hours	25 - 30 hours	30 - 40 hours	40 + hours	Total Responses
Employed full-time for wages	11.8%	15.6%	14.5%	18.0%	13.5%	12.1%	7.3%	7.3%	38.2%
	34	45	42	52	39	35	21	21	289
Employed part-time for wages	14.0%	17.4%	14.0%	12.8%	5.8%	10.5%	11.6%	14.0%	11.4%
	12	15	12	11	5	9	10	12	86
Self-employed	11.4%	13.3%	15.8%	14.6%	8.9%	4.4%	12.7%	19.0%	20.9%
	18	21	25	23	14	7	20	30	158
Unemployed	5.9%	12.8%	13.7%	9.8%	6.9%	16.7%	9.8%	24.5%	13.5%
	6	13	14	10	7	17	10	25	102
Homemaker	6.6%	22.4%	11.8%	7.9%	10.5%	9.2%	10.5%	21.1%	10.1%
	5	17	9	6	8	7	8	16	76
Student	18.2%	12.7%	17.3%	9.1%	7.3%	10.9%	7.3%	17.3%	14.6%
	20	14	19	10	8	12	8	19	110
Retired	2.2%	10.9%	17.4%	13.0%	10.9%	15.2%	13.0%	17.4%	6.1%
	1	5	8	6	5	7	6	8	46
Semi-Retired	17.4%	26.1%	26.1%	0.0%	4.4%	8.7%	8.7%	8.7%	3.0%
	4	6	6	0	1	2	2	2	23
Unable to work (Disability)	6.2%	7.7%	24.6%	6.2%	6.2%	9.2%	15.4%	24.6%	8.6%
	4	5	16	4	4	6	10	16	65
Income from additional sources (e.g., investment, rentals, etc.)	10.0%	13.3%	16.7%	0.0%	10.0%	13.3%	13.3%	23.3%	4.0%
	3	4	5	0	3	4	4	7	30
Independent means (e.g.,	7.1%	7.1%	21.4%	0.0%	7.1%	14.3%	21.4%	21.4%	1.9%

inheritance, lottery, IPO, etc.)									
	1	1	3	0	1	2	3	3	14
Total Response %	10.1%	14.8%	14.6%	13.5%	10.1%	11.4%	10.3%	15.3%	
Total Respondents	76	112	110	102	76	86	78	116	756

Table 21.6 Employment Status vs. Hours Spent (per week) In Virtual Worlds

TIME SPENT BY INCOME

(cross-data filter with Appendix B – RAW Survey Q19 and Q17)

The table below shows time spent vs. income. The pattern here is interesting because it shows that below the \$80,000 threshold, time spent in-world is inversely proportional to income: In other words, the less money residents make in real life, the more time they are likely to spend in virtual worlds. In general, especially in the mid-ranges between \$20,000 and \$70,000, we see a bump in the mid-range of hours spent. It's interesting to note here that 20 hours a week is approximately what the average American spends watching television, so this number is congruent with other media consumption figures. There is also an interesting bump in higher hours spent in the income range \$80,000-\$89,000 range.

Annual Income vs. Hours Spent (per week) In VWs	Less than 5 hours	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 40	40 +	Total Responses
Less than \$10,000	10.2%	12.0%	13.0%	13.0%	5.6%	12.0%	11.1%	23.2%	14.1%
	11	13	14	14	6	13	12	25	108
\$10,000-\$19,999	10.2%	15.9%	11.4%	9.1%	6.8%	12.5%	12.5%	21.6%	11.5%
	9	14	10	8	6	11	11	19	88
\$20,000-\$29,999	9.8%	14.6%	17.1%	13.4%	11.0%	9.8%	9.8%	14.6%	10.7%
	8	12	14	11	9	8	8	12	82
\$30,000-\$39,999	9.7%	12.5%	19.4%	16.7%	6.9%	12.5%	11.1%	11.1%	9.4%
	7	9	14	12	5	9	8	8	72
\$40,000-\$49,999	1.9%	16.7%	13.0%	20.4%	9.3%	18.5%	11.1%	9.3%	7.1%
	1	9	7	11	5	10	6	5	54
\$50,000-\$59,999	7.7%	15.4%	16.9%	13.9%	13.9%	16.9%	10.8%	4.6%	8.5%
	5	10	11	9	9	11	7	3	65
\$60,000-\$69,999	6.5%	16.1%	6.5%	29.0%	12.9%	12.9%	6.5%	9.7%	4.1%
	2	5	2	9	4	4	2	3	31
\$70,000-\$79,999	9.7%	9.7%	12.9%	16.1%	29.0%	12.9%	6.5%	3.2%	4.1%
	3	3	4	5	9	4	2	1	31
\$80,000-\$89,999	5.9%	5.9%	11.8%	0.0%	29.4%	5.9%	23.5%	17.7%	2.2%
	1	1	2	0	5	1	4	3	17
\$90,000-\$99,999	10.5%	15.8%	15.8%	21.1%	15.8%	0.0%	10.5%	10.5%	2.5%
	2	3	3	4	3	0	2	2	19
\$100,000-\$149,999	22.5%	17.5%	22.5%	7.5%	15.0%	5.0%	2.5%	7.5%	5.2%
	9	7	9	3	6	2	1	3	40
More than \$150,000	15.4%	7.7%	0.0%	15.4%	15.4%	7.7%	23.1%	15.4%	1.7%
	2	1	0	2	2	1	3	2	13
Decline	11.0%	18.6%	15.2%	10.3%	6.2%	9.0%	9.0%	20.7%	19.0%
	16	27	22	15	9	13	13	30	145
Total Respondents	76	114	112	103	78	87	79	116	765

Table 21.7 Annual Income vs. Hours Spent (per week) In Virtual Worlds

Q22: LENGTH OF TYPICAL IN-WORLD SESSION

(Appendix B – RAW Survey Q20)

About two-thirds of respondents reported play sessions between one and four hours, with 34.1% reporting a typical session lasting 3-4 hours, and 31.4% reporting a typical session of 1-2 hours. 19% reported typical sessions of 5 hours or more. The remaining residents, a little over 15%, reported typical play times of one hour or less.

Length of Typical Virtual World Session

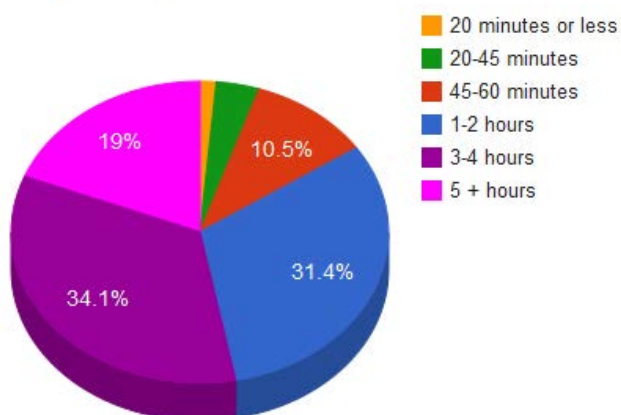


Figure 22.1 Length of Typical VW Session

Length of Typical VW Session	Response Percent	Response Count
20 minutes or less	1.4%	11
20-45 minutes	3.7%	28
45-60 minutes	10.5%	80
1-2 hours	31.4%	240
3-4 hours	34.1%	261
5 + hours	19.0%	145
Answered:		765
Skipped:		93

Table 22.1 Length of Typical VW Session

LENGTH OF TYPICAL SESSION BY GENDER

(cross-data filter with Appendix B – RAW Survey Q20 and Q4)

In terms of session length, here we see a similar pattern of women tending to prefer longer sessions, and men tending to prefer shorter sessions, but only in the middle ranges. At the high and low end the numbers are almost identical.

Length of Typical VW Session by GENDER	Males	% of Males	Females	% of Females	Total Response Count	Total Response %
20 minutes or less	4	1.4%	7	1.5%	11	1.5 %
20-45 minutes	14	4.9%	14	3.0%	28	3.7 %
45-60 minutes	31	10.8%	48	10.4%	79	10.6 %
1-2 hours	100	34.7%	132	28.7%	232	31.0 %

3-4 hours	85	29.5%	174	37.8%	259	34.6 %
5 + hours	54	18.8%	85	18.5%	139	18.6 %
Answered:	288		460		748	
Skipped:					28	

Table 22.2.1 Length of Typical VW Session by Gender

Length of Typical VW Session - Transgender	Transgender	% of Transgender
20 minutes or less	0	0%
20-45 minutes	0	0%
45-60 minutes	1	5.9%
1-2 hours	8	47.1%
3-4 hours	2	11.8%
5 + hours	6	35.3%
Answered:	17	
Skipped:	0	

Table 22.2.2 Length of Typical VW Session by Transgender Participants

LENGTH OF TYPICAL SESSION BY GENERATION

(cross-data filter with Appendix B – RAW Survey Q20 and Q3)

Length of Typical Session by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GENERATION	% of SILENT GEN	TOTAL RESPONSES
20 minutes or less	3	2.3%	4	1.2%	4	1.4%	0	0.0%	11
20-45 minutes	6	4.6%	11	3.2%	10	3.6%	1	12.5%	28
45-60 minutes	15	11.5%	24	7.0%	38	13.5%	3	37.5%	80
1-2 hours	31	23.9%	112	32.5%	95	33.8%	1	12.5%	239
3-4 hours	42	32.3%	120	34.8%	97	34.5%	2	25.0%	261
5 + hours	33	25.4%	74	21.5%	37	13.2%	1	12.5%	145
Answered:	130		345		281		8		764
Skipped:									29

Table 22.3 Length of Typical VW Session by Generation

LENGTH OF TYPICAL SESSION BY EMPLOYMENT STATUS

(cross-data filter with Appendix B – RAW Survey Q20 and Q16)

Employment Status vs. Length of Typical VW Session	20 minutes or less	20-45 minutes	45-60 minutes	1-2 hours	3-4 hours	5 + hours	Total Responses
Employed full-time for wages	1.7%	3.5%	12.1%	37.4%	34.6%	10.7%	38.2%
	5	10	35	108	100	31	289
Employed part-time for wages	2.3%	3.5%	15.1%	24.4%	33.7%	20.9%	11.4%
	2	3	13	21	29	18	86
Self-employed	1.3%	5.0%	8.2%	27.2%	40.5%	17.7%	20.9%
	2	8	13	43	64	28	158
Unemployed	1.0%	2.0%	6.9%	28.4%	33.3%	28.4%	13.5%
	1	2	7	29	34	29	102
Homemaker	0.0%	4.0%	13.2%	18.4%	40.8%	23.7%	10.1%
	0	3	10	14	31	18	76
Student	2.7%	4.6%	10.0%	30.9%	30.9%	20.9%	14.6%
	3	5	11	34	34	23	110
Retired	0.0%	4.4%	10.9%	37.0%	37.0%	10.9%	6.1%
	0	2	5	17	17	5	46
Semi-Retired	0.0%	8.7%	17.4%	39.1%	30.4%	4.4%	3.0%
	0	2	4	9	7	1	23
Unable to work (Disability)	0.0%	1.5%	4.6%	26.2%	36.9%	30.8%	8.6%
	0	1	3	17	24	20	65
Income from additional sources (e.g., investment, rentals, etc.)	3.3%	0.0%	3.3%	33.3%	53.3%	6.7%	4.0%
	1	0	1	10	16	2	30
Independent means (e.g., inheritance, lottery, IPO, etc.)	0.0%	7.1%	7.1%	21.4%	35.7%	28.6%	1.9%
	0	1	1	3	5	4	14
Total Respondents	10	27	80	236	259	144	756

Table 22.4 Employment Status vs. Length of Typical Virtual World Session

Q23: WHEN USERS SPEND TIME IN VWS - TIMES OF DAY

(Appendix B – RAW Survey Q21)

Times of day were of interest to us because they tell us something about how virtual world usage fits into people's lifestyles. The general answer to this question is that people are logging in at a variety of different times, and although the bulk of usage—71.4%—is taking place on weekends, nearly that many cited after dinner (62.4%) and even weekdays (60.4%) as times they logged on. An astonishing 48.6% are also logging on late at night—between midnight and 2am—and 29% report logging on in the middle of the night, between 2am and 5am. 42.8% report logging on after work or school day, and roughly equal numbers (just over 26%) report logging on before or during breakfast or just prior to dinner. 7.3% of respondents added “all the time, whenever I can” or similar answers to the category of “Other.”

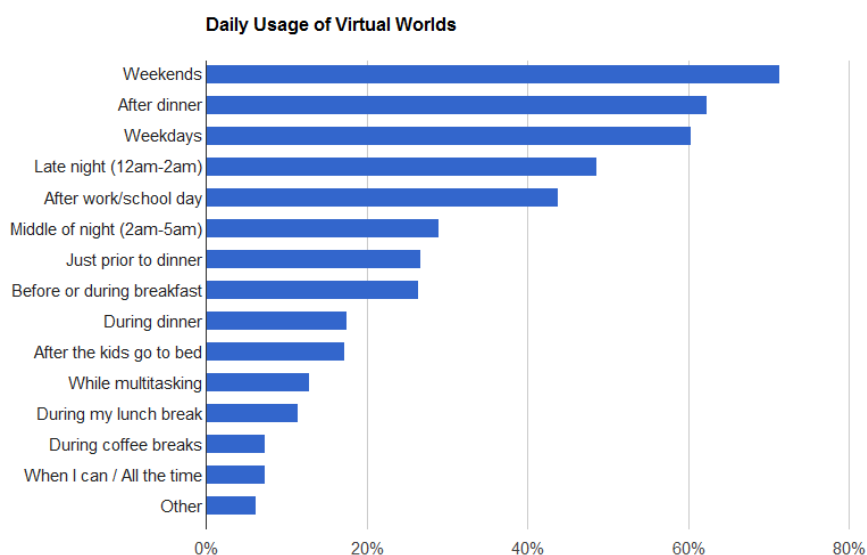


Figure 23.1 Daily Usage of VWs

Typical Daily Usage of VWs	Response Percent	Response Count
Weekends	71.4%	546
After dinner	62.4%	477
Weekdays	60.4%	462
Late night (12am-2am)	48.6%	372
After work/school day	43.8%	335
Middle of night (2am-5am)	29.0%	222
Just prior to dinner	26.7%	204
Before or during breakfast	26.4%	202
During dinner	17.5%	134
After the kids go to bed	17.3%	132
While multitasking or waiting for something (ex. on hold)	12.8%	98
During my lunch break	11.4%	87
During coffee breaks	7.3%	56
When I can / All the time	7.3%	56
Other	6.2%	47
Answered:		765
Skipped:		93

Table 23.1 Daily Usage of VWs

Among parents with children living at home, usage patterns are similar to those of other residents with a few notable exceptions. First, they are about 9% less likely to be logging on weekdays, about 5% less likely to log on before dinner, and a little less than half as likely to be playing during dinner. 49% reported playing after the kids go to bed, and although we did see an expected spike in late night usage among this group, at 43.3%, parents are about 9-12% less likely to be online at the wee hours than residents without children.

Have Children vs. When They Use VWs	Children living at home	Children not living at home	No children	Total Responses
Before or during breakfast	26.0%	29.6%	25.0%	26.4%
	54	58	97	202
Weekdays	54.3%	63.3%	62.4%	60.4%
	113	124	242	462
Weekends	66.8%	69.4%	75.3%	71.4%
	139	136	292	546
During coffee breaks	5.8%	7.7%	7.7%	7.3%
	12	15	30	56
While waiting for something (e.g., on hold, in line)	11.1%	11.7%	14.7%	12.8%
	23	23	57	98
During my lunch break	9.1%	10.2%	12.6%	11.4%
	19	20	49	87
After finishing my work/school day	37.0%	38.8%	49.7%	43.8%
	77	76	193	335
Just prior to dinner	21.2%	26.0%	29.4%	26.7%
	44	51	114	204
During dinner	9.1%	17.4%	21.4%	17.5%
	19	34	83	134
After dinner	52.9%	65.8%	65.2%	62.4%
	110	129	253	477
After the kids go to bed	49.0%	13.3%	3.9%	17.3%
	102	26	15	132
Late night (12am-2am)	43.3%	43.9%	52.8%	48.6%
	90	86	205	372
Middle of the night (2am-5am)	22.1%	21.4%	35.1%	29.0%
	46	42	136	222
Other, please specify	8.2%	17.4%	14.2%	13.5%
	17	34	55	103
Total Respondents	208	196	388	765

Table 23.2 VW Survey Participants That Have Children vs. When They Use Virtual Worlds

Q24: MOST POPULAR ACTIVITIES IN NON-GAME VIRTUAL WORLDS

(Appendix B – RAW Survey Q22)

The notion of open-ended play, in contrast with rule-based games, opens up a wide range of possibilities. Because many of these worlds also have affordances for user created venues, content and events, they allow for an even broader possibility space. In prior research, we had acquired both qualitative and quantitative data that suggested a preponderance of certain types of activities, many of which are represented in the list of options we gave to survey respondents. It should also be noted that we inadvertently left some activities out. In some cases, this is because they were covered elsewhere in the survey, such as sex/romance/dating and commerce, in other cases we missed some fairly important categories, which were captured in open-ended answers. For instance, in spite of the fact that we knew that some people were in virtual worlds at the behest of their real-world jobs (ourselves included), we neglected to include this in our opening list of activities. We also did not include

shopping, because we felt it was covered in the section on commerce, but as it turns out, some residents consider shopping an entertaining activity in and of itself. It may be worth, at some point, creating a more detailed survey focusing exclusively on activity preferences.

Respondents were allowed to make multiple selections, and the top activities listed were not at all surprising. 81.6% of residents cited exploring among their favorite activities, followed closely by creating at 67.7% and dancing at 59.6%. Dancing had come up in prior studies, and in a recent unpublished mixed methods study we conducted on Second Life, dancing turned up as the most popular activity, as tracked in participant observation field notes. 59.6% of residents also reported attending clubs and entertainment venues, and 40.1% reported playing games or other competitive activities. It is interesting to note that such a high percentage of residents in open ended virtual worlds are choosing to play games of various kinds, especially considering that in most of the virtual worlds in the study, in-world games are typically resident-created.

Community organizing and management was another popular activity, with 36.5% respondents citing it, followed by roleplaying at 32.4%. In prior unpublished research we found that roleplaying is actually more prevalent in online virtual worlds than it is in massively multiplayer “roleplaying” games. In a prior study of 100 game players we found that not a single player roleplayed during our study, and only one person even made reference to the practice. Live performance was another popular activity, with 23.4% of players citing it as an activity preference. In prior research we discovered many virtual world denizens to be involved in real life charitable and nonprofit activity, and were even introduced to the “Nonprofit Commons” in Second Life. Thus we were not surprised to see that 23.4% of respondents were involved in some type of charitable activities. 20.5% said they attended in-world classes, while 19.35% are teaching or mentoring. 22.9% of residents also said they used forums connected to the virtual worlds they were playing, and 17.4% cited using outside websites, blogs or publications related to their virtual world activities. 10.7% also reported reading in-world publications.

Categories added by residents included: Socializing, (5.5%), Shopping and commerce (4.1%), and group meetings. It is likely, based on prior research, that if these categories had been included in the list, they would have ranked higher in preferred activities. Other activities added by respondents included: sexual experimentation, decorating, virtual modeling, fashion, photography, hosting, meditating, attending religious services, spiritual or support group meetings (such as AA), and DJ-ing, which is a subset of performance. We also neglected to include a category for those in virtual worlds at the behest of their real-world jobs, which came up in a number of the open-ended questions, and led many residents to comment that they did not consider their virtual world activity “play” since it was related to their real-world jobs.

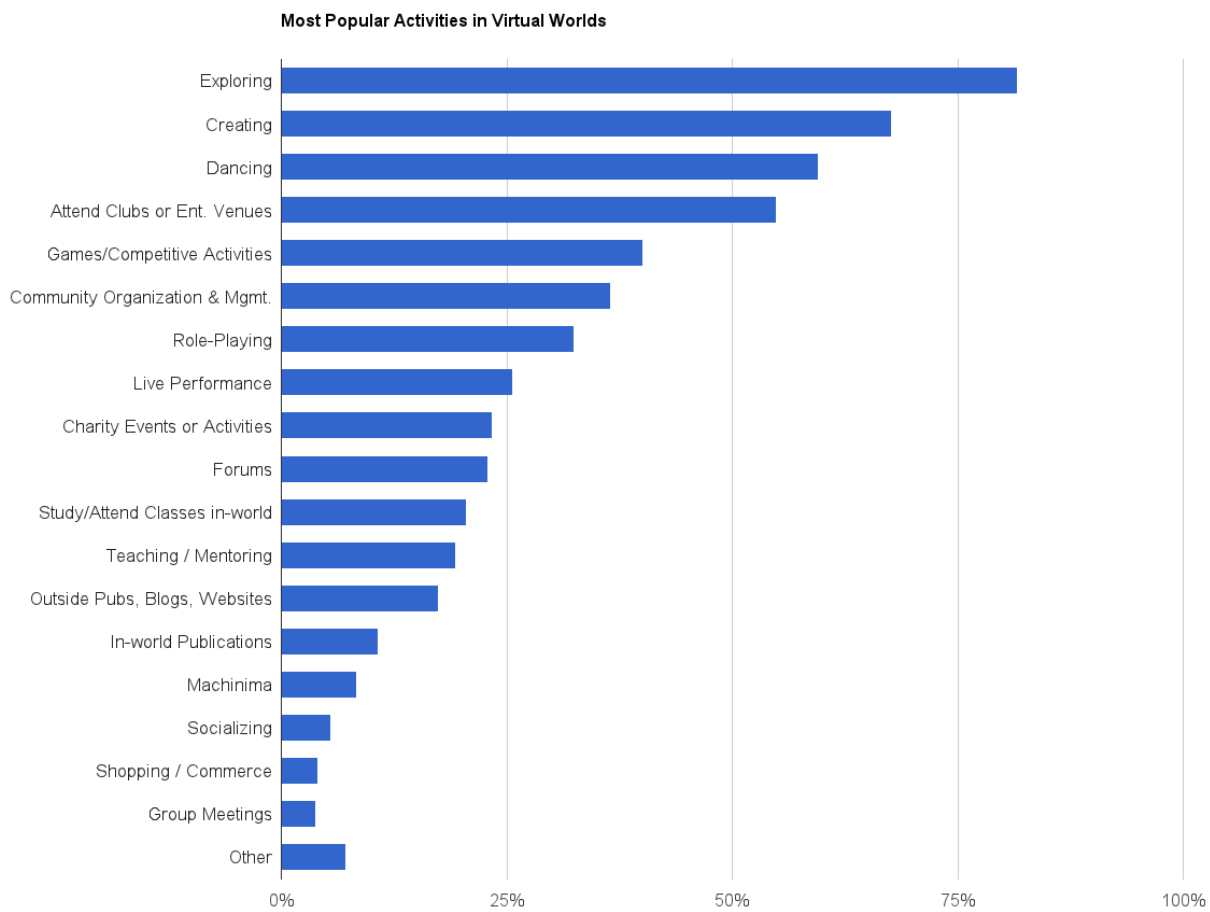


Figure 24.1 Most Popular Activities in Non-Game VWs

Most Popular Activities in VWs	Response Percent	Response Count
Exploring	81.6%	624
Creating	67.7%	518
Dancing	59.6%	456
Attend Clubs or Ent. Venues	54.9%	420
Games/Competitive Activities	40.1%	307
Community Organization and Mgmt.	36.5%	279
Roleplaying	32.4%	248
Live Performance	25.6%	196
Charity Events or Activities	23.4%	179
Forums	22.9%	175
Study/Attend Classes in-world	20.5%	157
Teaching / Mentoring	19.4%	148
Outside Pubs, Blogs, Websites	17.4%	133
In-world Publications	10.7%	82
Machinima	8.4%	64
Socializing	5.5%	42

Shopping / Commerce	4.1%	31
Group Meetings	3.8%	29
Other	7.2%	55
Answered:		765
Skipped:		93

Table 24.1 Most Popular Activities in Non-Game VWs

NOTES

- Worth mentioning that, in future surveys, we should make sure to reinforce the specific meaning of our questions. For example, here we could have said “...Within Non-Game VWs?” to reinforce the fact that we aren’t talking about ALL VWs including MMOGs.
- Also worth noting here that “Socializing” and relationships are the single greatest reason why people use VWs, other than creating, shopping, and commerce) according to answers in the Open Response Questions. “Socializing”, “We didn’t include these activities, but they were written in the optional responses and were still enough to distinguish a percentage of the participants.

VW ACTIVITIES BY GENDER

(cross-data filter with Appendix B – RAW Survey Q22 and Q4)

We did a cross-reference of activities by gender because we wanted to see if there were any notable differences in activity patterns. Across the board, male and female participation in various VW activities is actually quite similar, usually with a variation of less than 4%. The only two activities with a gender difference of more than 5% were dancing and charitable activities. A little over 9% more women than men cited dancing, while a little over 12.6% more women than men mentioned charity as one of their activities. Given the gender differences in games and competitive activities, it was expected that more men than women would cite this as a preferred activity; however, the difference was so minor—only 0.2 difference—as to be insignificant. The numbers were also similar among respondents identifying as transgender, although this group was about 16% less likely to be playing games.

Most Popular VW Activities by GENDER	Males	% of Males	Females	% of Females	Response Count	Total Response %
Creating	201	69.8%	305	66.3%	506	67.6 %
Dancing	155	53.8%	290	63.0%	445	59.5 %
Exploring	228	79.2%	383	83.3%	611	81.7 %
Games/Competitive Activities	117	40.6%	186	40.4%	303	40.5 %
Roleplaying	89	30.9%	152	33.0%	241	32.2 %
Community (management, organizing, planning events)	96	33.3%	174	37.8%	270	36.1 %
Live Performance	73	25.4%	121	26.3%	194	25.9 %
Machinima	29	10.1%	34	7.4%	63	8.4 %
In-world publications	37	12.9%	44	9.6%	81	10.8 %
Out of world publications, such as blogs and web sites	44	15.3%	86	18.7%	130	17.4 %
Forums	65	22.6%	106	23.0%	171	22.9 %
Teaching in-world	47	16.3%	88	19.1%	135	18.0 %
Attend Classes in-world (Virtual Universities or other)	46	16.0%	109	23.7%	155	20.7 %

Charity events or activities	54	18.8%	124	27.0%	178	23.8 %
Attend clubs or entertainment venues	161	55.9%	249	54.1%	410	54.8 %
Other, please specify	44	15.3%	117	25.4%	161	21.5 %
Answered:	288		460		748	
Skipped:					28	

Table 24.2 Most Popular Activities in Non-Game VWs by Gender

VW Activities by Transgender	Transgender	% of Transgender
Creating	12	70.6%
Dancing	11	64.7%
Exploring	13	76.5%
Games/Competitive Activities	4	23.5%
Roleplaying	7	41.2%
Community (management, organizing, planning events)	9	52.9%
Live Performance	2	11.8%
Machinima	1	5.9%
In-world publications	1	5.9%
Out of world publications, such as blogs and web sites	3	17.7%
Forums	4	23.5%
Teaching in-world	3	17.7%
Attend Classes in-world (Virtual Universities or other)	2	11.8%
Charity events or activities	1	5.9%
Attend clubs or entertainment venues	10	58.8%
Other, please specify	6	35.3%
Answered:	17	
Skipped:	0	

Table 24.1 Most Popular Activities in Non-Game VWs for Transgender Participants

VW ACTIVITIES BY GENERATION

(cross-data filter with Appendix B – RAW Survey Q22 and Q3)

In prior unpublished research, we found that age was an indicator of creativity, with residents in the higher age ranges being more likely to engage in creative activities. For the survey, although there is a slight trending upward in creative activity by age, the difference does not seem to be large. 75% of our Silent Generation respondents cited creative activity as an interest, but since the sample size for this group was so small, we can't really derive any meaningful conclusions from this. As with gender, the variations between activities are typically less than 5%, except in one area, which is games. There is roughly 10% difference between the age groups, with game-playing declining as we move up in age. Players in the Baby Boomer demographic are about 7% less likely to be involved in roleplaying.

VW Activities by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GENERATION	% of SILENT GEN	TOTAL RESPONSES
Creating	83	63.9%	232	67.3%	196	69.8%	6	75%	513
Dancing	65	50.0%	205	59.4%	181	64.4%	5	62.5%	452
Exploring	110	84.6%	280	81.2%	228	81.1%	5	62.5%	619

Games/Competitive Activities	67	51.5%	147	42.6%	92	32.7%	0	0.0%	306
Roleplaying	50	38.5%	118	34.2%	77	27.4%	3	37.5%	246
Community (management, organizing, planning events)	52	40.0%	122	35.4%	102	36.3%	2	25.0%	276
Live Performance	25	19.2%	88	25.5%	80	28.5%	2	25.0%	193
Machinima	14	10.8%	28	8.2%	22	7.8%	0	0.0%	64
In-world publications	17	13.1%	36	10.4%	28	10.0%	0	0.0%	81
Out of world publications, i.e. blogs and web sites	23	17.7%	64	18.6%	45	16.0%	0	0.0%	132
Forums	31	23.9%	82	23.8%	61	21.7%	0	0.0%	174
Teaching in-world	22	16.9%	58	16.8%	55	19.6%	2	25.0%	136
Attend Classes in-world (Virtual Universities or other)	14	10.8%	74	21.5%	66	23.5%	2	25.0%	154
Charity events or activities	25	19.2%	75	21.7%	77	27.4%	1	12.5%	177
Attend clubs or entertainment venues	66	50.8%	199	57.7%	154	54.8%	1	12.5%	419
Other, please specify	21	16.2%	68	19.7%	73	26.0%	4	50.0%	165
Answered:	130		345		281		8		764
Skipped:									29

Table 24.3 Most Popular Activities in Non-Game VWs by Generation

Q25: ROLEPLAYING

(Appendix B – RAW Survey Q23)

As mentioned earlier, 32.4% reported roleplaying as one of the activities in which they engaged, and 33% of respondents also indicated in a different section that they participated in roleplaying communities. 30.4% of respondents also answered specific questions about the types of roleplaying they were doing. The most popular roleplaying genre by far was science-fiction and fantasy (although in future research we might separate these two), which 42.5% of residents reported as a genre of roleplay with which they engaged. The second most popular, at 21.6%, was erotic and BDSM roleplaying, a distinct form of erotic activity that entails roleplaying of some kind. As we will find in the section on sex and relationships, sexual activities are prevalent in virtual worlds, and many residents use them as a space for erotic play and experimentation.

Other roleplay genres included:

- 17.5% “Dark” roleplay
- 12.5% Vampire
- 12.1% Medieval
- 9.5% Gorean, a form of fantasy BDSM roleplay based on a literary genre in which women serve as slaves to their male masters
- 9.2% Historical
- 9.2% Steampunk, based on a genre of Victorian-era science fiction
- 4.8% Urban
- 4.0% Victorian
- 2.2% Pirate

Interestingly only 5.6% of residents engaged in combat-based roleplay, which is the main form of gameplay in the vast majority of MMOGs. In prior unpublished research, we also discovered a form of RP we termed “family

RP,” in which VW denizens roleplay as members of the same family. 5.5% of respondents reported this type of roleplay.

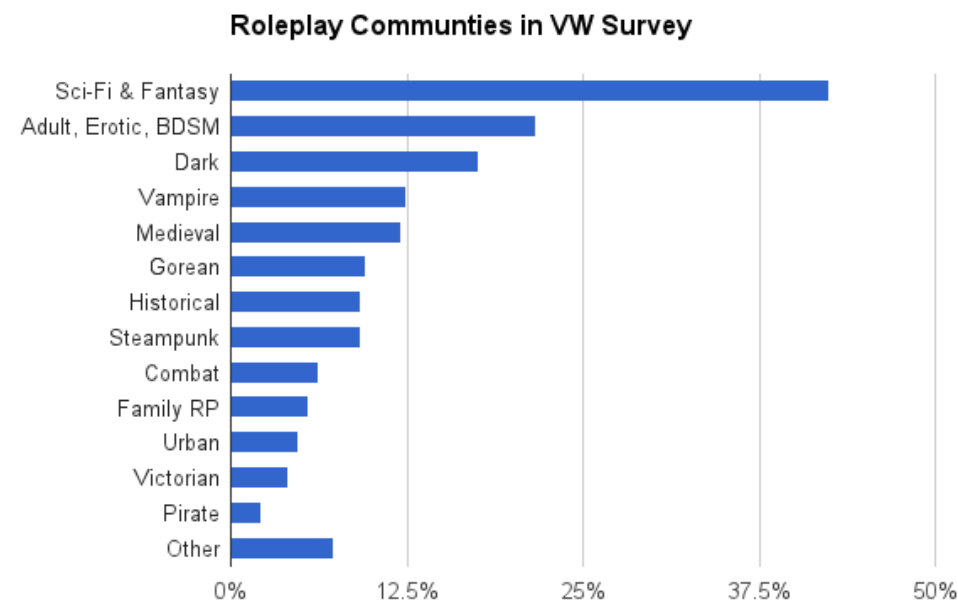


Figure 25.1 Roleplay Communities in Virtual Worlds

Roleplay Genres Participated in - VW Survey	Response Percent	Response Count
Sci-Fi and Fantasy	42.5%	116
Adult, Erotic, BDSM	21.6%	59
Dark	17.6%	48
Vampire	12.5%	34
Medieval	12.1%	33
Gorean	9.5%	26
Historical	9.2%	25
Steampunk	9.2%	25
Combat	6.2%	17
Family RP	5.5%	15
Urban	4.8%	13
Victorian	4.0%	11
Pirate	2.2%	6
Other	7.3%	20
Answered:		273
Skipped:		585

Table 25.1 Roleplay Communities in Virtual Worlds

Q26: INTERACTIONS WITH FAMILY AND FRIENDS IN VIRTUAL WORLDS

(Appendix B – RAW Survey Q24)

A large number of respondents reported an overlap between virtual world and real-world social ties. 54.1% reported having met someone in a virtual world that they subsequently met in real life. A similar number, 54% reported playing in virtual worlds with people they had known previously in real life. 44.7% reported playing with a real life romantic partner or spouse. 30% reported playing with the same person in multiple virtual worlds.

This suggests that migration between virtual worlds is fairly common and the residents are actually taking friends with them from one world to another, a phenomenon we identified in earlier studies of inter-game immigration (Pearce and Artemesia 2009). 32.9% have played with real-world family members. We know from previous research that it is common for people to play with family members who live in other locations, family members in the same city, and even family members in the same house. Less than a third of our respondents, 30.5%, reported never having met in real life anyone they had played with in a virtual world.

These numbers are interesting because they demonstrate the fluidity between virtual and real social relations, as well as between virtual worlds. Although a little under a third of residents reported no carryover to real life, over two-thirds have had interactions with people that cross over between virtual worlds and real life, countering a popular misconception that virtual social interactions serve to isolate people. To the contrary, it would seem from these results that relationships are in fact moving in both directions (from the real-world to the virtual world and vice versa), as well as between the various virtual worlds that people inhabit.

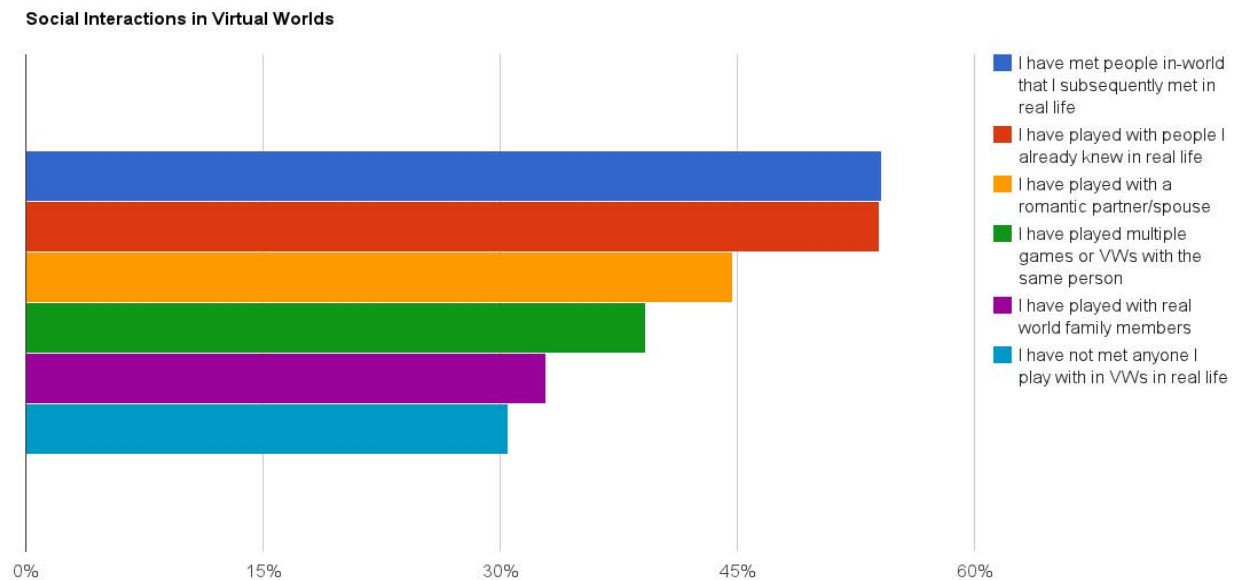


Figure 26.1 Social Interactions with Family and Friends Using Virtual Worlds

Family / Friend Interactions - VW Survey	Response Percent	Response Count
I have met people in-world that I subsequently met in real life	54.1%	414
I have played with people I already knew in real life	54.0%	413
I have played with a romantic partner/spouse	44.7%	342
I have played multiple games or VWs with the same person	39.2%	300
I have played with real-world family members	32.9%	252
I have not met anyone I play with in VWs in real life	30.5%	233
Answered:		765
Skipped:		93

Table 26.1 Social Interactions with Family and Friends Using Virtual Worlds

Q27: RELATIONSHIPS AND SEX IN VIRTUAL WORLDS

(Appendix B – RAW Survey Q25)

Sex and relationships was a major topic of interest to us because, while we know it is pervasive, with a few exceptions (e.g., Bardzell and Bardzell 2007; Brookey and Cannon 2009) there has been little research on sexuality in virtual worlds.

Cybersex in virtual worlds can take many forms. In its simplest form, it can take place in the form of “sexting,” which is simply typing a description of your activities to the other person. This type of sexual activity has been prevalent in both text chat and text-based MUDs (multi-user dungeons or domains) since their inception. Some virtual worlds also provide software affordances for sex animations. In The Red Light Center, for instance, the company provides a range of animations and sexual practices, including having sex with an automated character (or bot) or animations one can trigger with another user. Second Life residents can both make and purchase user-created genital attachments, sexual poses, animations, and furniture (sometimes including bondage apparatus), as well as conventional and unconventional sex toys. Residents may participate in one-on-one sexual activities through texting, animation or a combination of the two, or may engage in group sex if affordances are available. In some virtual worlds there are also clubs and venues specifically targeted to sexual activity. Residents can visit or rent rooms with animations, participate in sexual activities, or go to a “live” sex show with other avatars performing sex acts for them. There are also brothels and escort services, as well as communities and venues that cater to or merely include erotic roleplay, such as the Gorean scene, Fantasy, Arabian, Victorian, Steampunk or Medieval themed communities. BDSM is also prominent in a variety of forms that sometimes (though not always) intersect with roleplay.

As we had expected, a large majority of our respondents, 67.1%, reported having engaged in dating or romance, and 58.6% reported engaging in sexual activity in a virtual world. 26.5% reported having dated someone in a virtual world that they subsequently dated in real life, including several respondents who reported meeting their real-world partner in a virtual world. Although we have seen instances of this in our prior research, this figure is much higher than we had anticipated. It basically means that a little over a quarter of virtual world denizens are actually connecting with real-world dating through virtual worlds. A little less than a quarter, 24.5%, reported dating or partnering with their real-world partner in virtual worlds. 14.4% reported engaging in sexual activities other than those listed, and 11.3% reported either paying or being paid for sexual services. Perhaps the most surprising aspect of these questions was how many people chose to answer them. Only 99 respondents declined to answer this set of questions, a much lower number than expected. All in all, respondents were surprisingly forthcoming about their romantic and sexual practices.

Romantic and sexual practices are a form of emergent behavior that seem to transcend software affordances and take place across all virtual worlds, whether they be text-based or graphical, game or non-game worlds. Among the earliest records of virtual worlds are accounts of in-world sex, romance, weddings, and even rape (e.g., Damer 1997, Dibbell 1998), yet despite their prevalence, these practices are startlingly understudied, making them fertile ground for further research.

Sex and Relationships in Virtual Worlds

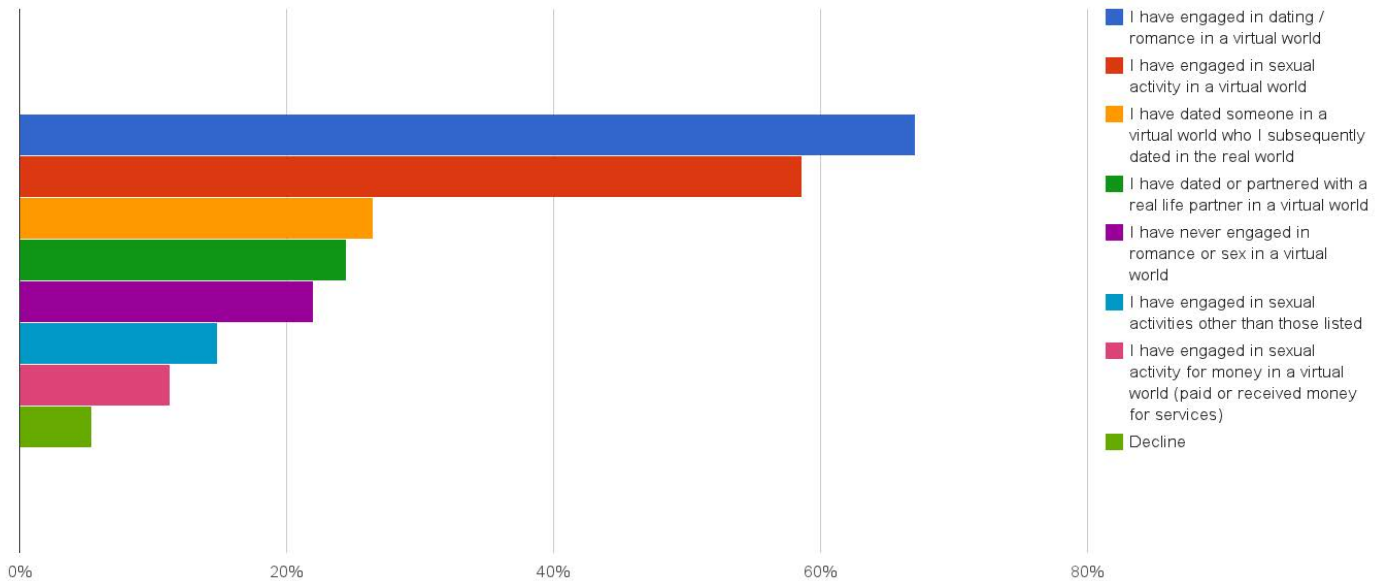


Figure 27.1 Relationships and Sex in Virtual Worlds

Relationships and Sex in VWs	Response Percent	Response Count
I have engaged in dating/romance in a virtual world	67.1%	509
I have engaged in sexual activity in a virtual world	58.6%	445
I have dated someone in a virtual world who I subsequently dated in the real-world	26.5%	201
I have dated or partnered with a real life partner in a virtual world	24.5%	186
I have never engaged in romance or sex in a virtual world	22.0%	167
I have engaged in sexual activities other than those listed	14.8%	112
I have engaged in sexual activity for money in a virtual world (paid or received money for services)	11.3%	86
Decline	5.4%	41
Answered:		759
Skipped:		99

Table 27.1 Relationships and Sex in Virtual Worlds

REGARDING DATING / SEX IN VWS BY GENDER

(cross-data filter with Appendix B – RAW Survey Q25 and Q4)

As with other data points, we also did an analysis of dating and sex data by gender. Among those who said they were engaged in romantic activity, across the board, women reported a slightly higher level of engagement in every aspect of romantic/sexual activity, except for one—men reported a slightly higher incidence (1.5%) of being paid or paying to have sex.

Regarding Dating/Sex in Virtual Worlds by GENDER	Males	% of Males	Females	% of Females	Total Response Count	Total Response %
I have engaged in dating/romance in a virtual world	180	63.0%	316	69.3%	496	66.8%
I have engaged in sexual activity in a virtual world	158	55.2%	275	60.3%	433	58.4%
I have dated someone in a virtual world who I subsequently dated in the real-world	63	22.0%	136	29.8%	199	26.8%
I have dated or partnered with a real life partner in a virtual world	60	21.0%	123	27.0%	183	24.7%
I have engaged in sexual activity for money in a virtual world (paid or received money for services)	34	11.9%	47	10.3%	81	10.9%
I have engaged in sexual activities other than those listed	38	13.3%	67	14.7%	105	14.2%
I have never engaged in romance or sex in a virtual world	64	22.4%	100	21.9%	164	22.1%
Decline	19	6.6%	21	4.6%	40	5.4%
Answered:	286		456		742	
Skipped:					34	

Table 27.2 Relationships and Sex in Virtual Worlds by Gender

REGARDING DATING / SEX IN VWS BY GENERATION

(cross-data filter with Appendix B – RAW Survey Q25 and Q3)

In terms of age, the table below suggests some interesting nuances in terms of romantic and sexual activity. Note that GenXers are the most likely of the four age groups to be dating and having sex; and while Baby Boomers are having about 9.5% less sex than GenXers, they are having close to 5% more than GenYers. With such a small sample in the Silent Generation, it's hard to draw much from the figures here, but nonetheless 50% is an interesting figure that suggests further research.

In terms of the fluidity between virtual world and real life dating in both directions, the figure is slightly lower among Baby Boomers than Gen Y or X, but it's interesting to note that a lower number of Boomers cited partnering in virtual worlds with a real-world partner, than the other way around.

Regarding Dating/Sex by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GEN	% of SILENT GEN	TOTAL RESPONSES	TOTAL RESPONSE %
I have engaged in dating/romance in a virtual world	85	66.4%	244	71.1%	176	63.1%	4	50.0%	506	67.1%
I have engaged in sexual activity in a virtual world	63	49.2%	223	65.0%	155	55.6%	4	50.0%	442	58.6%
I have dated someone in a virtual world who I subsequently dated in the real-world	37	28.9%	98	28.6%	65	23.3%	1	12.5%	200	26.5%

I have dated or partnered with a real life partner in a virtual world	32	25.0%	100	29.2%	51	18.3%	2	25.0%	183	24.3%
I have engaged in sexual activity for money in a virtual world (paid or received money for services)	22	17.2%	42	12.2%	22	7.9%	0	0.0%	86	11.4%
I have engaged in sexual activities other than those listed	25	19.5%	48	14.0%	38	13.6%	1	12.5%	111	14.7%
I have never engaged in romance or sex in a virtual world	27	21.1%	65	19.0%	72	25.8%	3	37.5%	167	22.1%
Decline	8	6.3%	16	4.7%	17	6.1%	0	0.0%	41	5.4%
Answered:	128		343		279		8		758	
Skipped:									35	

Table 27.1 Relationships and Sex in Virtual Worlds by Generation

OPEN ENDED QUESTIONS ON SEX AND RELATIONSHIPS

It is interesting to note the contrast in both positive and negative experiences with virtual world relationships. In open-ended questions, numerous respondents reported meeting their real-world partner or spouse in a virtual world, including many who had moved or whose partner had moved to join them in real life. A much smaller number reported virtual worlds as the source of marital strife, in some cases due to jealousy on the part of the non-playing spouse, and in some cases causing the demise or near demise of a marriage. We know that it is common for people who are married in real life to have partners in virtual worlds, but we were not clear from the responses how many of the conflicts with real-world partners were caused by this. Based on comments, many of which were vague, it seemed like the time spent online was as much a source of conflict as potential infidelity.

We also noted a few interesting nuances. A small handful of women made comments that suggested that virtual worlds provided a relief from the typical female role in a household, in some cases causing tension within the family, such as the respondent who said her “husband and kids are upset I am not waiting on them.”

A number of people conveyed that they had formed profound and deep relationships, both romantic and platonic, through virtual worlds. Many respondents also pointed out that online communities or relationships transcend geography and hence can be taken anywhere.

SECTION 4: CREATIVITY AND COMMERCE

Creativity and commerce are both major aspects of virtual life, and are inextricably tied together since, in many virtual worlds, creativity is fueled by commerce. In this section we will look at both of these areas, starting with just a cursory look at creativity, and then delving more deeply into economic patterns.

SECTION 4.1 - CREATIVITY

Because the forms of creativity in virtual worlds are so extensive, the subject warrants an entire survey of its own. Since we were looking at diverse virtual worlds, we provided respondents with a somewhat limited and generic range of choices, primarily focused on the type of activities performed, as opposed to the content created, which is often idiosyncratic to a specific world and its creative affordances. A more extensive follow-up survey would also look at precisely what types of things people are creating. One area we would want to focus on would be avatar customization, a topic that was far too complex to cover within this survey, but which is alluded to in the section on avatar presentation. For future surveys, we might also broaden the definition of creative activities to include decorating, which came up as a write-in category from a number of respondents.

Based on our fairly generic categories, we were able to capture a reasonably broad spectrum of creative activities. The top five creative activities, reported by over 50% of respondents, included: In-world photography (67.2%); In-world 3D object creation (64.1%, although it should be noted that many of the worlds covered in the study do not include this feature); In-world construction, also known as sim-creation (59.2%); 2D art, textures, etc. (55.4%); and Planning events (51%). Other creative activities included: Collaborative projects (38.7%); Running a venue or nightclub (37.5%); Performances of various types, including DJ-ing at the top (18.6%) followed by Plays-Readings (12.9%), Erotic performance (12%) and Live Music (10.5%); as well as Other (14.4%) write-in responses independent of these categories. The high number of residents citing object creation and sim-building as well as texture creation suggests that a high percentage of residents are participating in making things, especially creating environments for others. This actually goes against a number of other theories (Koster 2006), which suggest a very small majority of about 1% of players are making content for others to enjoy. Based on these results it would seem that creative expression is “consumed” to a high degree by virtual world denizens. In other words, creating is one of the top selling features of virtual worlds. See Morie’s 2010 paper on virtual world art creation for additional reading on this topic (Morie 2010).

One area that we neglected to include, which should be included in an expanded essay on creative activities, is fashion design and avatar customization. This might also be extended to include the creation of sexually-related artifacts, which are a major business in the virtual worlds that allow them.

It should also be noted that people have different perceptions of what is creative. For instance, some people would count decorating (as in furnishing a house or shop) as a creative activity. For future surveys we may want to reassess what “counts” as creative activity since residents may have different perceptions of what this means.

Q28: CREATIVE ACTIVITIES IN VIRTUAL WORLDS

(Appendix B – RAW Survey Q26)

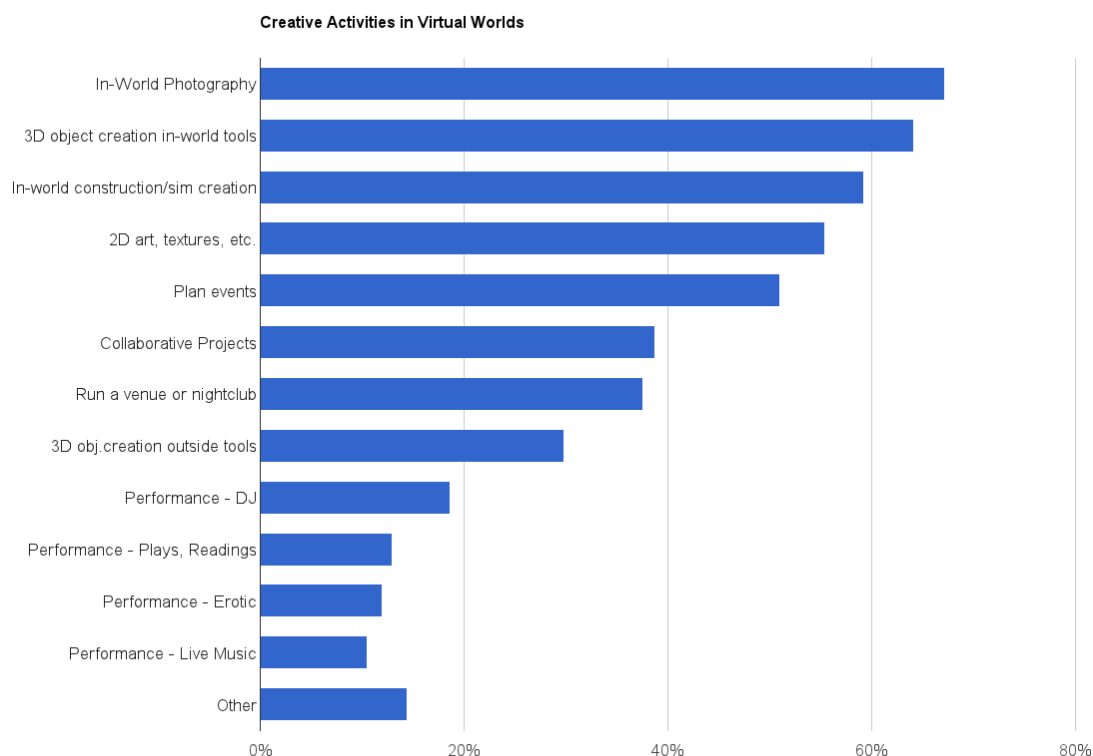


Figure 28.1 Creative Activities in Virtual Worlds

Creative Activities in VWs	Response Percent	Response Count
In-World Photography (Screen-Shots from Exploration for blogs etc.)	67.2%	514
3D object creation using in-world tools	64.1%	490
In-world construction/sim-creation	59.2%	453
2D art, textures, etc.	55.4%	424
Plan events	51.0%	390
Collaborative Projects	38.7%	296
Run a venue or nightclub	37.5%	287
3D object creation using out-of-world tools (e.g., Maya, Gmax, 3D Studio, etc.)	29.8%	228
Performance - DJ	18.6%	142
Performance - Plays, Readings	12.9%	99
Performance - Erotic	12.0%	92
Performance - Live Music	10.5%	80
Other, please specify	14.4%	110
Answered:		765
Skipped:		93

Table 28.1 Creative Activities in Virtual Worlds

NOTES

- We would add a “Performance-Dancing” and various “Hosting” categories to future surveys with this question on Creative Activities in Virtual Worlds.
 - Dancing WAS covered in *Q24 Most Popular Activities in Non-Game Virtual Worlds* but may be appropriate here as a creative performance activity.
 - Participant write-ins included: Performance-Dance, pole dancer (no strip), synchronized dance, Performance-Burlesque and so on, which are all creative activities for Dance.
 - Also, as above, "Host" was a popular write-in, but in different contexts: radio talk show host, game show host, television show host, or simply a host at a nightclub. These would probably need to be distinguished from each other.
- “Other” write-in responses (not included above) ranged from:
 - art gallery curator
 - (avatar) character model for 3D designers
 - fashion show model
 - animal breeder
 - in-world "guide"
 - and clothing maker/designer
 - There were not enough responses in any one section to add a row in the table, so left them in the "Other" category
- It may also be pertinent to distinguish between 2D and 3D object/asset “Creation” and “Design” as these are not always the same thing.
- “Run a venue or nightclub” or “Host” would have been good to add to *Q24 Most Popular Activities in Non-Game Virtual Worlds*.

CREATIVE ACTIVITIES BY GENDER

(cross-data filter with Appendix B – RAW Survey Q26 and Q4)

Among our respondents, men are creating more than women in some areas. Note, we did not ask what people are creating, just how. Men are doing slightly more 3D creation in-world, but around 10% more out-of-world via tools such as Maya¹⁵, as well as a similar percentage more in-world construction (creating sims, etc.). Women, on the other hand, are doing about 9% more events planning. Men are DJ-ing about 5% more than women. In most other areas, the differences are within about 5%.

Creative Activities by GENDER	Males	% of Males	Females	% of Females	Total Response Count	Total Response %
3D object creation using in-world tools	192	66.7%	286	62.2%	478	63.9 %
3D object creation using out-of-world tools (Maya, Gmax, 3D Studio, etc.)	104	36.1%	117	25.4%	221	29.5 %
In-world construction/sim-creation	186	64.6%	255	55.4%	441	59.0 %
2D art, textures, etc.	165	57.3%	248	53.9%	413	55.2 %
In-World Photography (Screen-Shots from Exploration for blogs etc.)	190	66.0%	311	67.6%	501	67.0 %
Collaborative Projects	111	38.5%	176	38.3%	287	38.4 %

¹⁵ Maya is a registered trademark of Silicon Graphics, Inc. within the United States and/or other countries.

Plan events	131	45.5%	251	54.6%	382	51.1 %
Run a venue or nightclub	105	36.5%	176	38.3%	281	37.6 %
Performance - Plays, Readings	33	11.5%	64	13.9%	97	13.0 %
Performance - Live Music	39	13.5%	40	8.7%	79	10.6 %
Performance - DJ	62	21.5%	77	16.7%	139	18.6 %
Performance - Erotic	27	9.4%	59	12.8%	86	11.5 %
Other, please specify	33	11.5%	74	16.1%	107	14.3 %
Answered:	288		460		748	
Skipped:					28	

Table 28.2 Creative Activities in Virtual Worlds by Gender

CREATIVE ACTIVITIES BY GENERATION

(cross-data filter with SurveyMonkey Q26 and Q3)

The table below shows some noteworthy creation differences by age, and here we see a notable bump in some areas among Baby Boomers, particularly in-world 3D creation and construction, as well as collaborative projects. Here Baby Boomers outstrip their younger counterparts by 10-18%. At the same time, they are much less likely to be DJ-ing or engaging in erotic performance.

Creative Activities in VWs by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GEN	% of SILENT GEN	TOTAL RESPONSES	TOTAL RESPONSE %
3D object creation using in-world tools	65	50.0%	217	62.9%	202	71.9%	5	62.5%	486	63.9%
3D object creation using out-of-world tools (e.g., Maya, Gmax, 3D Studio, etc.)	40	30.8%	106	30.7%	80	28.5%	2	25.0%	228	30.0%
In-world construction/sim-creation	65	50.0%	198	57.4%	183	65.1%	6	75.0%	448	58.9%
2D art, textures, etc.	66	50.8%	191	55.4%	163	58.0%	3	37.5%	421	55.4%
In-World Photography (Screen-Shots from Exploration for blogs etc.)	83	63.9%	235	68.1%	191	68.0%	4	50.0%	510	67.1%
Collaborative Projects	41	31.5%	121	35.1%	130	46.3%	3	37.5%	293	38.6%
Plan events	66	50.8%	178	51.6%	141	50.2%	4	50.0%	387	50.9%
Run a venue or nightclub	54	41.5%	139	40.3%	93	33.1%	1	12.5%	286	37.6%
Performance - Plays, Readings	25	19.2%	35	10.1%	36	12.8%	2	25.0%	96	12.6%
Performance - Live Music	21	16.2%	24	7.0%	34	12.1%	1	12.5%	79	10.4%
Performance - DJ	41	31.5%	76	22.0%	25	8.9%	0	0.0%	142	18.7%
Performance - Erotic	28	21.5%	43	12.5%	21	7.5%	0	0.0%	92	12.1%
Other, please specify	15	11.5%	38	11.0%	55	19.6%	2	25.0%	108	14.2%
Answered:	130		345		281		8		764	
Skipped:									29	

Table 28.3 Creative Activities in Virtual Worlds by Generation

SECTION 4.2 REAL ESTATE

Virtually all virtual worlds have affordances for real estate transactions. At the simplest level, this can involve renting a prefabricated house purchased or rented from the virtual world's owners. More complex levels involve elaborate multi-tiered transactions. By and large, the value of real estate in virtual worlds is typically established through a combination of footprint (that is, the geographical space), and the number of objects that can be displayed on the property at a given time, which is another way of saying "computer memory and processing." "Virtual" real estate, in this sense, is quite literally storage space on a hard drive and the processing power required to render objects. The more stuff in the world, the more storage space required, and the more active memory consumed.

Second Life has perhaps the most complex real estate system. Beyond the lowest level of pre-fabricated house rental, individual residents can buy or rent tracts of land, paying a monthly fee for land usage. At the most elaborate end of the spectrum is the purchase and maintenance of entire sims or homesteads. These are large tracts of land which individuals can purchase and rent to others. These typically involve a purchase fee and a high monthly "tier fee" (which can go into the hundreds or even thousands of dollars per month, depending on the size of the land). Residents running these large sims typically rent land to other residents to help subsidize those fees. This means that land-owning residents are highly dependent on the ebb and flow of communities, often resulting in the overnight disappearance of entire cities if the owners cannot afford to make their monthly fees.

There.com has a quite different system. In addition to simple home rental, individual residents can also create something called a "Port-A-Zone," or PAZ. This is a temporary build that residents can pop up wherever they want. Payment is typically in the form of an hourly fee to have the PAZ open in the world. In the early days of There.com, this was the only form of personal real estate; while some residents would set up long-term settlements, due to the expense of having the PAZ set up when not in-world, some residents would only erect their PAZes when they were actually logged on. Later, residents on There.com's Member Advisory Board recommended that the company add a mechanism for community land ownership. As communities were forming emergently through the PAZ system, this allowed groups who had clustered together into emergent settlements to establish permanent land ownership. The resultant "Neighborhoods" hence allowed an individual resident to purchase and pay monthly fees for a large tract of land on behalf of a given community. That individual would then rent "lots" to other residents to support the monthly fees. This encourages people to form long-term communities, but also, as in Second Life, makes land-owners highly dependent on their tenants to maintain their ongoing land fees. One interesting distinction, however, is that Second Life emphasizes individual land-owners' rights, while There.com's real estate system is focused on communities. It should also be noted that, while There.com is a spherical world with a finite area and fixed geographic locations, Second Life is organized as a malleable, reconfigurable "grid" that allows zones to extend infinitely in all directions. This means that a Second Life community can add grid modules adjacent to an occupied module to extend their space in a way that the finite terrain of There.com does not allow.

Kaneva, the third most cited virtual world in this study, has a different system altogether. Rather than contiguous terrain, users can create individual "Worlds" or "Communities." This is also similar to the format of ActiveWorlds, which allows paying denizens to create their own distinct worlds. In Kaneva, there is a limit on the number of worlds you can create, but you have access to more with a monthly pass. Communities are a single zone with a terrain on which you can build. Worlds can be made up of multiple zones, on which users can both build and script with an affordance to make other players moderators, which allows them to build in that world/community. Worlds and Communities are accessible through a menu that has different sorting, filter, and search options; each also has a web page attached to it where an icon can be uploaded and owners can add updates about their zones.

Land ownership is also tied to sim-creation, which was covered on the section in Creativity. What we can surmise from these two data points is that a large number of residents are participating in real estate transactions at various levels, including purchasing land tracks and creating environments for others to use.

Q29: SHOP, SIM, AND LAND OWNERSHIP IN VIRTUAL WORLDS

(Appendix B – RAW Survey Q27)

The data from this survey indicates that the majority of residents are involved in virtual world real estate transactions. Around two-thirds reported renting or owning their own land, over a third rented or owned for a business, and a little over a quarter reported renting land to other people. Over two-thirds of respondents, 67.9%, reported renting a home or residence from another person in a virtual world, and slightly less, 63.4%, reported owning their own land. Given the costs associated with land ownership, this is a fairly large percentage. 60.5% reported renting land, meaning a larger parcel of land (as opposed to just a dwelling) from another person. 60.5% reported renting land, meaning a larger parcel of land (as opposed to just a dwelling) from another person. 38.5% reported owning land; 33.6% reported owning or renting land for a shop or business respectively; and 32.9% reported owning land for creative activities for themselves or others (it is common in some worlds for residents to have separate “studio” spaces for creating builds and artifacts). 22.4% reported being “landlords,” renting some or all of a piece of real estate to others. Only 4.0% said they never rented or owned virtual real estate of any kind.

Shop, Sim, & Land Ownership in Virtual Worlds

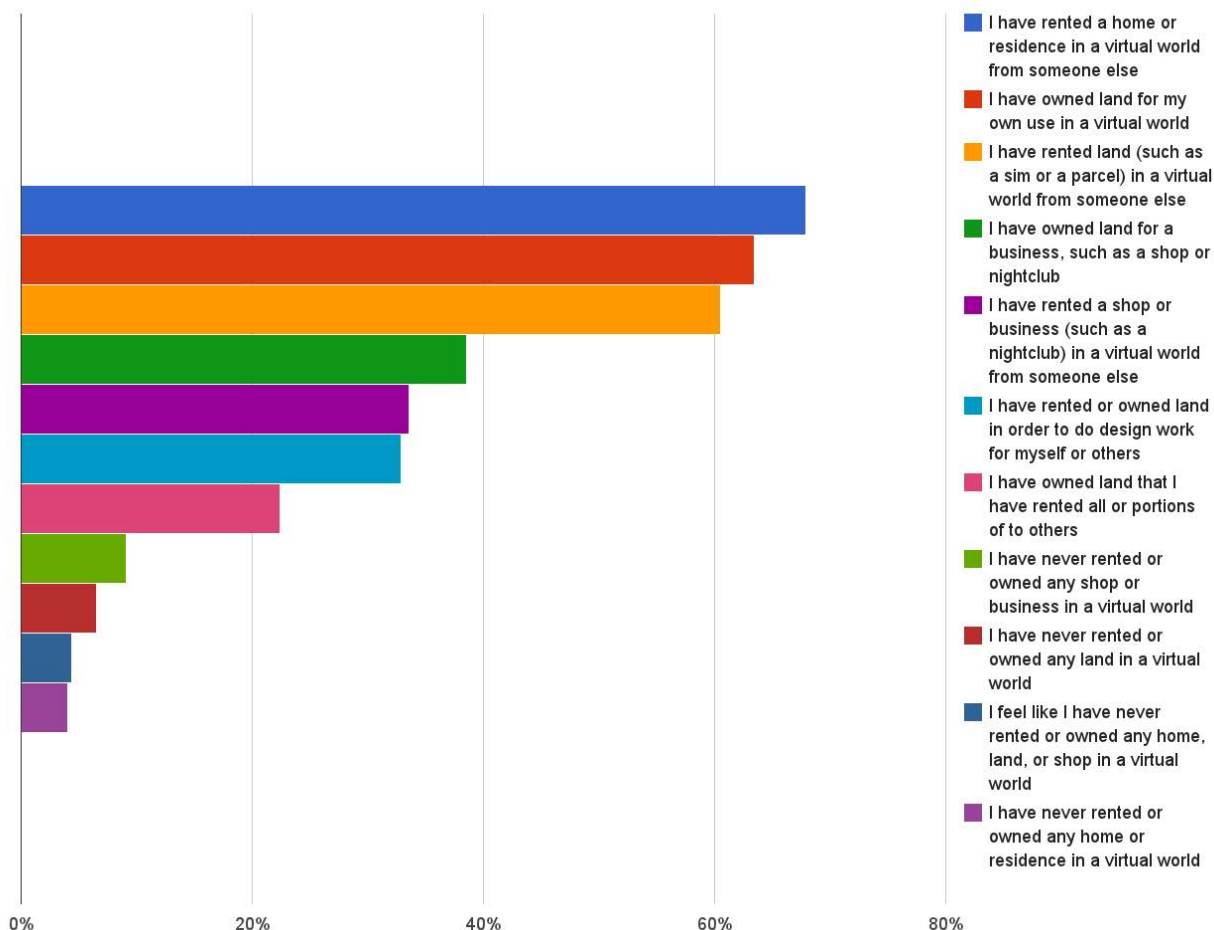


Figure 29.1 Shop, Sim, and Land Ownership in VWs

Shop, Sim, and Land Ownership in VWs	Response Percent	Response Count
I have rented a home or residence in a virtual world from someone else	67.9%	510
I have owned land for my own use in a virtual world	63.4%	476
I have rented land (such as a sim or a parcel) in a virtual world from someone else	60.5%	454
I have owned land for a business, such as a shop or nightclub	38.5%	289
I have rented a shop or business (such as a nightclub) in a virtual world from someone else	33.6%	252
I have rented or owned land in order to do design work for myself or others	32.9%	247
I have owned land that I have rented all or portions of to others	22.4%	168
I have never rented or owned any shop or business in a virtual world	9.1%	68
I have never rented or owned any land in a virtual world	6.5%	49
I feel like I have never rented or owned any home, land, or shop in a virtual world	4.4%	33
I have never rented or owned any home or residence in a virtual world	4.0%	30
Answered:		751
Skipped:		107

Table 29.1 Shop, Sim, and Land Ownership in VWs

INCOME VS. SHOP / HOME / LAND OWNERSHIP

(cross-data filter with Appendix B – RAW Survey Q28 and Q17)

Tables 29.2 and 29.3 below are particularly interesting because they show respondents' answers to various questions about real estate relative to their income.

Income vs. Shop / Home Ownership In VWs	I have rented a home or residence in a virtual world from someone else	I have rented a shop or business (such as a nightclub) in a virtual world from someone else	I have never rented or owned any home or residence in a virtual world	I have never rented or owned any shop or business in a virtual world	I feel like I have never rented or owned any home, land, or shop in a virtual world	Total Responses
Less than \$10,000	62.3%	27.4%	8.5%	16.0%	9.4%	14.1%
	66	29	9	17	10	106
\$10,000-\$19,999	67.9%	33.3%	2.4%	7.1%	2.4%	11.2%
	57	28	2	6	2	84
\$20,000-\$29,999	72.0%	31.7%	6.1%	9.8%	3.7%	10.9%
	59	26	5	8	3	82
\$30,000-\$39,999	76.1%	46.5%	0.0%	8.5%	1.4%	9.5%
	54	33	0	6	1	71
\$40,000-\$49,999	61.1%	37.0%	3.7%	9.3%	0.0%	7.2%
	33	20	2	5	0	54
\$50,000-\$59,999	71.4%	36.5%	0.0%	6.4%	1.6%	8.4%
	45	23	0	4	1	63
\$60,000-\$69,999	71.0%	38.7%	3.2%	3.2%	3.2%	4.1%
	22	12	1	1	1	31

\$70,000-\$79,999	74.2%	38.7%	6.5%	12.9%	0.0%	4.1%
	23	12	2	4	0	31
\$80,000-\$89,999	76.5%	29.4%	5.9%	11.8%	5.9%	2.3%
	13	5	1	2	1	17
\$90,000-\$99,999	57.9%	21.1%	5.3%	10.5%	5.3%	2.5%
	11	4	1	2	1	19
\$100,000-\$149,999	79.0%	34.2%	0.0%	0.0%	2.6%	5.1%
	30	13	0	0	1	38
More than \$150,000	61.5%	30.8%	7.7%	0.0%	23.1%	1.7%
	8	4	1	0	3	13
Decline	62.7%	30.3%	4.2%	9.2%	6.3%	18.9%
	89	43	6	13	9	142
Total Respondents	510	252	30	68	33	751

Table 29.2 Income vs. Shop / Home Ownership In VWs

It is interesting to note that across the board, and regardless of income, over 50% of respondents said they had owned land for personal use, even those in the lowest income categories. Even in lower and middle income ranges, land ownership is as high as 69% and at the higher end, it goes into the low 70%*s*. Surprisingly, even people at the lowest range of our income figures had actually rented land to others, nearly 17% of people with incomes of less than \$10,000 reported this, and nearly 24% of those in the \$10,000-\$19,999 range. It is interesting to note that land ownership (as opposed to rental) is more common in the higher income brackets, especially in the personal use and rent to others categories. It's possible that individuals in this income bracket simply have less leisure time to engage in virtual worlds.

Income vs. Land Ownership In VWs	I have rented land (such as a sim or a parcel) in a virtual world from someone else	I have owned land for my own use in a virtual world	I have owned land for a business, such as a shop or nightclub	I have rented or owned land in order to do design work for myself or others	I have owned land that I have rented all or portions of to others	I have never rented or owned any land in a virtual world	Total Responses
Less than \$10,000	56.6%	57.6%	34.0%	31.1%	17.0%	13.2%	14.1%
	60	61	36	33	18	14	106
\$10,000-\$19,999	57.1%	69.1%	48.8%	29.8%	23.8%	2.4%	11.2%
	48	58	41	25	20	2	84
\$20,000-\$29,999	64.6%	63.4%	39.0%	34.2%	17.0%	7.3%	10.9%
	53	52	32	28	14	6	82
\$30,000-\$39,999	76.1%	67.6%	43.7%	36.6%	22.5%	0.0%	9.5%
	54	48	31	26	16	0	71
\$40,000-\$49,999	63.0%	57.4%	35.2%	35.2%	24.1%	11.1%	7.2%
	34	31	19	19	13	6	54
\$50,000-\$59,999	68.3%	69.8%	34.9%	34.9%	28.6%	0.0%	8.4%
	43	44	22	22	18	0	63
\$60,000-\$69,999	74.2%	61.3%	48.4%	35.5%	29.0%	3.2%	4.1%
	23	19	15	11	9	1	31

\$70,000-\$79,999	54.8%	64.5%	32.3%	35.5%	29.0%	9.7%	4.1%
	17	20	10	11	9	3	31
\$80,000-\$89,999	47.1%	76.5%	35.3%	52.9%	41.2%	11.8%	2.3%
	8	13	6	9	7	2	17
\$90,000-\$99,999	68.4%	73.7%	36.8%	15.8%	15.8%	15.8%	2.5%
	13	14	7	3	3	3	19
\$100,000-\$149,999	57.9%	81.6%	52.6%	44.7%	36.8%	0.0%	5.1%
	22	31	20	17	14	0	38
More than \$150,000	46.2%	69.2%	46.2%	38.5%	38.5%	15.4%	1.7%
	6	9	6	5	5	2	13
Decline	51.4%	53.5%	31.0%	26.8%	15.5%	7.0%	18.9%
	73	76	44	38	22	10	142
Total Respondents	454	476	289	247	168	49	751

Table 29.3 Income vs. Land Ownership In VWs

Q30: MONEY SPENT ON VIRTUAL WORLD REAL-ESTATE PER MONTH

(Appendix B – RAW Survey Q28)

The data regarding expenditures on real estate fees is inconsistent with the data on real estate usage, so we are not exactly sure how to assess these data. In spite of the fact that only 4% of residents said they had not been involved in any real estate transactions, the majority of respondents, 27.3%, said that they spent no money on real estate fees. It might be possible that the term “real estate fees” has a distinct meaning in different virtual worlds, such as fees to the world’s owners, which respondents may have viewed as distinct from renting from other players, for instance.

Of the remaining respondents who answered this question, nearly half are spending under \$50 a month: 25.2% said they spend \$1-\$20 a month on real estate fees, while the next highest group, 20.5%, said they are spending \$20-\$50 a month. 16.9% are spending over \$100 per month with a breakdown as follows: 10.1% spending \$50-\$100 per month with the figures tapering off as expenditures grow higher: 6.5% at \$100-\$150, 3.2% at \$150-\$200, 2.7% at \$200-\$300, and 1.6% at \$300-\$500, with a slight bump of 2.9% who reported spending over \$500 on monthly land fees. Based on various real estate fee structures, it is likely that those at the higher end of this spectrum are renting or sharing large land tracts with others, or using their land for retail outlets; although some may maintain real estate on their own or may be paying fees through activities related to their real-world jobs.

Amount Spent (per month) on VW Real Estate Fees

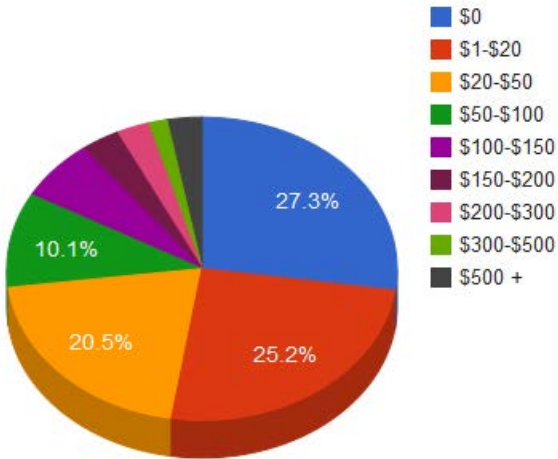


Figure 30.1 Monthly Spending on Real Estate Fees in Virtual Worlds

Monthly Real Estate Fees	Response Percent	Response Count
0	27.3%	205
\$1-\$20	25.2%	189
\$20-\$50	20.5%	154
\$50-\$100	10.1%	76
\$100-\$150	6.5%	49
\$150-\$200	3.2%	24
\$200-\$300	2.7%	20
\$300-\$500	1.6%	12
\$500 +	2.9%	22
Answered:		751
Skipped:		107

Table 30.1 Monthly Spending on Real Estate Fees in Virtual Worlds

EMPLOYMENT STATUS VS. MONTHLY SPENDING ON REAL ESTATE FEES

(cross-data filter with Appendix B – RAW Survey Q28 and Q16)

Table 30.2 shows real estate expenditures by employment. What is most notable about this table is how it compares to Table 21.6 in the section on time spent. Among those denizens who are not working, time spent is inversely proportional to real estate fees spent.

Employment Status vs. Amount Spent (\$USD/month)VW Real Estate Fees	\$0	\$1 - \$20	\$20 - \$50	\$50 - \$100	\$100 - \$150	\$150 - \$200	\$200 - \$300	\$300 - \$500	\$500 +	Total Responses
Employed full-time for wages	20.4%	28.1%	21.1%	9.8%	9.1%	3.9%	3.9%	1.4%	2.5%	38.4%
	58	80	60	28	26	11	11	4	7	285
Employed part-time for wages	29.8%	28.6%	29.8%	6.0%	2.4%	1.2%	0.0%	1.2%	1.2%	11.3%
	25	24	25	5	2	1	0	1	1	84
Self-employed	29.2%	21.4%	14.9%	9.1%	7.8%	5.2%	3.9%	3.9%	4.6%	20.8%

	45	33	23	14	12	8	6	6	7	154
Unemployed	38.6%	21.8%	19.8%	13.9%	1.0%	2.0%	0.0%	1.0%	2.0%	13.6%
	39	22	20	14	1	2	0	1	2	101
Homemaker	32.0%	24.0%	25.3%	10.7%	4.0%	0.0%	0.0%	0.0%	4.0%	10.1%
	24	18	19	8	3	0	0	0	3	75
Student	45.4%	19.4%	15.7%	8.3%	3.7%	0.0%	1.9%	1.9%	3.7%	14.6%
	49	21	17	9	4	0	2	2	4	108
Retired	21.7%	17.4%	26.1%	19.6%	4.4%	8.7%	0.0%	0.0%	2.2%	6.2%
	10	8	12	9	2	4	0	0	1	46
Semi-Retired	31.8%	18.2%	31.8%	9.1%	4.6%	0.0%	0.0%	0.0%	4.6%	3.0%
	7	4	7	2	1	0	0	0	1	22
Unable to work (Disability)	20.6%	30.2%	19.1%	19.1%	1.6%	1.6%	1.6%	3.2%	3.2%	8.5%
	13	19	12	12	1	1	1	2	2	63
Income from additional sources (e.g., investment, rentals, etc.)	11.1%	22.2%	25.9%	11.1%	11.1%	3.7%	0.0%	3.7%	11.1%	3.6%
	3	6	7	3	3	1	0	1	3	27
Independent means (e.g., inheritance, lottery, IPO, etc.)	23.1%	7.7%	23.1%	7.7%	23.1%	7.7%	0.0%	0.0%	7.7%	1.8%
	3	1	3	1	3	1	0	0	1	13
Total Respondents	204	186	152	75	47	24	20	12	22	742

Table 30.2 Employment Status vs. Amount Spent (\$USD/month) On Virtual World Real Estate Fees

ANNUAL INCOME VS. MONTHLY SPENDING ON REAL ESTATE FEES

(cross-data filter with Appendix B – RAW Survey Q28 and Q17)

Income vs. Amount Spent (\$USD/per month) On VW Real Estate Fees		\$1 - \$20	\$20 - \$50	\$50 - \$100	\$100 - \$150	\$150 - \$200	\$200 - \$300	\$300 - \$500	\$500 +	Total Responses
Less than \$10,000	39.6%	25.5%	17.9%	10.4%	4.7%	0.0%	0.0%	0.9%	0.9%	14.1%
	42	27	19	11	5	0	0	1	1	106
\$10,000-\$19,999	28.6%	28.6%	23.8%	8.3%	4.8%	0.0%	3.6%	1.2%	1.2%	11.2%
	24	24	20	7	4	0	3	1	1	84
\$20,000-\$29,999	22.0%	23.2%	29.3%	12.2%	6.1%	2.4%	2.4%	0.0%	2.4%	10.9%
	18	19	24	10	5	2	2	0	2	82
\$30,000-\$39,999	15.5%	22.5%	25.4%	23.9%	4.2%	2.8%	0.0%	2.8%	2.8%	9.5%
	11	16	18	17	3	2	0	2	2	71
\$40,000-\$49,999	29.6%	20.4%	13.0%	13.0%	5.6%	5.6%	5.6%	1.9%	5.6%	7.2%
	16	11	7	7	3	3	3	1	3	54
\$50,000-\$59,999	23.8%	20.6%	23.8%	8.0%	7.9%	4.8%	1.6%	0.0%	9.5%	8.4%
	15	13	15	5	5	3	1	0	6	63
\$60,000-\$69,999	6.5%	16.1%	16.1%	25.8%	9.7%	6.5%	9.7%	9.7%	0.0%	4.1%
	2	5	5	8	3	2	3	3	0	31
\$70,000-\$79,999	19.4%	38.7%	19.4%	6.5%	9.7%	6.5%	0.0%	0.0%	0.0%	4.1%
	6	12	6	2	3	2	0	0	0	31
\$80,000-\$89,999	11.8%	17.7%	23.5%	0.0%	23.5%	0.0%	17.7%	5.9%	0.0%	2.3%
	2	3	4	0	4	0	3	1	0	17
\$90,000-\$99,999	26.3%	31.6%	10.5%	5.3%	15.8%	5.3%	0.0%	5.3%	0.0%	2.5%

	5	6	2	1	3	1	0	1	0	19
\$100,000-\$149,999	15.8%	34.2%	26.3%	0.0%	10.5%	5.3%	5.3%	0.0%	2.6%	5.1%
	6	13	10	0	4	2	2	0	1	38
More than \$150,000	46.2%	7.7%	0.0%	7.7%	7.7%	7.7%	0.0%	7.7%	15.4%	1.7%
	6	1	0	1	1	1	0	1	2	13
Decline	36.6%	27.5%	16.9%	4.9%	4.2%	4.2%	2.1%	0.7%	2.8%	18.9%
	52	39	24	7	6	6	3	1	4	142
Total Respondents	205	189	154	76	49	24	20	12	22	751

Table 30.3 Income vs. Amount Spent (\$USD/month) On Virtual World Real Estate Fees

SECTION 4.3 - COMMERCE

The economies of virtual worlds have become a topic of increasing interest among economists and government institutions alike. From the standpoint of economics research, virtual worlds provide a fascinating “testbed” for economic observation and experiments, especially in light of the fact that transactions all take place as data processes within a computer, hence they are recorded. Government entities are increasingly concerned about the application of various types of laws to virtual worlds, scrambling to figure out how real-world monetary laws and taxation can be applied to their economies. Currencies such as Second Life’s “Linden Dollars” and There.com’s “Therebucks” create a quandary for governments since, for all intents and purposes, the companies that make them are printing their own currency. Furthermore, many virtual worlds allow real money transactions (that is, the ability to buy virtual currency with real money), often in both directions. This provides the affordance for residents to make actual income off of their virtual world activities. As we have observed in past research (Pearce, 2009A, 2009B) the income range can include 1) Making back some of their investment in virtual worlds through commerce; 2) Paying for their virtual world activities through commerce; 3) Supplementing their real-world activities through commerce. The latter two phenomena are what we term “professionalization,” and it occurs when a “productive play” segues into an income-generating activity.

The following section explores virtual world denizens’ relationship to commerce and economic activity, looking at residents’ spending habits, as well as the role of commerce in generating income. This includes the buying, selling and renting of real estate, as well as buying or selling virtual items. In addition to getting a sense of typical expenditures in virtual worlds, these data also provide us with insights into the role that residents have in entertaining each other. Those selling virtual items are in essence creating content for those buying; similarly those managing real estate are creating venues and communities for others to occupy. So as we look at these numbers, we shall also consider what they mean in terms of creativity and content creation.

Q31: VIRTUAL WORLD PURCHASES

(Appendix B – RAW Survey Q29)

The question of what people purchase in virtual worlds gives us insight into the culture of virtual worlds, into people’s priorities, and also into the market demand for various items. Indeed, our past research has indicated that the formation of avatar identity is a key aspect of virtual world engagement. It is therefore not surprising that the top two items, as well as a number of other highly rated items, were related to avatar customization. 93.9% of respondents reported spending money on fashion, and 92.1% on avatar customization, such as skin and hair. 79.8% also reported purchasing animations, which can include everything from walking, standing, and gesture animations to dance animations, sex animations, or animations for other activities such as sports or household chores. 69.6% of respondents reported purchasing attachments; attachments can take a variety of forms from costume elements—such as a tail, ears, or entire body suits—to ride-able animals such as a horse, as well as genital attachments in worlds where these are permitted. 67.6% also reported purchasing heads-up displays (HUDs), which are typically used to control animations, props (such as umbrellas, canes or cigarettes), or sometimes vehicles. A number of these items can also be considered indicators of experience in a given virtual world. For instance, more experienced residents in Second Life tend to have animation HUDs rather than using the default walk provided with a new avatar; “newbies” (new subscribers) in virtual worlds can typically be identified by their lack of sophisticated avatar customization.

These findings suggests that avatar appearance, including character animation, is the highest priority among virtual world denizens, representing the vast majority of commercial items within virtual worlds. It’s interesting to note that the ability to purchase avatar customization and fashion for purely aesthetic and expressive reasons, as is typical in metaverse worlds, is quite distinct from avatar customization in games—where much of avatar appearance is driven by instrumental concerns, such as your race and class, and the specific weapons and armor

you need to maintain a particular level of specialization. Because character progression is based on achievements in games, newbie status is marked by how far you've gone in the game (coded by your appearance) as opposed to aesthetic skills or monetary resources, as is the case with non-game virtual worlds.

The next highest concentration of purchase activity reported was around buildings and decoration. 88.3% said they had purchased furniture, which again suggests that many people are keeping homes of some kind in virtual worlds. 74.2% said they had purchased buildings, which is somewhat incongruent with our real estate figures, since around 10% less than that said they owned or rented land, a requirement for putting up your own buildings, although it is possible that people are purchasing buildings without necessarily having the land to put them up. However, 73.8% also reported purchasing land, which is also higher than the number that reported owning real estate in that section of the survey.

Props were a frequently purchased item with 68.2% reporting having purchased them. Another 57.5% reported buying scripts (programs that work within the virtual world). Additional write-in categories, at under 6% each, included: Other Props and Mesh Textures at 5.7%, Transportation/Vehicles at 4.7%, and Pets/Animals at 2.3%. It should be noted that we did not include "creator supplies" in this category, although some of the purchases, such as scripts and animations, could also be used by creators as materials for creating their own items or artifacts.

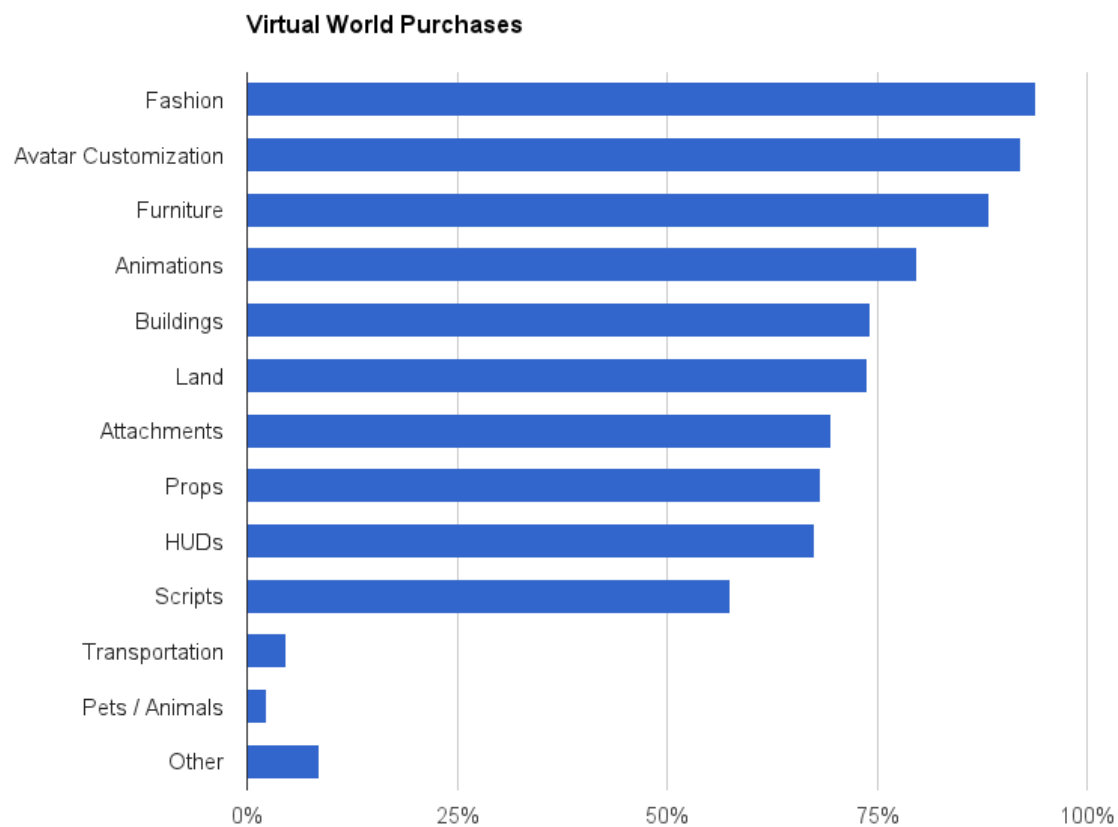


Figure 31.1 Items Purchased or Rented in Virtual Worlds

Virtual Goods Purchased or Rented	Response Percent	Response Count
Fashion	93.9%	705
Avatar customization (skins, hair, etc.)	92.1%	692
Furniture	88.3%	663

Animations	79.8%	599
Buildings	74.2%	557
Land	73.8%	554
Attachments	69.6%	523
Props	68.2%	512
HUDs	67.6%	508
Scripts	57.5%	432
Other Props Mesh and Textures	5.7%	43
Transportation	4.7%	35
Pets / Animals	2.3%	17
Other	5.1%	38
Answered:		751
Skipped:		107

Table 31.1 Items Purchased or Rented in Virtual Worlds

NOTES

Other Items Purchased or Rented in VWs:

- Advertising
- Art
- Books
- Breedables (virtual animals that players can breed)
- Building Supplies / Creation Tools
- Deeds
- Full Avatars
- Games
- Gestures
- Landscaping Items
- PAZs
- Privacy Enforcement Items
- Professional Services / Service Contracts (marketing, building, etc.)
- Sounds
- Textures
- Tips (for performers, venues, etc.)
- Tutorials
- *Pets, Transportation, and "Other Props/Textures/Meshes" added to main table since there were so many write-ins

Q32: MONEY SPENT ON VIRTUAL WORLD PURCHASES PER MONTH

(Appendix B – RAW Survey Q30)

As with other categories of expenditure, such as real estate, the highest percentages of respondents are spending at the low-middle levels, with just over 65% spending between \$1 and \$50 per month. Only 16.5% of respondents said they made no monthly expenditures on virtual items. Slightly over three quarters, 75.1%, of respondents reported \$1-\$100 in monthly expenditures, with a breakdown as follows: \$1-\$20 at 40%, \$20-\$50 at 24.8% and \$50-\$100 at 10%; of these, the highest concentrations were in the \$1-\$50 ranges, comprising fully two-thirds of respondents. In the same manner as the big spenders in real estate, the remaining 8.4%, who

reported spending over \$100 per month, tapered off as follows: \$100-\$150 at 3.5%, \$150-\$200 at 2.1%, \$200-\$300 at 1.6%, \$300-\$500 at 0.3% and those spending over \$500 with a slight bump at 0.9%. Two supplemental tables also show expenditures by employment status and income, with similar results to those found in Section 4.2 - Real Estate.

Amount Spent (per month) on Virtual Items

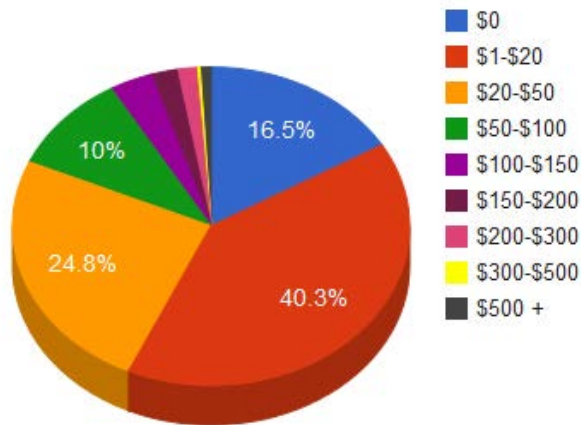


Figure 32.1 Amount Spent (per month) on Virtual Items

Amount Spent (per month) on Virtual Items	Response Percent	Response Count
0	16.5%	124
\$1-\$20	40.3%	303
\$20-\$50	24.8%	186
\$50-\$100	10.0%	75
\$100-\$150	3.5%	26
\$150-\$200	2.1%	16
\$200-\$300	1.6%	12
\$300-\$500	0.3%	2
\$500 +	0.9%	7
Answered:		751
Skipped:		107

Table 32.1 Amount Spent (per month) on Virtual Items

EMPLOYMENT STATUS VS. MONTHLY SPENDING ON VIRTUAL ITEMS

(cross-data filter with Appendix B - RAW Survey Q30 and Q16)

	\$0	\$1 - \$20	\$20 - \$50	\$50 - \$100	\$100 - \$150	\$150 - \$200	\$200 - \$300	\$300 - \$500	\$500 +	Total Responses
Employed full-time for wages	9.8%	44.2%	26.0%	11.6%	3.9%	2.1%	1.8%	0.4%	0.4%	38.4%
	28	126	74	33	11	6	5	1	1	285
Employed part-time for wages	15.5%	42.9%	26.2%	7.1%	6.0%	1.2%	0.0%	0.0%	1.2%	11.3%
	13	36	22	6	5	1	0	0	1	84
Self-employed	15.6%	46.8%	22.7%	9.1%	3.3%	2.0%	0.7%	0.0%	0.0%	20.8%
	24	72	35	14	5	3	1	0	0	154
Unemployed	29.7%	31.7%	20.8%	8.9%	3.0%	0.0%	1.0%	1.0%	4.0%	13.6%

	30	32	21	9	3	0	1	1	4	101
Homemaker	20.0%	30.7%	34.7%	9.3%	1.3%	4.0%	0.0%	0.0%	0.0%	10.1%
	15	23	26	7	1	3	0	0	0	75
Student	25.0%	33.3%	17.6%	13.0%	4.6%	1.9%	1.9%	0.0%	2.8%	14.6%
	27	36	19	14	5	2	2	0	3	108
Retired	17.4%	39.1%	28.3%	6.5%	0.0%	2.2%	4.4%	2.2%	0.0%	6.2%
	8	18	13	3	0	1	2	1	0	46
Semi-Retired	36.4%	18.2%	31.8%	13.6%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%
	8	4	7	3	0	0	0	0	0	22
Unable to work (Disability)	15.9%	27.0%	28.6%	22.2%	3.2%	1.6%	1.6%	0.0%	0.0%	8.5%
	10	17	18	14	2	1	1	0	0	63
Income from additional sources (e.g., investment, rentals, etc.)	11.1%	33.3%	33.3%	18.5%	3.7%	0.0%	0.0%	0.0%	0.0%	3.6%
	3	9	9	5	1	0	0	0	0	27
Independent means (e.g., inheritance, lottery, IPO, etc.)	15.4%	0.0%	46.2%	23.1%	0.0%	15.4%	0.0%	0.0%	0.0%	1.8%
	2	0	6	3	0	2	0	0	0	13
Total Respondents	123	297	184	75	26	16	12	2	7	742

Table 32.2 Employment Status vs. Amount Spent (\$USD/month) On Virtual Items

ANNUAL INCOME VS. MONTHLY SPENDING ON VIRTUAL ITEMS

(cross-data filter with Appendix B – RAW Survey Q30 and Q17)

Income vs. Amount Spent (\$USD/per month) On Virtual Items	\$0	\$1 - \$20	\$20 - \$50	\$50 - \$100	\$100 - \$150	\$150 - \$200	\$200 - \$300	\$300 - \$500	\$500 +	Total Responses
Less than \$10,000	20.8%	35.9%	17.9%	13.2%	6.6%	1.9%	1.9%	0.0%	1.9%	14.1%
	22	38	19	14	7	2	2	0	2	106
\$10,000-\$19,999	17.9%	41.7%	23.8%	9.5%	2.4%	2.4%	1.2%	0.0%	1.2%	11.2%
	15	35	20	8	2	2	1	0	1	84
\$20,000-\$29,999	13.4%	42.7%	28.1%	11.0%	0.0%	3.7%	0.0%	1.2%	0.0%	10.9%
	11	35	23	9	0	3	0	1	0	82
\$30,000-\$39,999	14.1%	43.7%	23.9%	9.9%	4.2%	1.4%	0.0%	1.4%	1.4%	9.5%
	10	31	17	7	3	1	0	1	1	71
\$40,000-\$49,999	7.4%	50.0%	25.9%	5.6%	3.7%	3.7%	3.7%	0.0%	0.0%	7.2%
	4	27	14	3	2	2	2	0	0	54
\$50,000-\$59,999	12.7%	41.3%	33.3%	6.4%	4.8%	1.6%	0.0%	0.0%	0.0%	8.4%
	8	26	21	4	3	1	0	0	0	63
\$60,000-\$69,999	3.2%	32.3%	38.7%	12.9%	3.2%	6.5%	3.2%	0.0%	0.0%	4.1%
	1	10	12	4	1	2	1	0	0	31
\$70,000-\$79,999	9.7%	45.2%	19.4%	19.4%	3.2%	3.2%	0.0%	0.0%	0.0%	4.1%
	3	14	6	6	1	1	0	0	0	31
\$80,000-\$89,999	11.8%	17.7%	35.3%	17.7%	11.8%	0.0%	5.9%	0.0%	0.0%	2.3%
	2	3	6	3	2	0	1	0	0	17
\$90,000-\$99,999	21.1%	26.3%	36.8%	10.5%	0.0%	0.0%	5.3%	0.0%	0.0%	2.5%
	4	5	7	2	0	0	1	0	0	19
\$100,000-\$149,999	10.5%	50.0%	31.6%	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%
	4	19	12	3	0	0	0	0	0	38

More than \$150,000	15.4%	38.5%	23.1%	0.0%	7.7%	0.0%	15.4%	0.0%	0.0%	1.7%
	2	5	3	0	1	0	2	0	0	13
Decline	26.8%	38.7%	18.3%	8.5%	2.8%	1.1%	1.4%	0.0%	2.1%	18.9%
	38	55	26	12	4	2	2	0	3	142
Total Respondents	124	303	186	75	26	16	12	2	7	751

Table 32.3 *Income vs. Amount Spent (\$USD/month) On Virtual Items*

Q33: VIRTUAL CURRENCY

(Appendix B – RAW Survey Q31)

As mentioned earlier, most virtual worlds include currencies that can be bought, and, in some cases, sold by denizens. This is a major part of how virtual worlds generate revenue, and also creates a mechanism for residents to conduct some of the transactions discussed earlier, such as purchasing virtual items or buying or renting land from other residents. Almost all virtual worlds have an official mechanism for selling virtual currency; however, not all worlds also allow for the selling of currency. In both cases, a black market exists for unauthorized so-called “RMT’s” or “real money transactions.” 85.2% of the respondents who answered this question reported buying virtual currency from official sources, but 22.1% also said they purchased currency from a second party, meaning a resident or other virtual currency exchange operation. Over a quarter, 25.8%, reported selling currency back to an official source, typically the company that runs the world. 9.2% also reported selling currency for real money to a second party. 8.9% claimed to never have bought or sold virtual currency. It should be added that are other ways to obtain currency besides RMTs. Some worlds provide a currency allowance, others provide free rewards, monetary points can sometimes be gained through certain actions, and players can also earn money in various ways without necessarily having to make an up-front investment.

Virtual Currency

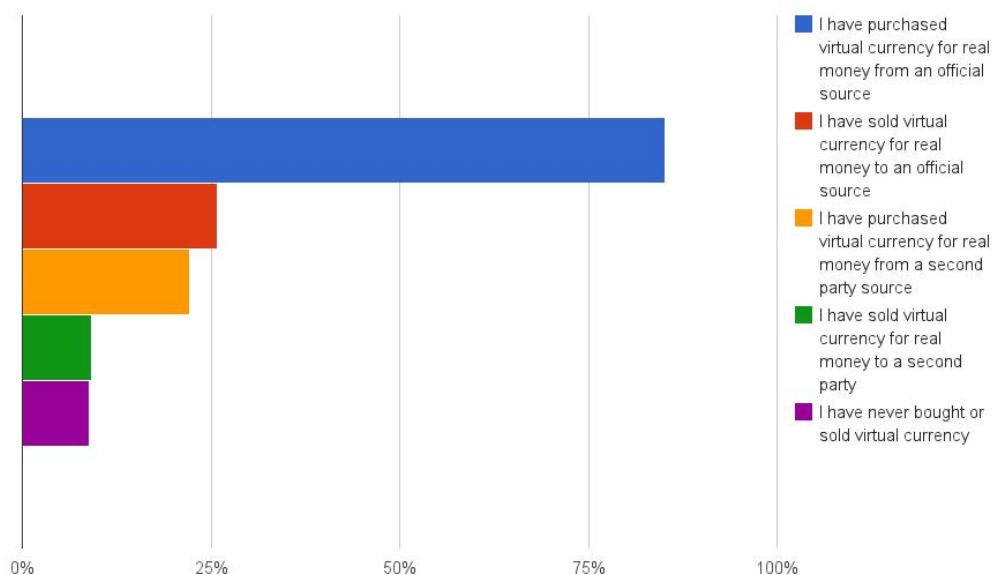


Figure 33.1 *Buying and Selling of Virtual Currency*

Buying and Selling of Virtual Currency	Response Percent	Response Count
I have purchased virtual currency for real money from an official source	85.2%	640
I have purchased virtual currency for real money from a second party source	22.1%	166
I have sold virtual currency for real money to an official source	25.8%	194
I have sold virtual currency for real money to a second party	9.2%	69
I have never bought or sold virtual currency	8.9%	67
Answered:		751
Skipped:		107

Table 33.1 Buying and Selling of Virtual Currency

Q34: INCOME FROM VIRTUAL WORLDS

(Appendix B – RAW Survey Q32)

Through our prior qualitative studies and other research, we were aware that virtual worlds had become a source of income for some residents. In earlier studies, we identified the phenomenon of “professionalization,” a form of “productive play” (Pearce 2006), in which virtual world denizen’s creative practice transitioned into revenue-generating activity, but we did not have a clear handle on the percentage of people for whom this was the case, and the level of their income-generating activity. 610 of our 858 participants chose to answer this question, suggesting that nearly three-quarters of participants are generating some type of income from their virtual world activity. Since the question asked “IF” denizens had made any income from Virtual World activities, we can assume that those who skipped the question, roughly 30%, have made no income from their VW activities. Of those who did answer, 46.4% reported earning some income from virtual worlds in the form of sold items, donations, tips or other forms of income. 28.2% reported earning enough income in virtual worlds to supplement their VW related expenses. This means that nearly 30% of virtual world denizens are actually passing all of their revenue back to the operators of those worlds, essentially creating a break-even scenario. A little over 20% of respondents reported making some or all of their real-world income—11% and 9.8% respectively—through activities in virtual worlds. 4.6% selected the “Other” box.

Income from Virtual Worlds

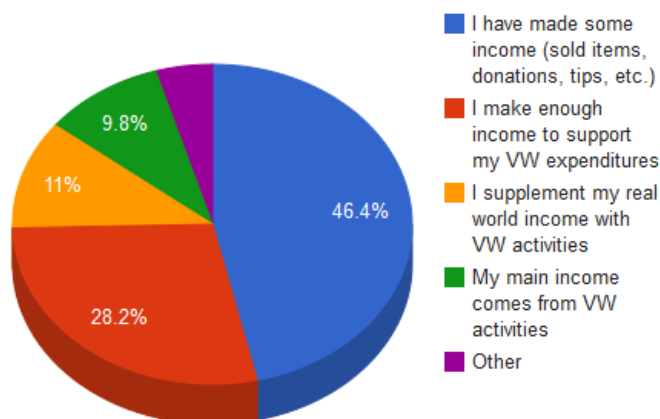


Figure 34.1 Income From Virtual Worlds

Virtual Income	Response Percent	Response Count
I have made some income (sold items, donations, tips, etc.)	46.4%	283
I make enough income to support my VW expenditures	28.2%	172
I supplement my real-world income with VW activities	11.0%	67
My main income comes from VW activities	9.8%	60
Other	4.6%	28
Answered:		610
Skipped:		248

Table 34.1 Income From Virtual Worlds

ANNUAL INCOME VS. VIRTUAL WORLD INCOME

(cross-data filter with Appendix B – RAW Survey Q32 and Q17)

Table 34.2, below, also provides data on the extent to which VW residents are earning income from their virtual world activities relative to their overall income. Based on these figures, it would appear that, while the vast majority of VW residents are making some income based on their virtual world activities, only a relatively small percentage (under 14% in the various income brackets, or under 10% total) are earning their primary income through virtual worlds. It's particularly interesting to note how many people in higher income brackets, however, made this selection. Additionally, between 19% and 38% (28% overall) report that VW income supports their VW expenditures. This means that the fourth category, people who have made some money, are the only ones who are paying out of pocket for their virtual world activities, ranging from 33% to 58% depending on income. We can hence surmise from these numbers, factoring in the respondents who did not answer this question, that about half of virtual world residents are paying for at least some virtual items and services from their real-world incomes.

Annual Income vs. Virtual World Income	My main income comes from VW activities	I supplement my real-world income with VW activities	I make enough income to support my VW expenditures	I have made some income (sold items, donations, tips, etc.)	Other	Total Responses
Less than \$10,000	13.3%	17.8%	25.6%	36.7%	6.7%	14.8%
	12	16	23	33	6	90
\$10,000-\$19,999	9.9%	8.5%	32.4%	43.7%	5.6%	11.6%
	7	6	23	31	4	71
\$20,000-\$29,999	6.5%	14.5%	29.0%	40.3%	9.7%	10.2%
	4	9	18	25	6	62
\$30,000-\$39,999	12.1%	12.1%	29.3%	44.8%	1.7%	9.5%
	7	7	17	26	1	58
\$40,000-\$49,999	7.1%	7.1%	19.1%	57.1%	9.5%	6.9%
	3	3	8	24	4	42
\$50,000-\$59,999	10.2%	8.2%	28.6%	49.0%	4.1%	8.0%
	5	4	14	24	2	49
\$60,000-\$69,999	7.1%	10.7%	25.0%	53.6%	3.6%	4.6%
	2	3	7	15	1	28
\$70,000-\$79,999	12.5%	8.3%	37.5%	33.3%	8.3%	3.9%
	3	2	9	8	2	24
\$80,000-\$89,999	6.7%	20.0%	33.3%	33.3%	6.7%	2.5%

	1	3	5	5	1	15
\$90,000-\$99,999	0.0%	14.3%	50.0%	35.7%	0.0%	2.3%
	0	2	7	5	0	14
\$100,000-\$149,999	0.0%	10.0%	36.7%	50.0%	3.3%	4.9%
	0	3	11	15	1	30
More than \$150,000	0.0%	20.0%	30.0%	50.0%	0.0%	1.6%
	0	2	3	5	0	10
Decline	13.7%	6.0%	23.1%	50.4%	6.8%	19.2%
	16	7	27	59	8	117
Total Response %	9.8%	11.0%	28.2%	45.1%	5.9%	610
Total Respondents	60	67	172	275	36	610

Table 34.2 Annual Income vs. Virtual World Income

Q35: PAYING FOR DESIGN WORK

(Appendix B – RAW Survey Q33)

A related question concerns the frequency of “for hire” projects in virtual worlds. We know that, in addition to buying and selling virtual items and renting land, “productive residents” often do for-hire work at the behest of other VW denizens. Of the 710 residents who answered this question, 40.3 % reported being paid to do design work and 42.5% reported never having done so; a slightly lower number, 34.5%, said they had paid others to do design work for them, while 36.9% said they had never done this. Hence a large number of virtual world denizens are involved on both sides “for hire” transactions.

Design Work & Paid Services

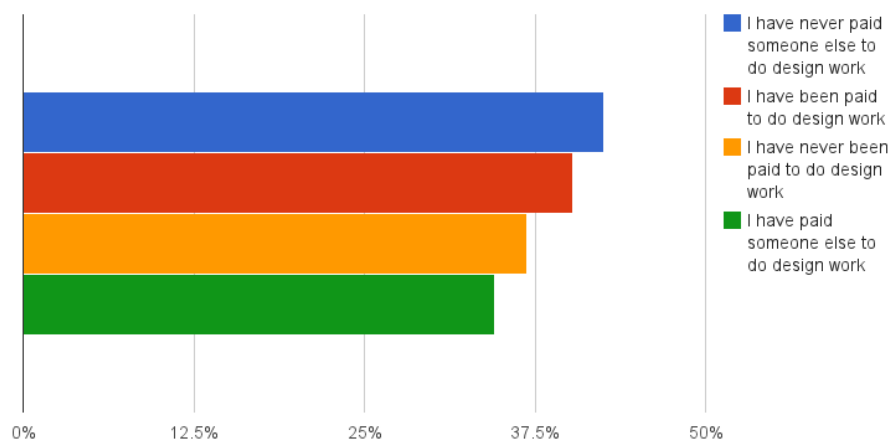


Figure 35.1 Design Work and Paid Services in Virtual Worlds

Design Work and Paid Services	Response Percent	Response Count
I have never paid someone else to do design work	42.5%	302
I have been paid to do design work	40.3%	286
I have never been paid to do design work	36.9%	262
I have paid someone else to do design work	34.5%	245

Answered:		710
Skipped:		148

Table 35.1 Design Work and Paid Services in Virtual Worlds

Q36: SHOP OWNER BEHAVIOR

(Appendix B – RAW Survey Q34)

Only 316 of 853 respondents answered this question, suggesting a smaller number of players were involved in managing retail outlets. 65.8% of those who answered said they owned one or more in-world shops, while slightly less than that, 60.1%, said they sold items via out-of-world auctions. A smaller number, 28.5%, said they sold items via in-world auctions, such as There.com’s in-world auction feature.

VW Shop Owner Behavior

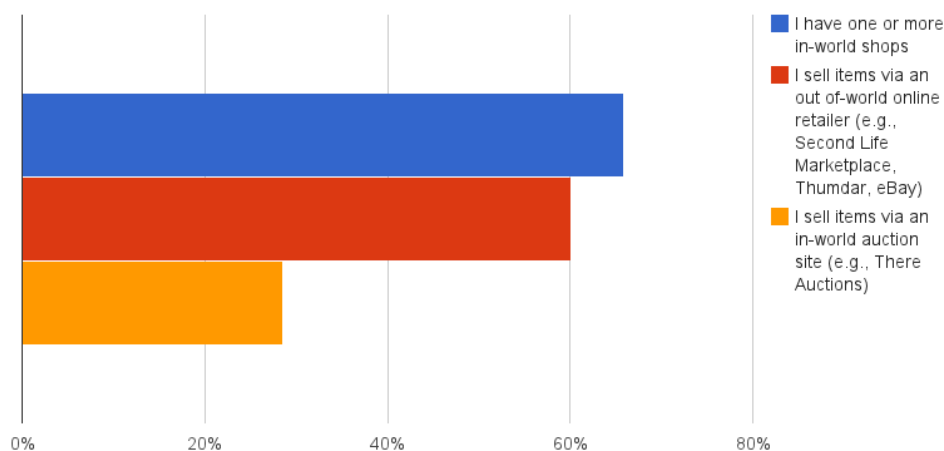


Figure 36.1 Virtual World Shop Owner Behavior

Virtual World Shop Owner Behavior	Response Percent	Response Count
I have one or more in-world shops	65.8%	208
I sell items via an out of-world online retailer (e.g., Second Life Marketplace, Thumdar, eBay)	60.1%	190
I sell items via an in-world auction site (e.g., There Auctions)	28.5%	90
Answered:		316
Skipped:		542

Table 36.1 Virtual World Shop Owner Behavior

SECTION 5: GAME VS. NON-GAME VIRTUAL WORLDS

One of the data points we were hoping to capture was the overlap in users of virtual worlds versus massively multiplayer online games. In Section 6, we will compare some of our data to studies cited in the background research section that captured extensive data on MMOG demographics and play patterns. This section will focus on the data collected specifically in our survey about the game usage of VW residents.

Over half our respondents, 455 of 858, skipped this question, suggesting that they did not frequent MMOGs. Of those who responded to this question, 43.2%, (the largest majority) reported playing *World of Warcraft*¹⁶ (WOW). This is not surprising since *WoW* is one of the most popular and best-known US-based MMOGs, and has been around for over a decade. *The Sims Online (TSO)*, a game which ran from 2002-2008, was cited as the second most popular with 26.6% reporting that they had played it. Based on past research, we believe this is due to the fact that when the game closed in August of 2008, some of its 35,000 remaining subscribers (Drake 2006) tended to migrate into virtual worlds rather than online games, since TSO was more metaverse-like than game-like in many respects. In previous research, we had multiple encounters with self-described “Sims Online Refugees” in virtual worlds, some of whom told us that metaverse style worlds were what they were looking for when they joined TSO. And while 35,000 is not a large number by MMOG standards, even a small percentage of TSO Refugees would be enough to give a virtual world a nice boost of new customers. *Lord of the Rings Online*¹⁷ was number three, with 18.1% reporting playing it, followed closely by *Dungeons & Dragons Online*¹⁸ at 16.6% and *Runescape*¹⁹ at 14.6%. *Guild Wars*²⁰ and *City of Heroes/Villains* followed at 12.9% and 12.2% respectively. *Myst Online* (aka *Uru*) and *EVE Online* were also close with 11.9% and 11.4% respectively (an interesting contrast since these two games could not be more opposite from one another). The remaining games can be seen on the list below.

It should not be surprising that over half our respondents did not answer this question. Virtual worlds are different in a number of ways from MMOGs. Their focus is more on informal social interaction and creativity, although, as we have learned, VW denizens also play and even create games. MMOGs have a greater structure with a more goal-focused orientation aimed towards leveling and game-proscribed achievements. While informal socializing does occur in MMOGs, a large part of the social interaction revolves around group quests and raids, ranging in size from two people to as many as one hundred, in which players work together to solve a common goal. While there is some room for avatar customization, it is much more limited based on the mythology of the world. Furthermore, customization has an instrumental component, as many clothing items also have an armor value that affects performance in combat scenarios. We’ve already seen that VWs are attracting a much higher percentage of women than MMOGs, as well as a higher age skew. These comparisons will be delved into in more detail in Section 6.

¹⁶ World of Warcraft is a registered trademark of Blizzard Entertainment, Inc. in the United States and/or other countries.

¹⁷ Lord of the Rings Online is a registered trademark of Saul Zaentz Company in the United States and/or other countries.

¹⁸ Dungeons & Dragons Online and Magic the Gathering are registered trademarks of Wizards of the Coast, Inc. in the United States and/or other countries.

¹⁹ RuneScape is a registered trademark of Jagex Limited PLC in the United States and/or other countries.

²⁰ Guild Wars, City of Heroes, AION and Lineage are registered trademarks of NCsoft Corporation in the United States and/or other countries.

Q37: MMOGS PLAYED BY VW SURVEY PARTICIPANTS

(Appendix B – RAW Survey Q41)

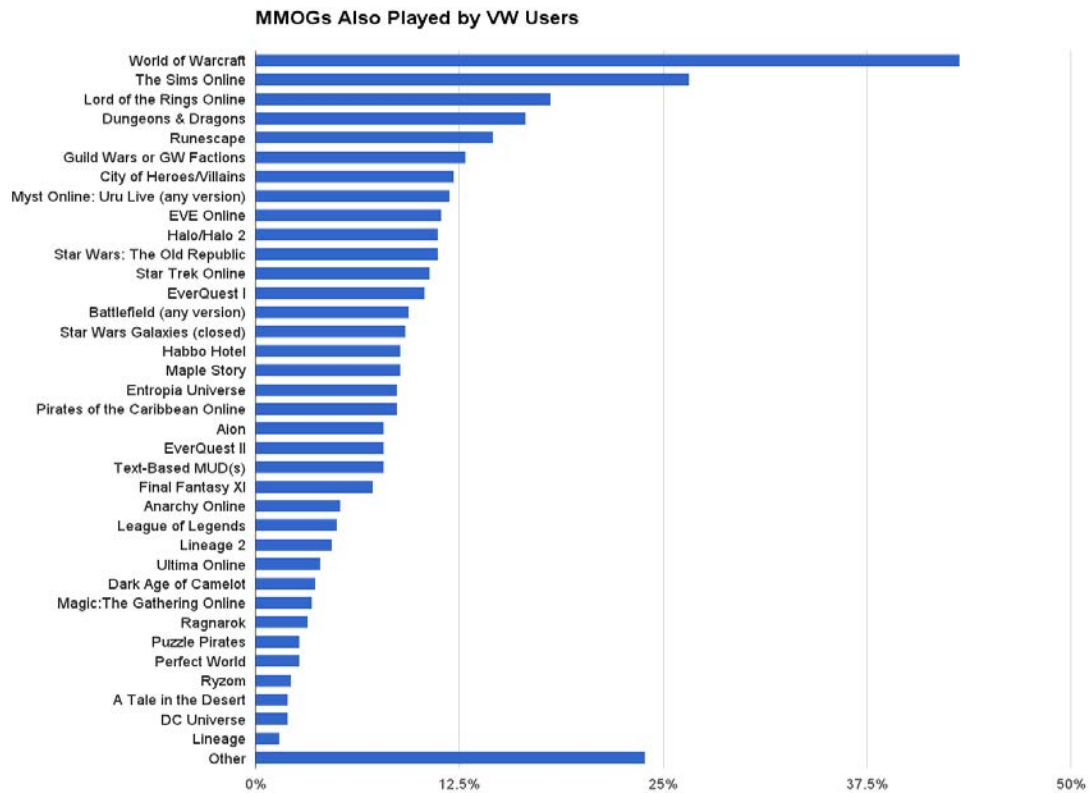


Figure 37.1 Massively Multiplayer Online Games Also Played by VW Survey Participants

MMOGs	Response Percent	Response Count
World of Warcraft	43.2%	174
The Sims Online	26.6%	107
Lord of the Rings Online	18.1%	73
Dungeons and Dragons	16.6%	67
Runescape	14.6%	59
Guild Wars or GW Factions	12.9%	52
City of Heroes/Villains	12.2%	49
Myst Online: Uru Live (any version)	11.9%	46
EVE Online	11.4%	45
Halo/Halo 2 ²¹	11.2%	45
Star Wars The Old Republic ²²	11.2%	45
Star Trek ²³ Online	10.7%	43

²¹ Halo 2 is a registered trademark of Microsoft Corporation in the United States and/or other countries.

²² Star Wars The Old Republic is a registered trademark of Lucasfilm Entertainment Company, Ltd in the United States and/or other countries.

²³ Star Trek is a registered trademark of Paramount Pictures Corporation in the United States and/or other countries.

EverQuest® ²⁴ I	10.4%	42
Battlefield® ²⁵ (any version)	9.4%	38
Star Wars® ²⁶ Galaxies (closed)	9.2%	37
Habbo Hotel	8.9%	36
Maple Story® ²⁷	8.9%	36
Entropia Universe® ²⁸	8.7%	35
Pirates of the Caribbean® ²⁹ Online	8.7%	35
Aion®	7.9%	32
EverQuest II	7.9%	32
Text-Based MUD(s)	7.9%	32
Final Fantasy® ³⁰ XI	7.2%	29
Anarchy Online® ³¹	5.2%	21
League of Legends® ³²	5.0%	20
Lineage® 2	4.7%	19
Ultima Online® ³³	4.0%	16
Dark Age of Camelot® ³⁴	3.7%	15
Magic: The Gathering® Online	3.5%	14
Ragnarok® ³⁵	3.2%	13
Puzzle Pirates® ³⁶	2.7%	11
Perfect World® ³⁷	2.7%	11
Ryzom	2.2%	9
A Tale in the Desert	2.0%	8
DC Universe	2.0%	8
Lineage	1.5%	6
Minecraft®	1.5%	6
Other	22.3%	90

²⁴ Everquest is a registered trademark of Sony Computer Entertainment America, Inc. in the United States and/or other countries.

²⁵ Battlefield is a registered trademark of EA Digital Illusions CE AB Corporation in the United States and/or other countries.

²⁶ Star Wars is a registered trademark of Lucasfilm, Ltd in the United States and/or other countries.

²⁷ Maple Story is a registered trademark of Nexon Corporation in the United States and/or other countries.

²⁸ Entropia Universe is a registered trademark of MinkArk PE AB LLC in the United States and/or other countries.

²⁹ Pirates of the Caribbean is a registered trademark of Disney Enterprises, Inc. in the United States and/or other countries.

³⁰ Final Fantasy is a registered trademark of Kabushiki Kaisha Square Enix Holdings TA Square Enix Holdings Co., Ltd in the United States and/or other countries.

³¹ Anarchy Online is a registered trademark of Funcom GMBH Gesellschaft MIT Beschränkter Haftung (GMBH) in the United States and/or other countries.

³² League of Legends is a registered trademark of Riot Games, Inc. in the United States and/or other countries.

³³ Ultima Online is a registered trademark of Electronic Arts, Inc. in the United States and/or other countries.

³⁴ Dark Age of Camelot is a registered trademark of Mythic Entertainment, Inc. in the United States and/or other countries.

³⁵ Ragnarok is a registered trademark of Gravity Co. Ltd in the United States and/or other countries.

³⁶ Puzzle Pirates is a registered trademark of Three Rings Design, Inc. in the United States and/or other countries.

³⁷ Perfect World is a registered trademark of Perfect World Co, Ltd in the United States and/or other countries.

Answered:		403
Skipped:		455

Table 37.1 Massively Multiplayer Online Games Also Played by VW Survey Participants

NOTES

- Already, we can see that nearly 50% of people using VWs don't play MMOGs, assuming that is why people skipped the question.
- This number makes relative sense when looking at Q47-48 where 384 people skipped, yet out of the 539 who answered, when asked what they liked more about MMOGs or VWs, 10-20% (50-100 people) noted they didn't play MMOGs or didn't know what they were.
- *Minecraft* was published as a full release version in November 2011. Since it had only recently been fully released just before the development and launch of our survey in spring 2012, it was not listed as an option on our survey, but a few people still wrote it in. We are certain the player base of *Minecraft* is much larger now; also, since this study focused on adults, it did not capture use of the game by those under 18, which we know to be extensive. Some of the other games written in by players are also targeted to children.

MMOGS PLAYED BY NON-GAME VW DENIZENS - BREAKDOWN BY GENDER

MMOGs Also Played by Non-Game VW Denizens by GENDER	Males	% of Males	Females	% of Females	Total Response Count	Total Response Percent
World of Warcraft	65	44.5%	104	42.1%	169	43.0 %
The Sims Online	25	17.1%	81	32.8%	106	27.0 %
Lord of the Rings Online	19	13.0%	52	21.1%	71	18.1 %
Dungeons and Dragons	29	19.9%	35	14.2%	64	16.3 %
Runescape	18	12.3%	40	16.2%	58	14.8 %
Guild Wars or GW Factions	17	11.6%	32	13.0%	49	12.5 %
City of Heroes/Villains	20	13.7%	28	11.3%	48	12.2 %
Halo/Halo 2	22	15.1%	23	9.3%	45	11.5 %
EVE Online	23	15.8%	21	8.5%	44	11.2 %
Myst Online: Uru Live (any version)	14	9.6%	30	12.2%	44	11.2 %
Star Wars: The Old Republic	20	13.7%	24	9.7%	44	11.2 %
Star Trek Online	18	12.3%	24	9.7%	42	10.7 %
EverQuest I	11	7.5%	30	12.2%	41	10.4 %
Battlefield (any version)	26	17.8%	12	4.9%	38	9.7 %
Star Wars Galaxies (closed)	19	13.0%	18	7.3%	37	9.4 %
Habbo Hotel	13	8.9%	22	8.9%	35	8.9 %
Maple Story	10	6.9%	25	10.1%	35	8.9 %
Pirates of the Caribbean Online	16	11.0%	19	7.7%	35	8.9 %
Entropia Universe	17	11.6%	17	6.9%	34	8.7 %
Aion	11	7.5%	21	8.5%	32	8.1 %
EverQuest II	12	8.2%	20	8.1%	32	8.1 %
Text-Based MUD(s)	12	8.2%	20	8.1%	32	8.1 %
Final Fantasy XI	11	7.5%	17	6.9%	28	7.1 %
Anarchy Online	12	8.2%	9	3.6%	21	5.3 %

League of Legends	6	4.1%	13	5.3%	19	4.8 %
Lineage 2	9	6.2%	10	4.1%	19	4.8 %
Ultima Online	6	4.1%	9	3.6%	15	3.8 %
Dark Age of Camelot	4	2.7%	10	4.1%	14	3.6 %
Magic:The Gathering Online	9	6.2%	4	1.6%	13	3.3 %
Ragnarok	6	4.1%	6	2.4%	12	3.1 %
Puzzle Pirates	2	1.4%	9	3.6%	11	2.8 %
Ryzom	3	2.1%	6	2.4%	9	2.3 %
A Tale in the Desert	3	2.1%	4	1.6%	7	1.8 %
Lineage	2	1.4%	4	1.6%	6	1.5 %
Other, please specify	44	30.1%	73	29.6%	117	29.8 %
Answered:	146		247		393	
Skipped:					383	

Table 37.2 MMOGs Also Played by VW Survey Participants Sorted by Gender

MMOGS PLAYED BY NON-GAME VW DENIZENS - BREAKDOWN BY GENERATION

MMOGs Also Played by Non-Game VW Denizens by GENERATION	GEN Y	% of GEN Y	GEN X	% of GEN X	BABY BOOMERS	% of BOOMERS	SILENT GEN	% of SILENT GEN	TOTAL RESPONSES	TOTAL RESPONSE %
World of Warcraft	36	39.1%	82	45.3%	54	42.9%	2	50.0%	172	43.0%
The Sims Online	28	30.4%	52	28.7%	27	21.4%	0	0.0%	107	26.8%
Lord of the Rings Online	17	18.5%	29	16.0%	25	19.8%	2	50.0%	71	17.8%
Dungeons and Dragons	12	13.0%	35	19.3%	20	15.9%	0	0.0%	67	16.8%
Runescape	24	26.1%	22	12.2%	12	9.5%	1	25.0%	58	14.5%
Guild Wars or GW Factions	8	8.7%	21	11.6%	22	17.5%	1	25.0%	51	12.8%
City of Heroes/Villains	7	7.6%	27	14.9%	15	11.9%	0	0.0%	49	12.3%
Star Wars: The Old Republic	7	7.6%	28	15.5%	10	7.9%	0	0.0%	45	11.3%
Halo/Halo 2	21	22.8%	17	9.4%	7	5.6%	0	0.0%	45	11.3%
EVE Online	10	10.9%	17	9.4%	18	14.3%	1	25.0%	45	11.3%
Myst Online: Uru Live (any version)	3	3.3%	11	6.1%	30	23.8%	1	25.0%	44	11.0%
Star Trek Online	7	7.6%	23	12.7%	12	9.5%	1	25.0%	42	10.5%
EverQuest I	5	5.4%	22	12.2%	14	11.1%	1	25.0%	41	10.3%
Battlefield (any version)	15	16.3%	15	8.3%	8	6.4%	0	0.0%	38	9.5%
Star Wars Galaxies (closed)	5	5.4%	21	11.6%	11	8.7%	0	0.0%	37	9.3%
Maple Story	17	18.5%	16	8.8%	3	2.4%	0	0.0%	36	9.0%
Pirates of the Caribbean Online	13	14.1%	17	9.4%	5	4.0%	0	0.0%	35	8.8%
Habbo Hotel	24	26.1%	8	4.4%	3	2.4%	1	25.0%	35	8.8%
Entropia Universe	7	7.6%	17	9.4%	10	7.9%	1	25.0%	35	8.8%
EverQuest II	6	6.5%	19	10.5%	7	5.6%	0	0.0%	32	8.0%
Aion	7	7.6%	17	9.4%	8	6.4%	0	0.0%	32	8.0%
Text-Based MUD(s)	8	8.7%	15	8.3%	8	6.4%	1	25.0%	31	7.8%
Final Fantasy XI	10	10.9%	16	8.8%	3	2.4%	0	0.0%	29	7.3%
League of Legends	13	14.1%	5	2.8%	2	1.6%	0	0.0%	20	5.0%
Anarchy Online	4	4.4%	11	6.1%	5	4.0%	1	25.0%	20	5.0%
Lineage 2	2	2.2%	13	7.2%	4	3.2%	0	0.0%	19	4.8%

Ultima Online	4	4.4%	8	4.4%	4	3.2%	0	0.0%	16	4.0%
Dark Age of Camelot	1	1.1%	11	6.1%	3	2.4%	0	0.0%	15	3.8%
Magic:The Gathering Online	6	6.5%	7	3.9%	1	0.8%	0	0.0%	14	3.5%
Ragnarok	4	4.4%	7	3.9%	2	1.6%	0	0.0%	13	3.3%
Puzzle Pirates	3	3.3%	5	2.8%	3	2.4%	0	0.0%	11	2.8%
Ryzom	2	2.2%	6	3.3%	1	0.8%	0	0.0%	9	2.3%
A Tale in the Desert	3	3.3%	3	1.7%	2	1.6%	0	0.0%	8	2.0%
Lineage	0	0.0%	3	1.7%	3	2.4%	0	0.0%	6	1.5%
Other, please specify	26	28.3%	53	29.3%	37	29.4%	2	50.0%	116	29.0%
Answered:	92		181		126		4		403	
Skipped:									391	

Table 37.3.1 MMOGs Also Played by VW Survey Participants Sorted by Generation

Breakdown of Who Answered and Who Skipped the Question: Which MMOGs Do You Play / Have You Played?	Response Count	Response %
GENERATION Y (Ages 18-28) Who Play / Have Played MMOGs	92	66.2%
GENERATION Y (Ages 18-28) Who Skipped the Question	47	33.8%
GENERATION X (Ages 29-47) Who Play / Have Played MMOGs	181	50.6%
GENERATION X (Ages 29-47) Who Skipped the Question	177	49.4%
BOOMERS (Ages 48-66) Who Play / Have Played MMOGs	126	43.9%
BOOMERS (Ages 48-66) Who Skipped the Question	161	56.1%
SILENT GEN (Ages 67+) Who Play / Have Played MMOGs	4	44.4%
SILENT GEN (Ages 67+) Who Skipped the Question	5	55.6%

Table 37.3.2 MMOGs Also Played by VW Survey Participants Sorted by Generation

SECTION 6: COMPARISONS WITH OUTSIDE RESEARCH

As mentioned earlier, there have been many more studies on MMOGs than on metaverse style virtual worlds, with a focus in particular on games that are perceived to be the most popular of these. This focus has shifted from Everquest in the late 1990s and early 2000s, to World of Warcraft starting around its launch in 2003. In this section, we will compare some of the data from our metaverse-focused survey to similar data collected through prior MMOG surveys. These comparisons will provide a sense of both the similarities and differences between the genres of virtual world.

Figure 38.1 shows average age taken from MMOG surveys between 2001 and 2012, the time when our survey was disseminated. It is interesting to note that while the average age of MMOG players appears to be getting higher, virtual world denizens appear to be much older, on average, than gamers. The average age for our survey was over 8 years older than the most recent MMOG survey on the list.

VW SURVEY / MMOG COMPARISON - AVERAGE AGE OF PARTICIPANTS

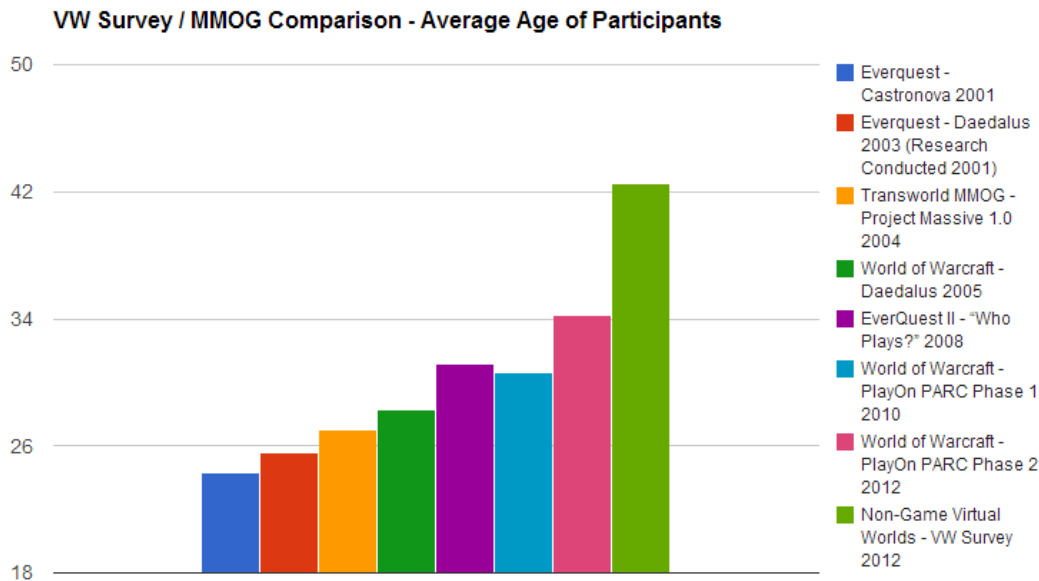


Figure 38.1 - Average Age of Participants by Game/VW, Research, and Publications Date

Game/VW - Research, Publication Date	Average Age of Participants
Everquest - Castronova 2001	24.3
Everquest - Daedalus 2003 (Research Conducted 2001)	25.6
Transworld MMOG - Project Massive 1.0 2004	27.0
World of Warcraft - Daedalus 2005	28.3
EverQuest II - "Who Plays?" 2008	31.2
World of Warcraft - PlayOn PARC Phase 1 2010	30.6
World of Warcraft - PlayOn PARC Phase 2 2012	34.2
Non-Game Virtual Worlds - Virtual World Survey 2012	42.5

Table 38.1 - Average Age of Participants by Game/VW, Research, and Publications Date

NOTES

- The distribution is skewed to the right as the survey only included responses from people 18+.

A comparison of gender in MMOGs vs. metaverse worlds also shows a similar trend. Early MMOG surveys showed only a small percentage of players to be women at 7.8%. By 2012, a little over a decade later, 39% of MMOG players were female. However, metaverse worlds attracted 20% more women than games did in the same year.

VW SURVEY / MMOG COMPARISON - GENDER OF PARTICIPANTS

Game/VW - Research, Publication Date	Male	Female
Everquest - Castronova 2001	92.2%	7.8%
Everquest - Daedalus 2003 (Research Conducted 2001)	84.0%	16.0%
Transworld MMOG - Project Massive 1.0 2004	89.8%	10.2%
World of Warcraft - Daedalus 2005	84.0%	16.0%
EverQuest II - "Who Plays?" 2008	80.8%	19.2%
World of Warcraft - PlayOn PARC Phase 1 2010	68.0%	32.0%
World of Warcraft - PlayOn PARC Phase 2 2012	61.0%	39.0%
Non-Game Virtual Worlds - Virtual World Survey 2012	37.9%	59.8%

Table 38.2 - Gender of Participants by Game/VW, Research, and Publications Date

NOTES

- 2.3% of participants in Virtual World Survey 2012 are Real-Life Transgender.

The table below shows average hours per week spent in game worlds vs. metaverse worlds. Note that the figures are comparable, but that the 2012 figures show a decline in MMOG participation from earlier years, and our survey shows a higher range than MMOGs.

VW SURVEY / MMOG COMPARISON - TIME SPENT

Game/VW - Research, Publication Date	Hours Per Week
Everquest - Castronova 2001	28.9
Everquest - Daedalus 2003 (Research Conducted 2001)	22.4
Transworld MMOG - Project Massive 1.0 2004	15.0 – 21.0
World of Warcraft - Daedalus 2005	22.7
EverQuest II - "Who Plays?" 2008	26.7
World of Warcraft - PlayOn PARC Phase 1 2010	21.4
World of Warcraft - PlayOn PARC Phase 2 2012	18.1
Non-Game Virtual Worlds - Virtual World Survey 2012	20.0 – 25.0

Table 38.3 - Time Spent (Hours/Week) by Participants by Game/VW, Research, and Publications Date

NOTES

- According to Project Massive (Seay et al, 2003), a sizable minority of players (12%) indicate they play more than 40 hours per week.
- In Virtual World Survey 2012 - The distribution is skewed to the right, with a sizable minority of denizens (15%) indicating they spend more than 40 hours per week.

CROSS-GENDER PLAY IN MMOGS - EQ 2003, WOW 2010, WOW 2012

We already knew from our and others' previous research that gender cross-play is a pervasive part of virtual worlds. In MMOGs, it has been well established that men play as female avatars 3-4 times more often than females play as male avatars (Yee 2010). While the percentage of women has steadily increased over the past decade, cross-gender play is still dominated by men, although some researchers have found that in certain cultural contexts, such as Chinese players who know each other in real life, cross-gender play is less common (Nardi 2010, pp.187-189).

The PARC GameOn project (Yee 2010), which has done the most comprehensive quantitative research on this topic, compared of cross-gender play among World of Warcraft Players in 2010. They found a high frequency of cross-gender play among men as compared to women, as well as a higher quantity of cross-gender avatars.

The PlayOn team (Yee 2012) also looked at time spent playing cross-gender avatars, and found that men play female characters 33% of the time, while women play male characters only 8% of the time—thus men are spending nearly four times the *amount of time* playing cross-gender avatars as women, as well as having a *higher quantity* of cross-gender avatars. Furthermore, the PlayOn team found this to be consistent across EU, American and Chinese servers in 2012. In our survey, the vast majority of residents (89%) had a main avatar that matched their real-world gender. However, nearly half (45%) reported having an alt that was not the same as their real-world gender. Our analysis of cross-gender play by real-world gender produced a very different result. 11% of males reported having a female *main* avatar, while only 3% of women reported having a male main avatar. However, the number of males and females with cross-gender alts was much closer: about half of males (49%) and about 42% women. Interestingly, respondents identifying as transsexual are only slightly more likely to have a main avatar of the opposite gender (56%). This tells us the following:

- The overall amount of cross-gender play in virtual worlds is much lower than in MMOGs
- Where main avatars are concerned, men are much more likely to play women than the other way around.
- Where alts are concerned, women are only slightly less likely than men to play male avatars.

This is also consistent with Rosier and Pearce's prior finding in a qualitative comparison between Second Life and Guild Wars (2011) that cross-gender play was more prevalent in MMOGs and within MMOGs far more prevalent among men.

Motivation for cross-gender play continues to be a conundrum, but it appears, from our preliminary review of the open-ended questions, that non-game VW denizens' motivation is very different from that of MMOG players. Our initial analysis of the open-ended responses indicated that, in addition to exploring real-world gender identity issues (even among people who are not transgender), cross-gender play is a means to explore personal expression and sexuality. This data will be delved into more deeply in our qualitative supplement, and a more in-depth comparison will be made with the PlayOn data.

CONCLUSIONS

As with all research, this study answers some questions while revealing new questions for further research. Importantly, it provides us with numerical data to corroborate aspects of virtual worlds phenomena we had observed at a smaller scale in prior research, while also providing some startling new findings that may have broader implications. This conclusion will summarize some of the key findings in each of the five areas covered in the study:

- Demographics
- Avatar Presentation
- Activities and Play Patterns
- Creativity and Commerce
- Comparisons to Game-Based Virtual Worlds

(Note: Throughout this section, percentages are rounded up or down to the nearest whole number.)

DEMOGRAPHICS

From a demographic perspective, virtual world denizens are overwhelmingly white, mostly female, and dominated by Gen X and Baby Boomers. Close to half are married or cohabitating, and a roughly equal number have children. They include a higher percentage of LGBT people, and a higher percentage of people self-identifying as transsexual, as well as a slightly higher percentage of disabled people, than the general population. Their education level is higher than average, their income level is slightly lower, and they are living predominately in suburban and urban areas.

The higher percentage of women is somewhat surprising because, although players themselves report a perception that there are more women in virtual worlds (Rosier and Pearce 2011), this perception was questionable due to the high percentage of men playing female characters. Based on our past research, we were expecting this figure to be closer to 50% than the 60% revealed by this survey. The high participation of women in virtual worlds provides a stark contrast to games, which, as we saw in our comparison to MMOG research, are currently attracting the inverse ratio of male to female players.

We were not surprised to see age skewing higher as this was consistent with our previous research. Pearce's previous research (2008) indicated that Baby Boomer gamers were highly exploratory and community-oriented, so it would follow that metaverse virtual worlds would appeal to this group. They also disliked the trash-talking culture of MMOGs, and although there is plenty grieving (harassment) in virtual worlds, the mainstream culture is far less antagonistic, as well as less misogynistic and homophobic, than online game culture—two characteristics which Baby Boomers reported as unappealing.

The high incidence of transgender people—eight times that of the general population (probably a low figure, based on reporting statistics)—and their emergent use of virtual worlds for therapeutic purposes, suggests that virtual worlds could have a transformative positive influence on this population, which has a high incidence of suicide and depression (Haas et al, 2013). This suggests further research, which we are currently pursuing.

According to our results, virtual worlds also provide significant benefits to disabled people, allowing access to social, physical and creative activities to which their disability may create barriers, while also helping them to deal with physical pain and depression. Some disabled players indicated a preference for the more active engagement of virtual worlds over passive media, such as television. Disabled players are also finding romance and even long-term, real-world partnership via virtual worlds.

For both transgender and disabled people, it appears that the combination of self-determined embodiment and establishment of social support structures is highly beneficial emotionally.

AVATAR PRESENTATION

While virtual worlds provide a wide array of affordances for avatar presentation, VW denizens seem to favor a human or humanoid form over other alternatives. The vast majority of respondents—90%—had at least one human avatar, and nearly two-thirds played humans exclusively. The other third enjoyed exploring a range of presentations, including fantasy humans (such as vampires, and fairies), hybrid animal-human forms (furries, tinies, and nekos), as well as non-humanoid forms such as cats and dogs. Over half of respondents said that they had created avatars that approximated their real-world appearance, though, as some said, in a fantastical or idealized form. Transgender respondents also talked about making versions of themselves with a different gender.

Cross-gender play is pervasive in both MMOGs and VWs, although we found incidents of it to be lower in metaverse worlds. The overwhelming majority of our respondents (93%) reported their main avatar to be aligned with their real-world gender, and over half (55%) reported only having avatars of their real-world gender. The remaining 45% reported having alts of another gender. Notably, cross-gender avatar play was more prevalent among men: 11% reported a main avatar of the opposite gender, while only 3% of women did. Playing cross-gender alts was slightly higher among men than women—49% and 42% respectively.

The use of alts is also pervasive, though slightly less so than cross-gender play. A little under half of respondents reported having multiple avatars in a single world, and a quarter reported multiple avatars across multiple virtual worlds. Less than 20% reported only a single avatar in either. A smaller number of people are sharing avatars, although about a fifth said they shared them with children or grandchildren. Some players reported having as many as 300 avatars, suggesting that avatar design is a creative activity in and of itself. The prevalence of alts also reinforces our perception that virtual worlds are over-reporting customers since a large number of denizens have multiple avatars.

ACTIVITIES AND PLAY PATTERNS

WORLDS VISITED

In this section, we started by asking respondents to tell us which virtual worlds they had tried, allowing for multiple responses. Not surprisingly, the overwhelming majority—89%—cited Second Life. As mentioned earlier, aside from the highs and lows of the Second Life hyperbole, this virtual world still stands as the most successful. During the period when the survey was conducted, as well as during the analysis period, at any given time there were roughly 35,000-45,000 avatars logged into Second Life concurrently. This is significant as some nay-sayers are claiming that Second Life is on the downturn, but our survey and our own personal activities suggest the contrary: While it does not appear to be growing, Second Life seems to be maintaining a steady and consistent audience. The second most popular world was There.com, cited by 26% of respondents. In earlier research, we found that There.com was the second most popular virtual world after Second Life (Pearce and Artemesia); in spite of the fact that There.com closed and then reopened, it still ranked second among our respondents. Kaneva was third with 16%, Blue Mars with 14%, SL open source clones OSGrid and Onverse with a little over 12% each, and Twinity with 11%. All of the other virtual worlds captured in the study were cited at less than 10%. Notably, ActiveWorlds, the oldest still functioning graphical virtual world (1995), captured 7% of respondents' attention.

TIME SPENT

The popular anxiety that people are going to somehow escape into virtual worlds and spend inordinate time in them seems to be false, based on our results. Although time spent per week varies widely, the average time spent in virtual worlds is around 18 hours per week. By comparison, the average American consumes about twice as much TV per week—around 35 hours—(Nielsen 2013) and 25 hours of media on a computer (USC Marshall School 2013). Ranges of time spent in virtual worlds per week varied from less than 5 hours (about 10% of respondents) to more than 40 hours (about 15%), with a fairly even distribution across all time frames with a 5% or less difference from one range to the next. The highest concentration, around 30% total, seemed to be in the 5-15 hour range. Next highest was more than 30, selected by about 25% of respondents.

Men and women are showing similar usage patterns, although men are showing a slightly higher concentration at the low end of the spectrum (5-10 hours), and women showing a slightly higher concentration in the higher end (20-30 hours). In terms of age, there was little variance, however, we saw a slight bump at the lower and higher ends of the time range among Gen Y, while Gen X and Baby Boomers had a slight bump in the middle range of 10- 25 hours per week. There was also less than 5% of a variance between people with and without children, except at the highest level, where those without children or with children living out of the home were slightly more likely to select the more than 40 hours range by about 8% and 5% respectively.

Length of typical sessions varied, but the “sweet spots” appeared to be in the 1-2 and 3-4 hour ranges, with over two-thirds of respondents reporting these as their typical session durations; 19% said their typical sessions exceeded 5 hours. The report also contains breakdown of these figures by age and gender, income, and job type, as well as times of day when people are logging on.

ACTIVITIES

The most popular activities cited were exploring (82%), creating (68%), dancing (60%), attending clubs and entertainment venues (60%), and playing games (40%). All of these were activities we had seen predominate in prior qualitative and mixed-methods research. It is interesting to note that playing games was ranked so highly in non-game metaverse virtual worlds, as most games in these worlds are created by players. Other frequently cited activities were community organizing and management (36%) and roleplaying (32%). It is interesting to note that in some of our prior research, we found that roleplaying was actually rare among players of so-called “massively multiplayer roleplaying games” (MMORPGs), who tend to focus on efficiency and goal achievement over roleplaying and narrative. VW players also cited charitable activities (23%), in-world classes (21%), and teaching or mentoring (20%) as preferred activities. Most VW denizens appear to be keeping their activity predominately in-world, with less than a quarter (23%) reporting the use of outside forums, and even fewer (17%) using external web sites. Other write-in activities, not covered in other sections, included socializing, shopping, decorating, meetings, fashion, events hosting, meditating and attending religious services. Although some of these are redundant to other portions of the survey, in future research we would also include them in “activities.” One interesting finding via open-ended questions in this section was the discovery that a number of players did not consider their VW activity to be “play,” especially if they were in virtual worlds at the behest of their real-world employment. This resulted in our adopting of the term “denizen” rather than “player” throughout the report.

Male and female activity preferences were fairly well aligned, with less than 5% difference in each category, with the exception of dancing, charitable activities, and taking classes in-world, with 8%-9% more women selecting these activities. It’s interesting to note that creating, dancing, attending live performances and taking classes were all activities that were more popular as age increased, while gaming was the precise opposite, having less appeal to older denizens, with about a 10% variance per generation between Gen Y, Gen X and Baby Boomers.

As mentioned earlier, based on our prior research, roleplaying appears to be more popular among virtual world denizens than game-players, and about a third of our respondents reported participating in roleplay activities. Science Fiction/Fantasy was the most popular category of roleplay (42%), followed by Adult, Erotic or BDSM roleplaying. Other roleplay categories included Dark RP (18%), Vampire and Medieval (12% each), Gorean (10%), Historical and Steampunk (9%), as well as Urban, Victorian and Pirate (under 5% each). 5% of players reported family RP, where they roleplay as members of the same family.

FLUIDITY BETWEEN VIRTUAL WORLDS AND REAL LIFE

Another popular misconception of virtual worlds is that they are isolating and asocial, or at the very least remove individuals from real-world interactions. Our research refutes this by demonstrating that virtual world and real-world relationships are fluid and synergistic, as are relationships between virtual worlds. In fact, we found that over half of respondents (54% each) reported either meeting someone in a virtual world that they subsequently met in real life, or vice versa. A little less than half (45%) reported visiting virtual worlds with a real-world romantic partner, and a third played with real-world family members. Close to a third also reported playing with the same people across multiple virtual worlds. Less than a third of respondents reported never having met in real life anyone with whom they had played in a virtual world.

RELATIONSHIPS AND SEX

While romantic and sexual relationships have been pervasive in both graphical and text-based virtual worlds since their inception (and seem to transcend a particular environment), with a few exceptions, they are the most understudied aspects of life in virtual worlds. Survey respondents were surprisingly forthcoming about their romantic and sexual activities. Only 99 people declined to answer this section of the survey. Over two-thirds of those responding (67%) reported engaging in romantic relationships; a little less than two-thirds (59%) reported engaging in sexual activity in virtual worlds. Consistent with the finding on fluidity between real and virtual life, over a quarter (27%) reported dating someone in a virtual world that they subsequently met in real life; a similar number (26%) reported partnering with their real-world partner in virtual worlds. Only 22% reported never engaging in romance or sex in a virtual world. Additionally, 10% had engaged in a sex-for-money transaction.

These figures suggest that, whether by design or not, virtual worlds are becoming a context in which people are forming real-world romantic relationships. It is interesting to compare this to online dating services, as recent research shows that a third of new marriages begin online, and that marriages that do so are slightly happier than ones that don't (Cacioppo 2013). Virtual world dating seems to be particularly beneficial for people with disabilities, some of whom told (in open-ended questions) of meeting real-world partners through virtual worlds. While there are some indications that a small percentage of people who are married in real life are maintaining secondary relationships in virtual worlds, given the high incidence of declines as well as the high percentage of people dating a real-world partner in virtual worlds, we were not able to ascertain from our data precisely what this percentage is. The larger pattern we are seeing is that over half of respondents either met their real-world romantic partner in a virtual world or partner with a real-world partner in virtual worlds.

CREATIVITY AND COMMERCE

Creativity and commerce are deeply intermingled, as much of what is bought and sold in virtual worlds is created by other VW denizens. What our data in this area shows is that, while many people are creating, a small minority of players are providing creative output (including products and real estate) to the majority. Because real estate expenses typically entail creating spaces, we can also conclude that the people spending the most money are likely to be providing content for other players to inhabit.

CREATIVITY

Both creativity and commerce are research topics in and of themselves, both of which warrant their own surveys. By necessity this section is cursory at best. We also inadvertently overlooked some important aspects of creativity, including what “counts” as such. For instance, it’s clear that both avatar design and decorating are viewed by many players as “creative.” Our questions focused more on what might be termed “creative production.” They also focused on *how* people were creating, e.g., 3D modeling, rather than *what* they were creating, e.g., fashion and furniture. In a subsequent survey we might also want to look in more depth at what types of artifacts people are creating in virtual worlds.

Photography (taken inside virtual worlds), 3D object creation using in-world tools, and in-world construction/sim-creation were the three most popular creative activities (at 67%, 64% and 59% respectively). Also highly rated were 2D art and textures (55%), event planning (51%), collaborative projects (39%), operating a venue (such as a nightclub) (38%), creating 3D objects, and using out-of-world modeling tools (30%). Other activities rated by less than 20% of participants included DJ-ing and performance of various kinds (including plays, erotic performance, and live music). Dancing (typically done with pre-programmed or user-created animations) was also written in as a performance category. There were also a number of write-ins under the broad category of “hosting.” What is interesting to note is how many of these activities are social in nature. While creating sims can be a solitary activity, it typically caters to some kind of audience or community, either out of economic necessity (sims are expensive and typically require tenants to operate) or simply for the satisfaction of having an audience. Note that almost 40% said they worked on collaborative projects. Among those cited by less than 20% of respondents, most of them were creative activities that are inherently social.

These results and some of our prior research lead us to the conclusion that a good deal of creative activity can also be categorized as “social.” Within virtual worlds, even creators who work in relative isolation usually have some type of social motivation for their work. The importance of this will become relevant in our closing section comparing MMOGs to metaverse worlds. It also supports some results of our previous unpublished research that indicated that virtual world denizens tended to be extraverts, suggesting social interaction as a high motivating factor. This is borne out by some of the other results of this survey.

Based on our past research, we also hypothesized that a higher number of women were engaged in creative activities than men. While this turned out to be true, it’s due to the higher quantity of women overall rather than a higher percentage of women creators. In fact, when we look at percentages within each gender, the percentage of people engaged in creativity is actually quite similar. In fact, in most creative activities women and men were within 5% of each other. About 10% more male respondents reported doing out-of-world 3D modeling and in-world construction, while about 10% more women reported planning events.

In prior unpublished research, we found that older players were more likely to be engaged in creative activities. We see this borne out in some areas. Between Gen Y, Gen X and Baby Boomers, for instance, we see around a 7%-9% increase per generation as age ascends within in-world modeling and sim-construction, although the difference in extra-virtual world 3D modeling is less than 2%. Baby Boomers reported about 15% more involvement in collaborative projects than Gen Y. Events planning is about equal, but Gen X and Y players are 17% more likely than Baby Boomers to be running venues and nightclubs, and also more likely to be DJ-ing and doing erotic performances. Interestingly, Gen Y and Baby Boomers are more likely to be doing live performances than Gen X.

These results tell us that, while there is little difference between men and women in terms of creative activity, older players seem to be slightly more engaged in creative and collaborative projects, including live performance, while younger players tend to focus slightly more on running and DJ-ing music and nightclub venues.

REAL ESTATE

Real estate is a major component of virtual worlds, and typically a major revenue source for virtual world operators. Our results in this area, though in some ways contradictory, indicate that a small minority of players are paying the vast majority of real estate fees, which also implies those players are providing real estate for others to enjoy and possibly rent.

Over two-thirds of respondents reported renting residential property in a virtual world, and a slightly lower number reported owning land. Over one third reported owning or renting land for a business or workspace. A little over a fifth reported owning real estate that they rented to others. A little under 10% reported never renting or owning land in a virtual world. Thus, according to these data, around 90% of virtual world denizens who took our survey are involved in some type of real estate transaction, and over 20% are providing real estate to other players.

These figures are somewhat contradictory with the subsequent question on real estate expenditures. What we see here is a pattern in which progressively smaller numbers of people are spending progressively more money: the largest percentage (27%) reported spending no money on real estate; the next largest (25%) spent between \$1 and \$20 per month; (21%) reported \$20-\$50 per month, (10%) \$50-\$100, and (7%) \$100-\$150; (3%) reported \$150-\$200, (2%) \$300-\$500, and a slight bump of (3%) reported spending over \$500 per month on real estate.

This pattern gives us a picture of the “prosumer” culture of virtual worlds, in which a small percentage of players are paying for the privilege of providing content to the majority. Since real estate typically goes hand in hand with creative practice, we can therefore surmise from this data that those at the lower percentage/higher expenditure end of the spectrum are creating sims and providing content for other players to enjoy and, in some cases, pay for.

COMMERCE

One of the questions we were most interested in was spending patterns in virtual worlds. It’s interesting to note that three of the top six items selected from our initial list had to do with avatar presentation, and the other three with dwelling/real estate. The overwhelming majority selected fashion (94%), avatar customization (92%) and animations (80%) among the items they purchased. Furniture (88%), buildings (74%) and land (74%) were also among the top items selected. Other avatar-related selections included attachments (70%) and HUDs (68%), as well as props (68%), and scripts (58%). Write-in items included transportation/vehicles (6%, although we think this figure is probably higher), and pets (2%).

This data, combined with the data on real estate, paints a very clear picture of the value proposition in terms of commerce: avatar design and customization heads the list of what people are spending money on, followed closely by real estate and real-estate related items, such as buildings and furniture.

Monthly expenditures on virtual items exhibited a similar curve to that which we saw in real estate. While 17% of respondents said they were spending no money on virtual items, the largest number (40%) spend \$1-\$20 per month; (25%) spend \$20-\$50; (10%) spent \$50-\$100, (4%) spent \$100-\$150; (2%) spent \$150-\$200, (2%) spent \$200-\$300 and (1%) reported spending over \$300 per month.

About three quarters of our respondents reported making income from their virtual world activities. The largest number of these (46%) reported making some income; the second largest number, over a quarter of respondents (28%), said they earned enough money to support their virtual world expenses; in other words, breaking even. 11% and 10% respectively said they either supplemented or earned their primary income from virtual world activities. We also found that 40% of respondents reported doing paid design work for someone else, and about 35% reported paying people to do design work for them. 316 of our respondents also answered

questions about owning shops. Two-thirds of these reported owning a shop (66%), and a slightly smaller number reported selling items via an out-of-world retailer, such as Second Life's Marketplace site. It's interesting to note here that while almost half of respondents make some money, only about 20% are earning money above and beyond what they are spending. We refer to this phenomenon as "professionalization," in which "productive play" parlays into income-generating activity. However, a little over half of these virtual world earners are feeding a portion of their earnings back into the virtual world.

The vast majority of our respondents (85%) reported purchasing virtual currency from an official source; nearly one quarter (22%) had purchased it from a second party source; more interestingly, just over a quarter (26%) had sold currency to an official site, and about 9% had sold it to a second party source. Only 9% of respondents reported never purchasing virtual currency.

COMPARISONS TO GAME-BASED VIRTUAL WORLDS

Because we were interested in the overlap between games and virtual worlds, we closed the survey with a question about which MMOGs people were playing. Less than half our respondents chose to answer this question, and some did not even know what the term MMOG meant. Not surprisingly, the largest number (43%) reported playing World of Warcraft. More surprising was the fact that The Sims Online (TSO), which closed in 2008, was the second most popular game, cited, by 27% of respondents. TSO, however, is an interesting case of a hybrid world that was more like a metaverse than a typical game world; the environment was more socially-focused, and we know from past research that a number of self-proclaimed "TSO Refugees" ended up in virtual worlds such as Second Life and There.com. Following TSO was Lord of the Rings Online, with 18% of respondents, Dungeons and Dragons, with 16%, Runescape with 15% and the Guild Wars and City of Heroes franchises with 12% each. Around 11% each reported playing Halo, EVE Online, Myst Online/Uru, and Star Wars: The Old Republic. 10% each had played Star Trek Online and EverQuest. Less than 10% reported playing any of the remaining games on the list, although 30% also selected other.

What this tells us is that, while a little over half of virtual world denizens are not involved in playing MMOGs at all, metaverse virtual worlds can also serve as a haven for refugees of games that close, a discovery that supports findings of our previous research (Pearce and Artemesia 2009).

COMPARISON WITH OTHER MMOG RESEARCH

Because we were interested in comparing the results of prior MMOG surveys with our own, our final chapter included a comparative analysis of some of our key data against data from prior MMOG surveys. This yielded some interesting results, not just looking at the difference between MMOG and Virtual World demographics and play patterns, but also looking at how MMOGs have changed since researchers first started studying them in the late 1990s.

By doing an analysis of multiple MMOG studies, as well as comparing them to our own, we made some interesting discoveries about overall demographic trends over MMOGs the past 15 or so years. One discovery was that the average age of MMOG players has been steadily and incrementally rising since 2001, when the first such study was done. The average age of the MMOG player has increased a little over one age year per calendar year, from around 25 in 2001 to around 34 in 2012. By contrast, the average age of respondents to our survey, taken in the same year was 42.5. Therefore, we can say with a fair degree of confidence that virtual world denizens are typically older than MMOG players, although the age of that group has risen almost ten years in a little less than a decade.

We see a similar pattern with gender, except that the contrast, both in change over time and in difference between MMOGs and virtual worlds, is even more extreme. The first MMOG surveys conducted in 2001 found

that EverQuest, then the most popular MMOG, had somewhere between 8% and 16% female players. By 2008 this figure had risen to 19%, and with the release of World of Warcraft, female participation rose to 32% and then to 39% respectively in 2010 and 2012. Virtual Worlds, on the other hand appear to be attracting nearly twice the women of MMOGs, even at these high rates, with nearly 60% of participants reporting as female.

A comparison of time spent in MMOGs versus virtual worlds found the numbers to be comparable, with the MMOG surveys reporting a range from 15-29 hours per week, while our respondents averaged 18 hours per week. This is still less than the 35 hours per week the average American watches television.

FURTHER RESEARCH

The results of this study suggest a number of fruitful areas for further research, ideally quantitative, qualitative, and potentially (ideally) mixed-methods research to dig down more deeply into some of the questions raised by this research. We identified the following four areas for future research.

Sex and Relationships: While our study found that romantic and sexual relationships were a prevalent part of virtual world lifestyles, this area is grossly understudied. The questions asked by our survey only scratch the surface of this little-understood phenomenon. Furthermore, the high percentage of respondents who reported forming real-world relationships via virtual worlds is a new and groundbreaking discovery that warrants further investigation. It would also be useful to understand more about the nuances of these relationships via more qualitative approaches, such as interviews, as well as a follow-up survey. Some questions explored in this arena might include: What types of relationships are people forming? We know for instance that marriage in both virtual worlds and MMOGs is common. It appears that a small percentage of people having relationships outside of their real-world partnerships, but due to the prevalence of people playing with their real-world partners, it is difficult to tell to what extent this occurs. Further research on how virtual relationships transition to real life, as well as their rate of success, would also be of interest. This topic may prove difficult to research, as it deals with behavior that is necessarily private and intimate, and about which people may be reticent to share their experiences. At the same time, based on our results, it seems that virtual world denizens are surprisingly open to discussing such personal topics; however, researchers will have to develop special methods for studying romance and sex in virtual worlds. Perhaps some cues can be taken from other methods for studying sexuality to pursue research in this area.

Creativity: Our study captured some data on creativity, but barely scratched the surface in terms of what is happening in this area. We have already done extensive qualitative research in this area (Pearce 2006; 2009; Pearce and Artemesia 2009), and follow up research would help expand our understanding of creative practices and communities in virtual worlds. One potential method would be to do a quantitative and qualitative study of artifacts, looking at both the prevalence and market value of certain types of artifacts, e.g., avatar design, clothing, furniture, sex accessories, etc., to understand both what people are creating and what products are considered of most value to virtual world denizens. A follow up survey with more detail about what people are creating would also be useful.

Therapeutic Uses of Virtual Worlds by Transgender People: While a small minority of our study, transgender people seem to be represented in virtual worlds in much higher proportions than they are in the population overall. Given the nuances of self-reporting, we are also fairly confident that our reported number was low. We were particularly struck by open-ended responses that suggested that real-world transgender people are emergently using virtual worlds to practice transitioning, to mitigate depression, and even as a means of suicide prevention. Given the high stress and suicide rate of this population, we feel that this finding could potentially be used to develop new therapeutic methods to help transgender people, as well as connect them with support groups. We are currently exploring collaborative research with experts in this area to further pursue such research.

Benefits of Virtual Worlds to Disabled People: Also a small minority, disabled people are emergently using virtual worlds for therapeutic purposes, including depression and pain mitigation, as well as a means of forming social and romantic relationships. There are also a number of disability support groups within virtual worlds. As we found in prior research, virtual worlds put disabled people on a “level playing field” with abled persons, and also provide them access to activities from which they may be inhibited by their disabilities. Future research in this area could potentially lead to positive therapeutic and medical applications of virtual worlds for this population.

In closing, we also want to reiterate the importance of continuing to do trans-ludic, or, as we term it “latitudinal” research across multiple virtual worlds. Even the MMOG research we cited in our comparison section was largely single-world research, frequently in games of the same genre. There is a risk of arriving at false generalizations when studying only one virtual world or one genre of world, as well as the audiences that gravitate towards a given type of virtual world. The next step might be to begin doing studies that are both longitudinal and latitudinal, over time and across virtual worlds. Our background research into virtual world surveys, for instance, indicated that some significant changes have occurred over the past decade, even within the narrow MMOG genres that were being studied, including the increasing average age of players, and a large increase in the participation of women. Continuing studies within these infinitely diverse virtual worlds will, over time, continue to expand our understanding of the social and psychological dynamics of the players within them.

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APPENDIX

Appendix A - Consent Form

Appendix B - Raw Survey

Appendix C - Relevant Virtual Worlds

APPENDIX A – CONSENT FORM

Virtual World Survey

CONSENT FORM

PROJECT TITLE: Virtual Worlds Survey
CHIEF INVESTIGATOR: Celia Pearce
RESEARCH ASSISTANT: Bobby R. Blackburn
GEORGIA INSTITUTE OF TECHNOLOGY

OVERVIEW

You are invited to participate in a research study on the demographics, attitudes, and preferences of players in graphical, non-game virtual worlds. This survey-based research is being conducted by the Georgia Institute of Technology.

PURPOSE

The purpose of this study is to understand the demographics, attitudes and preferences of virtual world users.

PROCEDURES

The research consists of the following:

- An online survey, taking approximately 10-15 minutes to complete
- Optional free response questions taking 5-20 minutes
- Optional online interview

RISKS/DISCOMFORTS

Risks/discomforts are no greater than those encountered in daily activities such as using the computer.

QUALIFICATIONS FOR PARTICIPATION

- Participants must be over 18 years of age
- Participants must have a minimum of 30 hours of play time in one or more social, non-game virtual worlds

BENEFITS

Participants in this study may benefit from their involvement by gaining greater insight into the virtual communities they interact with.

COMPENSATION

You will not be paid for your participation in the research project.

CONFIDENTIALITY

The following procedures will be followed to keep your personal information confidential in this study:

- No personal real-world information will be collected as part of this study
- At your option, you may reveal your email information to volunteer for participation in a follow-up interview. Avatar aliases will be used to protect your avatar identity in any publications.
- All data will be stored on a secure server at the Georgia Institute of Technology and in the Zoomerang Survey database.
- The outcome of this research will be an academic publication.
- The survey and interview are voluntary. You are under no obligation to participate, and you may choose to terminate your participation at any time.
- To make sure that this research is being carried out in the proper way, the Georgia Institute of Technology human subjects review board may review study records. The Office of Human Research Protections may also look at study records.

SUBJECT RIGHTS

Virtual World Survey

- Your participation in this study is voluntary. You do not have to be in this study if you don't want to be.
- You have the right to change your mind and leave the study at any time without having any reason, and without penalty.
- Any new information that may make you change your mind about being in this study will be given to you.
- You do not waive any of your legal rights by consenting to participate in this research.

QUESTIONS ABOUT THE STUDY OR YOUR RIGHTS AS A RESEARCH SUBJECT

- If you have any questions about the study, you may contact Dr. Celia Pearce, the principal investigator, by sending e-mail to celia.pearce@lcc.gatech.edu.
- If you have any questions about your rights as a research subject, you may contact Ms. Melanie Clark, Georgia Institute of Technology at (404) 894-6942 or melanie.clark@gtrc.gatech.edu.

COSTS TO YOU

There is no cost for you to participate, other than your time. You may complete the survey at any time. We may also request your participation in interviews and discussions that may take up to two hours, but these will be voluntary.

CONSENT PROCEDURE

If you consent to volunteer for this research, it means that you have read the information given in this consent form and you would like to be a volunteer in this study.



Consent Form Approved by Georgia Tech IRB: April 13, 2012 - April 12, 2013

***1. Please check all boxes below to indicate that each is true.**

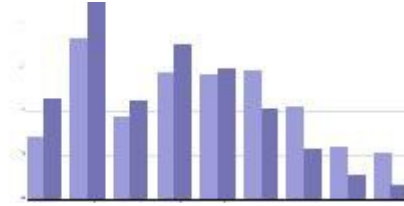
- ☐ I am 18 years of age or older.
- ☐ I have had a minimum of 30 hours of experience in virtual worlds.
- ☐ I have read the consent documentation.
- ☐ I am aware of who to direct questions to.
- ☐ I agree to volunteer to participate in the study.

***2. I, [Avatar Name], have read and understood the above and agree to volunteer as a participant in the study.**

By filling in your avatar name below and submitting this completed consent form, it means you have read (or have had read to you) the information in this consent form, you meet the qualifications for the study (over 18 with minimum 30 hours virtual world experience) and that you would like to be a volunteer in this study.

Virtual World Survey

DEMOGRAPHIC INFORMATION



*3. Year of Birth

*4. Real-life Gender



M



F



T (Real-life transgendered)

*5. Marital Status

*6. Children



Children living at home



Children not living at home



No children

*7. Highest Education Level Completed



Less than High School



High School / GED



Some College



2-year College Degree (Associates)



4-year College Degree (BA, BS)



Masters Degree



Doctorate Degree



Professional Degree (MD, JD)

8. Do you participate in religious services on a regular/semi-regular basis? (Optional)



Yes



No

9. Real-World Sexual Orientation (Optional)

☐ Heterosexual

☐ Bisexual

☐ Homosexual

☐ Decline

*10. Occupation/Profession

*11. Nationality

*12. Race/Ethnicity

*13. Current region where you live

*14. What type of area do you live in?

☐ Urban

☐ Suburban

☐ Rural, in or near small town

☐ Rural, farm or ranch

☐ Rural, in a remote area

☐ Other, please specify

15. Do you have a disability? (Optional)

Virtual World Survey

*16. Employment Status (Check all that apply)

- ☐ Employed full-time for wages
- ☐ Employed part-time for wages
- ☐ Self-employed
- ☐ Unemployed
- ☐ Homemaker
- ☐ Student
- ☐ Retired
- ☐ Semi-Retired
- ☐ Unable to work (Disability)
- ☐ Income from additional sources (e.g., investment, rentals, etc.)
- ☐ Independent means (e.g., inheritance, lottery, IPO, etc.)
- ☐ Other, please specify

*17. Annual income

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Virtual World Survey

VIRTUAL WORLD USAGE

-Please answer the following questions completely, honestly and accurately. We want to know as much as we can about your actual virtual world activities. It may also be helpful to bear in mind that the researchers themselves are virtual world denizens who participate in similar activities.

-Where questions involve specific numbers, it may be helpful to login to your virtual world account management page rather than estimating from memory. This may also be useful in order to check currency conversion rates.



*18. Virtual Worlds (Non-Game) participated in (Check all that apply)

- ☐ Active Worlds
- ☐ Blue Mars
- ☐ Kaneva
- ☐ Onverse
- ☐ OSgrid
- ☐ There.com
- ☐ Twinity
- ☐ Second Life
- ☐ Smallworlds
- ☐ VTR
- ☐ Traveler
- ☐ Whyville
- ☐ Worlds.com
- ☐ Other, please specify

*19. Average number of hours spent in Virtual Worlds per week

*20. What is your typical play session time?

- ☐ 20 minutes or less
- ☐ 20-45 minutes
- ☐ 45-60 minutes
- ☐ 1-2 hours
- ☐ 3-4 hours
- ☐ 5 + hours

Virtual World Survey

***21. When do you typically play in Virtual Worlds? (Check all that apply)**

- ☐ Before or during breakfast
- ☐ Weekdays
- ☐ Weekends
- ☐ During coffee breaks
- ☐ While waiting for something (e.g., on hold, in line)
- ☐ During my lunch break
- ☐ After finishing my work/school day
- ☐ Just prior to dinner
- ☐ During dinner
- ☐ After dinner
- ☐ After the kids go to bed
- ☐ Late night (12am-2am)
- ☐ Middle of the night (2am-5am)
- ☐ Other, please specify

Virtual World Survey

***22. Which of the following activities do you engage in within Virtual Worlds? (Check all that apply)**

- ☐ Creating (more about creating below)
- ☐ Dancing
- ☐ Exploring
- ☐ Games/Competitive Activities
- ☐ Role-Playing (more about role-playing below)
- ☐ Community (management, organizing, planning events)
- ☐ Live Performance (more about live performance below)
- ☐ Machinima
- ☐ In-world publications
- ☐ Out of world publications, such as blogs and web sites
- ☐ Forums
- ☐ Teaching in-world
- ☐ Attend Classes in-world (Virtual Universities or other)
- ☐ Charity events or activities
- ☐ Attend clubs or entertainment venues
- ☐ Other, please specify

23. If you participate in Role-Playing, please specify what genre of Role-Playing you participate in and/or what Role-Playing communities you are a part of.

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SOCIAL INTERACTIONS

***24. Which of the following is true regarding your interactions with Friends/Family in Virtual Worlds? (Check all that apply)**

- ☐ I have played with people I already knew in real life
- ☐ I have met people in-world that I subsequently met in real life
- ☐ I have played multiple games or VWs with the same person
- ☐ I have played with a romantic partner/spouse
- ☐ I have played with real world family members
- ☐ I have not met anyone I play with in VWs in real life

Virtual World Survey

The following is an optional question, and as with the rest of the survey, all answers will be kept anonymous. Please answer as honestly as possible. If you do not feel comfortable answering this question honestly, then you may skip the question or select "Decline."

25. Which of the following is true regarding Dating/Sex in Virtual Worlds? (Check all that apply) (Optional)

- ☐ I have engaged in dating/romance in a virtual world
- ☐ I have engaged in sexual activity in a virtual world
- ☐ I have dated someone in a virtual world who I subsequently dated in the real world
- ☐ I have dated or partnered with a real life partner in a virtual world
- ☐ I have engaged in sexual activity for money in a virtual world (paid or received money for services)
- ☐ I have engaged in sexual activities other than those listed
- ☐ I have never engaged in romance or sex in a virtual world
- ☐ Decline

CREATIVE ACTIVITIES

***26. Which of the following activities have you performed? (Check all that apply)**

- ☐ 3D object creation using in-world tools
- ☐ 3D object creation using out-of-world tools (e.g., Maya, Gmax, 3D Studio, etc.)
- ☐ In-world construction/sim creation
- ☐ 2D art, textures, etc.
- ☐ In-World Photography (Screen Shots from Exploration for blogs etc.)
- ☐ Collaborative Projects
- ☐ Plan events
- ☐ Run a venue or nightclub
- ☐ Performance - Plays, Readings
- ☐ Performance - Live Music
- ☐ Performance - DJ
- ☐ Performance - Erotic
- ☐ Other, please specify

Virtual World Survey

VIRTUAL REAL ESTATE

The following section has a few questions pertaining to monetary expenditures and gains in the real world. We encourage you to look over your financial or virtual world account statements to ensure greater accuracy in your responses.



***27. Which of the following is true regarding your use of land, homes, and/or shops in Virtual Worlds? (Check all that apply)**

- ☐ I have rented a home or residence in a virtual world from someone else
- ☐ I have rented a shop or business (such as a nightclub) in a virtual world from someone else
- ☐ I have rented land (such as a sim or a parcel) in a virtual world from someone else
- ☐ I have owned land for my own use in a virtual world
- ☐ I have owned land for a business, such as a shop or nightclub
- ☐ I have rented or owned land in order to do design work for myself or others
- ☐ I have owned land that I have rented all or portions of to others
- ☐ I have never rented or owned any land in a virtual world
- ☐ I have never rented or owned any home or residence in a virtual world
- ☐ I have never rented or owned any shop or business in a virtual world
- ☐ I feel like I have never rented or owned any home, land, or shop in a virtual world

***28. How much per month do you spend on Virtual World real estate fees? (Please Specify in US Dollars)**

- ☐ 0
- ☐ \$1-\$20
- ☐ \$20-\$50
- ☐ \$50-\$100
- ☐ \$100-\$150
- ☐ \$150-\$200
- ☐ \$200-\$300
- ☐ \$300-\$500
- ☐ \$500 +

Virtual World Survey

*29. Which if the following virtual items have you purchased/rented?

- ☐ Fashion
- ☐ Furniture
- ☐ Scripts
- ☐ Animations
- ☐ HUDs
- ☐ Buildings
- ☐ Land
- ☐ Attachments
- ☐ Props
- ☐ Avatar customization (skins, hair, etc.)

☐ Other, please specify

*30. How much money do you typically spend on virtual items per month? (Please specify in US dollars)

- ☐ 0
- ☐ \$1-\$20
- ☐ \$20-\$50
- ☐ \$50-\$100
- ☐ \$100-\$150
- ☐ \$150-\$200
- ☐ \$200-\$300
- ☐ \$300-\$500
- ☐ \$500 +

VIRTUAL INCOME

*31. Which of the following statements is true about your use of virtual currency? (Check all that apply)

- ☐ I have purchased virtual currency for real money from an official source
- ☐ I have purchased virtual currency for real money from a second party source
- ☐ I have sold virtual currency for real money to an official source
- ☐ I have sold virtual currency for real money to a second party
- ☐ I have never bought or sold virtual currency

Virtual World Survey

32. If you have earned virtual currency through in-game commerce, please check one of the following:

- ☐ My main income comes from VW activities
- ☐ I supplement my real world income with VW activities
- ☐ I make enough income to support my VW expenditures
- ☐ I have only sold a few items
- ☐ Other, please specify

33. Have you ever been paid to do design work or paid someone else to do design work?

(e.g., building houses or islands, making fashion, etc.) (Check all that apply) (Optional)

- ☐ I have been paid to do design work
- ☐ I have paid someone else to do design work
- ☐ I have never been paid to do design work
- ☐ I have never paid someone else to do design work

34. If you have a retail outlet or shop in a virtual world, please check all that apply:

- ☐ I have one or more in-world shops
- ☐ I sell items via an in-world auction site (e.g., There Auctions)
- ☐ I sell items via an out of-world online retailer (e.g., Second Life Marketplace, Thumdar, eBay)

Virtual World Survey

AVATARS



***35. Number of avatars: (Check whichever best describes your use of avatars and alts)**

- ☐ I have only one avatar in one virtual world
- ☐ I have multiple avatars in a single virtual world
- ☐ I have only one avatar in each of a number of virtual worlds
- ☐ I have multiple avatars in multiple virtual worlds

36. Which of the following best describes the use of your Avatar(s) by friends or family? (Check all that apply)

- ☐ I share an Avatar with a another person
- ☐ My spouse sometimes uses my Avatar with me while sitting next to each other
- ☐ My spouse sometimes uses my Avatar without me
- ☐ My spouse never uses my Avatar
- ☐ My children/grandchildren sometimes use my Avatar with me while sitting next to each other
- ☐ My children/grandchildren sometimes use my Avatar without me
- ☐ My children/grandchildren never use my Avatar
- ☐ My friend(s) sometimes use my Avatar with me while sitting next to each other
- ☐ My friend(s) sometimes use my Avatar without me
- ☐ My friend(s) never use my Avatar
- ☐ No one other than myself uses any of my Avatars
- ☐ I share an Avatar with a group (please explain)

Avatar Gender (Check the selection that best describes your avatars)

***37. Main Avatar**

- ☐ My main avatar is the same gender as my real world gender
- ☐ My main avatar is a different gender than my real world gender

*38. Other Avatars

☐ All of my avatars are the same as my real-world gender.

☐ I have avatars that are not the same as my real-world gender.

39. Avatar Representation: Please briefly summarize the presentation of one or more of

your avatars (e.g, Human, Furry, Pirate, Elf, Tiny, Horse, Child, Purple)
(Optional)

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*40. Avatar Appearance: Have you tried to approximate your real-world appearance with your avatar design?

☐ Yes

☐ No

Virtual World Survey

41. MMOGs: If you play any massively multiplayer online games in addition to your virtual world activities, please check any games below that you play or have played:

- ☐ A Tale in the Desert
- ☐ Aion
- ☐ Anarchy Online
- ☐ Battlefield (any version)
- ☐ City of Heroes/Villains
- ☐ Dark Age of Camelot
- ☐ Dungeons & Dragons
- ☐ Entropia Universe
- ☐ EVE Online
- ☐ EverQuest I
- ☐ EverQuest II
- ☐ Final Fantasy XI
- ☐ Guild Wars or GW Factions
- ☐ Habbo Hotel
- ☐ Halo/Halo 2
- ☐ League of Legends
- ☐ Lineage
- ☐ Lineage 2
- ☐ Lord of the Rings Online
- ☐ Magic:The Gathering Online
- ☐ Maple Story
- ☐ Myst Online: Uru Live (any version)
- ☐ Pirates of the Caribbean Online
- ☐ Puzzle Pirates
- ☐ Ragnarok
- ☐ Runescape
- ☐ Ryzom
- ☐ Star Trek Online
- ☐ Star Wars Galaxies (closed)
- ☐ Star Wars: The Old Republic
- ☐ Text-Based MUD(s)

Virtual World Survey

☐ The Sims Online

☐ Ultima Online

☐ World of Warcraft

☐ Other, please specify

Virtual World Survey

OPEN ENDED QUESTIONS (Optional)



42. What initially drew you to Virtual Worlds?

43. What keeps you playing Virtual Worlds?

44. Which is your favorite Virtual World and why?

45. What is the most interesting thing you have seen and/or done in the Virtual Worlds you listed above?

46. What types of communities are you involved with in Virtual Worlds?

47. What do you like about non-game VWs that MMOGs don't have?

48. What do you like about MMOGs that non-game VWs don't have?

49. How has being in Virtual Worlds affected your real life?

Virtual World Survey

50. Please add any additional thoughts, comments or insights about your virtual world experiences.

51. Please let us know if you have any additional comments regarding the survey itself!

52. Optional: Please enter the following information if you are available to participate in an individual or group interview:

Avatar name

Primary Virtual World

Contact email

APPENDIX C – LIST OF RELEVANT VIRTUAL WORLDS

When designing the Virtual World Survey Instrument, we first researched and collected a list of Virtual Worlds to include in our survey based on the following criteria.

Criteria: What are the currently active, graphical, non-game Virtual Worlds? (Spring 2012)

Based on this criteria and responses to the Survey Instrument, we have divided the list into four sections:

- 1) On our List
- 2) Excluded from our List
- 3) Added to our List
- 4) All other write-ins by survey respondents

ON OUR LIST:

- Active Worlds
 - <http://wiki.activeworlds.com/index.php?title=2010>
- Blue Mars
 - <http://www.bluemars.com/community/index.html>
- Kaneva:
 - <http://www.kaneva.com/>
- Onverse
 - <http://www.onverse.com/>
- OSgrid
 - <http://www.osgrid.org/index.php>
- There.com
 - <http://www.there.com/>
- Twinity
 - <http://www.twinity.com/>
- Second Life
 - <http://secondlife.com/>
- Smallworlds
 - <http://www.smallworlds.com/login.php?login=true>
- VTR
- Traveler
- Whyville
- Worlds.com

VIRTUAL WORLDS EXCLUDED FROM OUR LIST:

- <http://www.redlightcenter.com/>
- <http://www.entropiauniverse.com/>
- <http://www.reallifeplus.com/aboutus.html>

VIRTUAL WORLDS ADDED TO OUR LIST:

- Inworldz
 - <http://inworldz.com/>
- IMVU
 - <http://www.imvu.com/>
- Red Light Center
 - <http://www.redlightcenter.com/>
- vSide
 - <https://www.vside.com/app/start>
- AVINATION
 - <https://www.avigation.com/>

VIRTUAL WORLDS ADDED BY SURVEY RESPONDENTS:

- <http://www.jokaydiagrid.com/>
- <http://www.kitely.com/>
- <http://www.cloudparty.com/>
- <http://www.3dchat.com/>
- <http://en.smeet.com/>
- <https://www.habbo.com/>
- <http://www.freerealms.com/whatIsFreeRealms.vm>
- <http://www.miniplanetgame.com/>
- =IcaruS= RealmS <http://www.icarusstudios.co.uk/realms/>
- 3rd Rock Grid <http://www.3drockgrid.com/>
- ourworld.com
- TirNua <http://www.catroo.com/>
- <http://www.seducity.com>
- <http://www.vzones.com/>
- <http://avatarconnection.com/>
- <http://reactiongrid.com/>
- <http://www.nuveraonline.com/>
- <http://www.opensim.net/>
- <http://www.newworldgrid.com/en>
- <http://www.stardoll.com/en/>
- <http://www.moove.com/>
- <http://3dmee.com/>
- voodoo chat - avatar based chat-rooms
- <http://www.meez.com/>
- <http://www.outerworlds.com/>