Transgressive Gender Play: Profiles and Portraits of Girl Players in a Tween Virtual World

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ABSTRACT

Little is known about how girl players navigate through virtual worlds, negotiate their identity, and challenge cultural norms and practices. We investigated over 500 players in a science-themed tween virtual world called Whyville.net with girls being the majority (68%) of its 1.5 million registered players. Using logfile data collected over a six-month long period, we identified three distinct groups: core gamers (7% of all players), semi-core gamers (34% of players), and peripheral gamers (59% of players). We found that all groups participated in common practices but that core players also participated in non-traditional, transgressive practices. These included private flirting with other players and aggressive scamming of others for personal profit as well as public denials of such activities because they violated gender and social norms. Often hidden, these facets of girls' play indicate the value of virtual worlds as digital publics that offer youth opportunities to engage in identity exploration and border crossing.

Author Keywords

Gender, participation, virtual worlds, avatar

INTRODUCTION

Virtual worlds such as Neopets, Habbo Hotel, Toontown, Barbie Girls, Webkinz, and Whyville have become the new public playground for thousands of tweens who create avatars as their virtual counterparts to engage in chat and games with others. While virtual worlds are popular among millions of children, we know little about how players join these communities and how and why they engage in different activities. Girls in particular have become prominent players in virtual worlds, a trend counter to many early observations that documented the absence of girls and

women in gaming and technology cultures at large [5, 23]. The study of virtual worlds as play spaces allows us to begin a conversation about gender and gaming that has been largely absent in the research community, one that aims to understand girls as they play in their own territory rather than as they negotiate access into prominent male-dominated games. Our approach mirrors efforts by researchers of play [26, 28], in particular the work by anthropologist Marjorie Goodwin [14] who recently revealed how girls maneuvered in play spaces in ways that contest stereotypical depictions of them as non-aggressive, docile, strategically chastising and socially excluding to establish and strengthen their social position within the group.

In this paper, we want to examine girl players and how they came to participate in what was for them a new setting of play – Whyville.net, a virtual world with an emphasis on science education, populated by over a million young people ages 8-16. With over 68% of its players being female tweens, Whyville offered a promising setting to study girls in a territory of their own. In this context, we were particularly interested in what kinds of activities girls chose to engage in as part of their virtual life and in what ways they transgressed typical notions of girls' play. We use the term transgressive here in the sense of activities and attitudes that challenge, or transgress, stereotypical notions of how a girl is supposed to look, act and behave. In other words, we wanted to focus on girls' gender play [28] and how they established themselves as players in the virtual world of Whyville.

To do so required us to coordinate a multi-step analysis, integrate various data sources, and develop a new method. Our analyses of girl players was based on a six-month long data collection consisting of logfile

data that recorded and time-stamped navigation and public chat interactions, video recordings from an after school gaming club and classrooms, and interviews with selected participants. In a first step, we used logfile data to establish profiles of core, casual and peripheral girl players based on patterns of play or participation frequencies in various Whyville activities among all boy and girl players. In a second step, we constructed in depth case studies using logfile data alongside data from video recordings and interviews. This qualitative approach to logfile analysis (see also [20]) represents a radical departure from the traditional approach we used in the first step. Like ethnographers, we used the logfiles to follow three girl players over several months to understand what were their mundane, everyday activities and what developed in focal activities of their time in Whyville. In other words, we not only knew what they were doing but how they were doing it, and used this information to develop a better sense of their maturation as players in Whyville. In this process, we paid attention to forms of gender play [28] and aggressive play [14] in which children at this age engage to position themselves within the larger community. In the following sections, we provide more detail on the background, study contexts and methods before presenting the findings.

BACKGROUND

The research field has been divided into two camps in studying gender in the context of playing and making games [23]: those from the psychological perspective who have focused on gender differences in preferences, representation and experience, and those from the feminist perspective who have focused on the production of gender in spaces, games and design in order to explain girls and women's lack of interest and absence in the field. Most of this research has focused on girls and women's play (or absence thereof) in video games and massive online role-playing games, thus the research on virtual worlds that are the focus of this paper is relatively new. While the boundaries between the two are somewhat fuzzy, virtual worlds, in contrast to video games, have few if any finite goals and are heavily dependent on player-generated content.

As it turns out, large numbers of girls and women are joining virtual worlds, for the first time offering researchers the opportunity to examine gaming cultures where women are often the majority of players and designers of in-world content. In particular the players' ability to create and customize their own avatars as well as other content in the virtual world offers opportunity for more flexible identity construction and expression. While these structural elements are key in setting the stage for play, it is how players negotiate their entrance into these worlds and their everyday

interactions with others that reveal how gender is performed. Thus we cannot assume that the acts of self-construction so prominent in virtual worlds result in a space that is free of gender; in contrast, as several researchers have argued, the same gender and racial stereotypes that are dominant in "meat life" often act as a kind of default in this digital public [2, 24].

Tweens are an interesting age group as they straddle childhood and adolescence and aim at redefining new relationships with peers. Research by Barrie Thorne [28, 29] has shown how girls and boys of this age negotiate differently their gender performances in classrooms, lunchrooms and schoolyards. In addition, Marjorie Goodwin's [14] research on playground interactions illustrated another facet of gendered interactions by focusing on how girls achieve social positioning through verbal aggression in groups. While both of these researchers studied real life spaces, much of these social interactions for tweens have now moved online. Because of their large number of participants, design opportunities, and perceived anonymity, tweens and teens have quickly adopted virtual worlds as new places where they can hang out without much adult supervision. For that reason, researcher Danah Boyd [3] called them the new digital public. It is in these places that tweens and teens test relationships and boundaries, or conduct what Thorne called 'borderwork', in terms of their gendered identities.

The focus of our investigation was then to examine more closely the everyday interactions in how girl players established themselves in Whyville.net. Based on prior research [17] in Whyville and an after school gaming club where 21 members played on Whyville, we had some knowledge of how tween girls and boys interacted in both of these spaces. In the club, some activities were shared between genders. For instance, both boys and girls heavily engaged in dressing and shopping for their avatars, often involving others in their shopping by asking for advice on what looked good. Both girls and boys also sought help and advice on playing science games or learning the logistical ins and outs of Whyville. However, at least in the shared space of the club, some activities differed. One popular activity among the boys was using pick-up lines to get girlfriends in Whyville, for whom they would sometimes shop for cheap avatar jewelry. Not once during the club did we have evidence that girls flirted on Whyville. Another common activity of the boys was projectile throwing, a kind of rough and tumble play reminiscent of a snowball fight that actually did result in some rough housing in the club on occasion. Though some girls learned this, in the club, they did not engage in this sort of play as loudly or as often as the boys. However, when we investigated this practice more closely we discovered that in fact almost all of the girls

did throw projectiles in Whyville [12]. This discrepancy between girls' activity led us to question what other practices girls might have engaged in differently between the club and Whyville, and whether any of these practices were transgressive in that they pushed against stereotypes of what girls do (such as throwing projectiles).

To examine these transgressive aspects of gender play, we employed a novel form of qualitative logfile analysis. Some researchers have used logfiles selectively over a short period of time, for instance two girls over a few days [4] or a small group during a few class periods [6]. Others have done extensive quantitative analysis of logfiles [30] or analyses of social networks [8] or combined multiple data sources [10]. Perhaps the most common *qualitative* use of logfiles is to collect and analyze chat [25, 27] but collection of chat has generally been limited to whatever place the researcher virtually inhabits at a given time.

CONTEXTS AND APPROACH

Whyville.net is a virtual world with over 1.2 million registered players (at the time of our study) that encourages youth ages 8-16 to play casual science games in order to earn a virtual salary (in 'clams'), which youth can then spend on buying and designing parts for their avatars (virtual characters), projectiles to throw at other users, and other goods such as cars and plots of land. The general consensus among Whyvillians (the citizens of Whyville.net) is that earning a good salary and thus procuring a large number of clams to spend on face parts or other goods is essential for fully participating in Whyville (see the picture of the Beach in Figure 1).

Figure 1: Chatting on the beach in Whyville

In 2005, we developed a multiple site online and offline study in collaboration with Whyville's host company, Numedeon. First, an after school club was set up where 21 older children (tweens) in the 4th-6th grades (9-12 years old) came to play on Whyville for an hour most days after school. While the club began as a quiet place, it quickly became loud and lively as participants learned the site and began to shout advice to each other, arrange parties on Whyville, chat, throw virtual projectiles at one another, and critique each other's avatars [17]. Most youth were new to Whyville so learning to participate in the site was a common (if tacit) goal. Club members eagerly displayed their knowledge of the site by offering advice and answering questions, such as how to create a good look or throw a projectile [12].

In addition to the clubhouse, we had 46 sixth graders participate in a classroom component with Whyville that run a virtual epidemic in conjunction with their science curriculum on communicable diseases [19]. We also recruited over 500 online players who consented, like the club and class members, to be tracked and participated in surveys. Club and class activities were recorded with two rotating video cameras capturing group interactions and field notes. We conducted interviews with club and class members about their Whyville experience. In addition, we indexed in logfiles participants' names and time-stamped every move and chat interaction. In the following sections, we describe how we structured the two approaches to analyzing the logfile data, in conjunction with some of the other data sources.

Quantitative Analysis of Tracking Data: Player Profiles

On a typical day, Whyvillians log into Whyville, engage in various activities and visit different locations. They can check their y-mail (email) accounts, participate in various science focused games to booster their virtual salary in 'clams', read articles posted and written by other members of the community, and visit popular locations, such as the virtual beach or moon, to interact with other players. In addition, players can participate in the Whyville economy via the Akbar's virtual mall to buy, sell, and trade avatar face parts. These are just a sample of the abundance of potential activities and locations available to Whyvillians. Working in collaboration with Numedeon, the company that hosts Whyville, we collected and analyzed tracking data for 595 recruited players to study their travels and activities in Whyville.

The tracking data consists of over 7 million data points indicating location visits and activities over a six-month time period (approximately 26 weeks). In order to look at individual patterns of participation, we created 13 categories of locations and activities: (1) Ymail - checking email, (2) Whypox - looking for information or participating in activities related to whypox, (3) Whisper – private chatting, (4) Social –

visiting any primarily social location, where players can chat, (5) Multiplayer Games – participating in multiplayer games (checkers, etc.), (6) Misc – unidentifiable or miscellaneous sites or activities, (7) Info-com – looking for information in the weekly newspaper, reading communicating information, and other information related sites, (8) House – visiting or constructing one's house or the taxi (the means to get to Whyvillians' homes), (9) Game – play salary-raising games, (10) Face – shopping, trading, creating or putting on face parts (avatar construction), (11) Economic – looking at salary or bank statements, (12), Chat – chatting, and (13) Bbs – visiting/reading online bulletin board.

Using these 13 categories of activities and locations, we first compared girls' and boys' participation patterns by examining the raw number of times players participates in each category (see Table 1).

Table 1. Independent samples t-test results and descriptives.

Categories	Girs (N = 449)		Boys (N = 233)		t-test
	Mean	SD	Mean	SD	
bbs	460.10	(2066.17)	308.15	(1153.95)	1.04
chat	6579.04	(11933.20)	7052.67	(12725.35)	-0.48
economic	634.34	(736.01)	890.43	(1386.26)	-3.15**
face	4060.46	(4648.64)	3874.41	(6746.34)	0.42
game	524.18	(565.96)	702.82	(764.62)	-3.45***
house	155.86	(223.95)	183.27	(318.76)	-1.3
info_com	402.78	(877.03)	394.80	(914.01)	0.11
misc	719.90	(2547.40)	755.90	(2222.81)	-0.18
multigam	132.00	(375.80)	315.37	(963.56)	-3.55***
social	1679.37	(2194.84)	1830.53	(2684.16)	-0.79
whisper	601.19	(1183.82)	678.89	(1558.30)	-0.73
whypox	37.05	(28.88)	45.75	(49.71)	-2.89**
ymail	3572.63	(4878.93)	3024.12	(3823.95)	1.49

Note: **p<.01, ***p<.001. Results were also replicated with negative binomial regression.

The results of the independent samples t-tests comparing boys and girls gaming patterns across the 13 categories reveal only a few significant gender differences. That is, compared to girls, boys participated significantly more in economic, game, multigame, and whypox-related activities. No other differences were found in the raw number of participation across the categories, including the top 3 categories of participation: chat, face, and ymail. Even though there were significant differences in participation between boys and girls, these differences were relatively small. For instance, the greatest difference between boys and girls (about 178 clicks over 6 months (180 days) in salary-raising game spaces on Whyville) is a difference of less than 1 click per day. All the other differences are even less.

Second, to identify groups of similar individuals based on their gaming patterns, we conducted a Two-Step cluster analysis using the 13 categories. Prior to analysis, the raw number of visits to each category was standardized. This was done because each category varied greatly in terms of popularity. For instance, chat participation averaged over 6000 visits, while ymail average less than 3500 and games less than 700. Standardizing focuses on participation within each category, and simplifies interpretations of clusters or groups. This process resulted in a mean of 0 (that represents approximately the 50th percentile of the sample in terms of participation) and a standard deviation of 1. Therefore, positive values indicate group means greater than average (50th percentile) participation, whereas negative values indicate group means less than average (50th percentile) participation. This analysis has all the features of traditional cluster analysis (e.g., k-means approach) in identifying the optimal number of similar individuals based on a set of variables. It was designed to handle large datasets and automatically select the number of mutually exclusive groups rather than have the researcher predetermine them. It uses a log-likelihood distance measure approach and Bayesian Criterion (BIC) to determine the number of clusters. We tested different configurations (open, fixed) but in all instances the BIC model index began to level off after the three-cluster model, the results of which will be presented in findings section.

Qualitative Analysis of Tracking Data: Player Portraits
To begin to more closely understand girls' differential participation in Whyville, we choose three girls from the afterschool to be case studies, choosing one from each of the three categories generated by the cluster analysis. We isolated their logfiles, and by going click-by-click through the data, we first created minute-by-minute summaries of their Whyville activities and then condensed these into short daily narratives that noted patterns and innovations in participation. Each line of the logfiles contained a girl's username, a time stamp (year-month-day-hour-minute- second), her location in Whyville, and if applicable, chat or whisper text. In all there were roughly 15,000 (Briana/whskr29), 27,000 (Isabel/ivy06), and 54,000 (Zoe/bluwave) lines of text in the each of the case study's logfiles. To create the minute-by-minute summaries, we sampled the days they were on Whyville, selecting the first seven days to see the initial change of participation in Whyville, and then alternating every 5 or 6 days to ensure breadth of days of the week in our sample. In all we analyzed about 30 days during their six months on Whyville from January 11 to June 5, 2005. In the final interpretation of their activities, we also took into

account video, field note, and interview data from the club (where available), looking for consensus or discrepancies between their activities and "ways of being." In the rest of the paper we use their Whyville usernames, when describing Whyville activities and a real name when describing interviews or after school club activities. All names, user or real, are pseudonyms.

To summarize, below we outline the steps in the qualitative analysis of the case studies: (1) Selected case studies based on relative participation in Whyville, (2) Isolated case study logfiles from larger database, (3) Sampled the first 7 days, and every 5 or 6 days afterwards for 6 months, (4) Created minute-by-minute summaries of logfiles, (5) Created short narratives of each day, noting patterns and changes in participation, and (6) Brought in videos, field notes, and interview data during the final interpretation. We note that in the final interpretation we often went back to the original logfiles to fill in our understanding of a transition in participation or to flesh out an important moment.

FINDINGS

Player Profiles

By looking at the 13 categories of location visits and activities, we identified three mutually exclusive groups of Whyville players (see Figure 2). Peripheral Gamers (59% of players) were the most limited in their Whyville participation, and showed little more than a passing interest. This can be seen in their below average participation across the 13 categories. The Semi-Core Gamers (34%) were the ideal 'average gamer', and were relatively active participants in all aspects of Whyville, with key focuses on game, whypox, and ymail as well as face, economic, and social categories. The Core Gamers (7%) were the most heavily involved Whyvillians across all 13 categories, with particular involvement in the core social aspects of the virtual world (i.e., social, chat, ymail, whisper) as well as economic, and face locations.
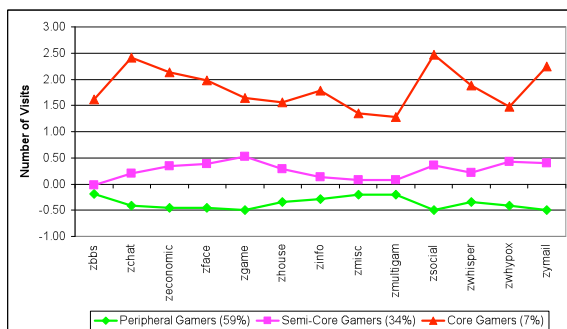

Figure 2: Player profiles

Basically, the cluster analysis shows three types of participants, regardless of whether they were boys or girls (we repeated the cluster for boys and girls separately with the same results). This leaves us to study what kinds of differences we might find at a more qualitative level of analysis through our case studies of three girls, one from each cluster of participation.

Portraits of Participation

The player profiles helped us select three case studies of girls from the club, each representative of one of the groups: Zoe/bluwave (core), Isabel/ivy06 (semi-core), and Briana/whskr29 (peripheral). The goal of this study was to go beyond the analysis of participation patterns, and focus on the patterns of the girls' progression of participation on Whyville and pursue any transgressive practices that were not visible in the club. First, we provide a background of the girls' regular "repertoires of practice" [15] on Whyville. Regardless of their "profiles" as a core, semi-core, or peripheral players, all of the girls engaged in some shared practices on Whyville. Then we detail an examination of the different types of transgressive play.

Learning to "be" on Whyville

Early on, our girl players took up what is probably a very familiar pattern of Whyville participation: logging on to Whyville, checking ymail messages (Whyville's e-mail system), checking their bank statements, adjusting their looks or avatars (using a feature called "Pick Your Nose"), and then alternating between socializing and earning clams, perhaps with a shopping break at Akbar's Face Mall (where players can use clams to buy face parts for their avatars). Earning clams is accomplished by playing science games, trading face parts (for a profit), or designing and selling face parts – the latter of which is more difficult than meets the eye and is usually only taken up after several weeks of participation [21]. To illustrate, bluwave gradually built up her salary by finishing several levels of science games, going through periods of heavy and light play on these games: she played salary-raising games more regularly during weeks 1-3 and 6-8, with a dip in participation during weeks 4-5. In creating her avatar, she began with donated parts from Grandma's – Whyville's charity – supplemented with parts from trading at the Trading Post or shopping at Akbar's Face Mall. After her first two weeks, she completely left off going to Grandma's and relied solely on shopping and trading. This in itself was a move toward higher competence in Whyville – what might be considered an important move toward a socially acceptable look since parts from Grandma's are generally held in ill-esteem by other Whyville players (*ibid)*. Although whskr29 and ivy06 differed in the length of time before they

stopped going to Grandma's, in the timing of their streaks of deeper investment in their salaries through playing science games, and in how many and which games they played, all three girls engaged in these repertoires of practice during their first 6-8 weeks in Whyville.

Transgressive Practices
Some aspects of the three girls' virtual lives surprised us because they were not captured in our field notes or video records of their play in the after school club. In other words, analyzing the logfiles minute-by-minute revealed differences in their play in a shared physical space with friends from school and in their play in Whyville. For instance, all three girls flirted regularly throughout their time on Whyville. This was in direct contradiction to our prior analysis of field notes and videos from the after school club, where talking about flirtatious episodes in Whyville was solely the boys' practice. All three girls also threw projectiles more frequently and creatively than we were given hints of through our club data. Perhaps most interesting is that they all struggled to be identified through their avatars in the ways they initially desired; there was a discrepancy between how they were perceived and how they wanted to be perceived. Both Zoe/bluwave and Briana/whsker29, African-Americans in real life, tried but found it difficult to identify visibly as African-American on Whyville, in part because face parts with dark brown skin colors were not very common [18]. Bluwave resolved this dilemma after a few weeks by becoming "Latino" [12] while whskr29 became a pixie (a class of avatars on Whyville with purple skin). Ivy06 had the awkward experience of being perceived and talked to as a boy rather than the girl she intended to display through her avatar. She eventually dressed as a boy for a period of time before returning to a girl avatar that was more successfully perceived as such. These changes might be seen as part of the girls' developmental learning paths to create culturally recognizable "looks" with the available resources and social constraints on Whyville [18].

There were also different ways that each girl engaged in transgressive play. We begin by discussing whskr29, who was the most frequent projectile thrower amongst all the after school club members, even though projectile throwing did not appear to be a frequent activity amongst the girls in the social play at the club. Considering that she belonged to most peripheral group of players on Whyville, her throwing should be considered a significant part of her social activities on the site. Yet not just her quantity of throwing but the ways that she used throwing projectiles to socialize are interesting and transgressive in light of traditional stereotypes about girls. For instance, she threw a great

range of projectiles – not just the more frequent emotes (sads, smiles, winks) but also flirtatious objects (hearts, kisses), sports objects (footballs, soccer balls, Frisbees), and gross objects (maggots, garlic), using the latter to retaliate against others' comments that she disliked. Further, whsk29 was the only club member who played the Zero Gravity Game, a game that involved throwing projectiles in one direction by degrees to move in the opposite direction in a frictionless environment (see [11] for further descriptions of projectile throwing). This could be considered as going against stereotypes that girls do not enjoy abstract science or mathematics. All of these uses of throwing go against a traditional view of girls – throwing gross things (exploding maggots), throwing sports objects, throwing as a frequent form of rough and tumble play, flirting by throwing, and engaging in abstract math and science play. In the depth and breadth of her projectile throwing activities, whskr29 stood out not only among the girls but amongst the club members as a whole.

Ivy06 transgressed gender boundaries in what might be considered a more exotic kind of practice – heavy flirting and a period of cross-dressing. Flirting is a common practice on Whyville, usually consisting of short pick-up lines ("r u single" or "asl" for age/sex/location) and maybe a follow-up conversation or exchange of ymails [22]. It is generally an exploratory practice that falls under the scope of anticipatory socialization [9]. What is unusual about ivy06 is the frequency and depth to which she pursued flirting – even though she claimed she never managed to get a boyfriend on Whyville. Part of what made ivy06's flirting atypical was her acting as a boy, a practice she began after being mistaken for a boy and that she continued for several weeks. Perhaps she was exploring gender roles or just taking advantage of Whyville's gender imbalance: since there were fewer boys than girls, it might be easier to solicit relationships if one is a boy. Regardless, she took advantage of her unintentionally ambiguous avatar and flipped between acting as a boy and a girl, even on a single session in Whyville. For instance, on just her second day in Whyville (January 28) as part of a long day of activities, she went to Dr. Leila's Patio and whispered to someone, "will u be my boyfirned [*sic*]," then minutes later went to Whyville Square and asked, "will u be my girl frind [*sic*]." Ivy06's flirting behavior was also unusual because she not only flirted at the relatively shallow level of pick-up lines but also engaged in risqué behavior, making out (verbally), and even dancing with two avatars one above another. We recognize that these practices are controversial given the age group on Whyville, and want to reaffirm that Whyville has many safeguards regarding appropriate

behavior on the site and that this kind of activity is relatively unusual on Whyville. Yet for ivy06, it was also a relatively safe way of exploring intimate talk and activity. She only engaged in these practices after viewing or conversing with someone else about them and did not pursue these more risqué activities more than a few times. One implication of her pattern of learning and repeating a practice a few times is that she seemed to be exploring these practices and that she may not have internalized them as something she wished to pursue long term.

Bluwave also engaged in transgressive behavior in Whyville. On February 21, six weeks into her life in Whyville, bluwave began to scam or fraud other Whyvillians out of their clams for a period of two weeks. It began when she herself was scammed. In the main lobby of the Trading Post, where Whyvillians mill around trying to identify people to trade with before moving on to a specific Trade Room, some Whyvillians broadly solicited people who wanted their "clams doubled." She was a victim of the scam, losing all of her money, but after publicly blaming the perpetrators she began enacting the scam herself. Over the next two weeks, bluwave consistently tried to get unsuspecting Whyvillians to fall for the "clam doubling" scam as it is known among Whyville designers. This involved going to densely populated areas on Whyville like the Beach and the Trading Post Lobby and asking people "do u want ur clamz doubled?" If someone expressed interest, she directed them to a specific trading room and enacted the scam (for more details see [12]). From a chat frequency count, we know that she used the word "doubled" over 200 times, demonstrating persistency in her scamming activity, though it did not continue past two weeks. In a single day (February 25), she actually recruited for her scam 30 times in 90 minutes and got six people to go to a trading room. We know that she completed her scam at least once and probably enough times to keep her continuing at it for a time. Though we do not (and cannot with our data) know whether bluwave ceased this scamming activity because she grew tired of it or whether an authority on Whyville told her to stop, based on our analysis she never took up a different kind of scam for the duration of the six months of the study, leading us to believe that this was a temporary phase in her Whyville participation. In some ways, bluwave's scamming could be seen as part of her efforts to be an insider on Whyville and in one sense it demonstrates her growing expertise in Whyville. It certainly transgressed Whyville policies and ethical expectations at her school as well as traditional stereotypes of girls as obeying rules.

DISCUSSION

Our research provided us with multiple perspectives on girl players. We started with a standard approach of comparing the participation frequencies of girls to those of boys in Whyville and observed some limited gender differences – none of which were pervasive. While some researchers [16] have argued that this approach lacks interpretational depth by neglecting to take into account how access to game spaces is negotiated and how gender performances are constructed in interactions, we used it as a starting point for exploring Whyville's unusual player demographics where the majority (68%) of players are girls. This situation is unlike most other games or game spaces where often boys rule. It is possible then that the lack of gender differences we observed is due to this unique composition of the player group. Such an explanation of course neglects to take into account that the gendering of play and spaces is not solely determined by the presence or absence of one group. Social norms of what it means to be a girl are present in Whyville, notably visible in the large number of blond haired avatars, a heavy emphasis on avatar representation that indicates status and tenure in Whyville and impact the opportunities to socialize with others.

But for us this analysis of gender differences was the mere starting point to investigate in more depth the large group of girl players. We found that once we examined the clustering of online activities in more detail, three distinct player profiles emerged. The first group consisted of a core player who heavily and consistently engaged in numerous Whyville activities; this group constituted just 7% of all players. The second, larger group (about 33%) we called semi-core players, and were much less present in Whyville activities. The largest group of all (about 60%) was what we called peripheral players, who dropped in occasionally and disappeared at times. These findings are consistent with observations in other virtual worlds and multi-player games that often find a relatively small group of players or gamers responsible for the majority of postings or interactions. One can argue that what we observe in Whyville is the emergence of the girl player as their profiles seem to capture the gist of other players.

In a final step, we selected case studies for each of our player profiles to get a better grasp on how girls developed as players in Whyville over time. Our methodology was unique because it was not based solely on in-person observations but relied heavily on logfile analyses that allowed us to follow girl players far beyond their rather limited participation time in an after school club and over several months. Most importantly, it allowed us to see an aspect of

transgressive play that so far has mostly been observed in boys' online play [1]. Our three case studies, Zoe/bluwave, Isabel/ivy06, and Briana/whskr29, challenged traditional notions of what it means to be a good girl. Whskr29 engaged in frequent and multimodal throwing of projectiles as a major form of her socializing. Ivy06's practices of heavy and at times aggressive flirting, had her turn the tables and approach both boys and girls onsite. In bluwave's case, her scamming was largely viewed as a temporary act, initiated by being scammed by others, leading her to an intense two week period where she used her expertise in Whyville to cheat others. For ivy06 and bluwave, these types of transgressive play can be viewed as temporary and/or experimental as they sought to establish their identity within and possibly outside of Whyville.

What was perhaps most illuminating about these three activities is that they were not visible in regular club interactions. Girls, in contrast to the boys, often declared publicly "whydating is whack" (Briana's statement) and did not mention their flirting or scamming, possibly because they knew these activities were not condoned in the club. But these activities might provide a window on why tweens and teens alike migrate to these sites in large numbers because it allows them to explore and get to know each other with less adult supervision. In the public media, aspects such as gender swapping and predation have received far more attention, and while they are present, do not capture the full gamut of activities. Our case studies bring up questions regarding what other kinds of transgressive practices girl players engage in, whether these are temporary phases or become a part of the girls' repertoires of practice, how virtual worlds serve as places to explore transgressive practices, and what kinds of constraints virtual worlds may place on such exploration.

In working with both log data files to drive the key aspects of our study, we acknowledge some limitations in this approach. First, the methodology and analysis of log data files is relatively new [20]. Without established criteria, criticism can arise in regard to our aggregated analysis of sixth months worth of data compared to more detailed insights from shorter or selective periods, use of fewer participants, and/or analysis of a single online location [4, 6, 25]. Second, analysis of the logs was often like listening to a one-sided telephone conversation because only consenting players' logfiles and chat were recorded and available for analysis. We are left to guess at what others were saying, and when they switched from talking from one person to another. Occasionally if participants were from school and data exist in both online and offline formats, we could identify and document a fuller

conversation. Third, we do not have all the club members' online data. This includes screenshots or special records of their movement within particular spaces on Whyville; this may be provided visual confirmation of activities, such as moving next to each other when whispering or closeness of the relationship between two individuals. Lastly, ymail (emails) were not gathered to document developing or enduring relationships because these were deemed more personal than live chat.

The research presented in this paper shows that we need to open up our perceptions of boy or girl players and resist the urge to essentialize them – as feminists have argued for a long time. Now that girls and women are joining gaming in even larger numbers, we need refined methods to understand how they come to enter and interact in these spaces, use these unique spaces to explore different ways of being, and push gender boundaries that can be constraining. These studies should not solely focus on teens and women players but include tweens and even children who are using virtual worlds as more and more frequent spaces of play. While we have investigated the transgressive practices of three girls in this paper, further studies should explore these kinds of practices more broadly amongst girls and also boys, to see how they might transgress traditional stereotypes of play.

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