CONNECTIONS AND COMMUNITIES IN VIRTUAL WORLDS DESIGNED FOR CHILDREN

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As more and more people are interacting through online spaces, questions emerge as to how these computer-mediated interactions impact people’s social connections and ability to form communities. Some of the online spaces that are exceedingly popular are virtual worlds designed specifically for children. This study, using participant-observations and content analysis, explored how users communicate, form connections, and develop community in children’s virtual worlds. This 3-year study found that users find creative ways to bypass design features to share personal information, establish group membership, and build connections both in the virtual worlds and on their accompanying fan sites. These findings provide valuable insight into the social affordances of popular online spaces for children, as well as expand modern-day conceptualizations of social connection and community. © 2013 Wiley Periodicals, Inc.

In recent decades, the Internet has become an increasingly pervasive influence and socializing agent in children’s lives (Gutnick, Robb, Takeuchi, & Kotler, 2011), and more and more children are venturing into online spaces that are designed for social interactions including social networking sites like Facebook, online games like Poptropica, and virtual worlds like Club Penguin. Many of these sites are designed specifically for children, with a goal of providing a safe and adult-monitored online space. Part of this protection involves restricting online activities via limited communication features and continuous

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monitoring (Grimes & Fields, 2012). However, such restrictions also may limit the ways in which young users can connect with one another to form meaningful relationships and participate in social groups or online communities. Looking specifically at virtual worlds designed for children, this study explores the ways in which children bypass restrictive design features to establish interpersonal connections, form cohesive groups, and perhaps even develop communities.

Over the years, Internet researchers have provided detailed accounts of the ways in which online groups create and express solidarity and provide social support for members (Baym, 1998; Gray, 2011; Wellman & Gulia, 1999). Such research has also explored how the hallmarks of traditional communities such as shared interest, interdependence, communication, and emotional connection (Dalton, Elias, & Wandersman, 2001; Sarason, 1974) are present in many online groups, thereby making the case for the existence of virtual or cybercommunities (Baym, 2007; Nip, 2004; Reich, 2010). More recently, however, scholars have problematized these notions of online community, suggesting that they are overly grounded in a conception of community that is bounded by physical space (Castells, 2001). This body of work stresses the complex and ephemeral nature of many online communities, as unlike their physical counterparts, virtual spaces can spring up and disappear at a moment’s notice.

Moreover, being part of a particular online social group might involve activities and interactions across a network of virtual spaces. As a result, Internet researchers have shifted to include networks rather than geographic proximity as markers of sociality and community (Castells, 2001; Fernback, 1999). From this perspective, intimate interactions, the provision of social support, and the development of group cohesion might take place across a constellation of related websites. For instance, social connections formed on a virtual world might also involve communication through other websites such as fan sites and blogs. Therefore, to explore social cohesion, connections, and community in children’s virtual worlds, it seems worthwhile to consider whether children’s social connections are bounded by the digital borders of the virtual world or seem to cohere across online networks, such as fan sites as well.

Virtual Worlds for Children

Virtual worlds, unlike online games and game consoles, are designed without coherent goals but instead allow users to navigate graphically rich environments through the use of an avatar. Although well liked by adults (tnl.net, 2011), virtual worlds are growing in popularity with children, with an estimated 1.9 billion registered accounts in the first quarter of 2012 (KZero, 2012). Children aged 7–13 years account for a significant portion of these users (Mitham, 2013), with children aged 5–9 years being the fastest growing demographic (Gilbert, 2009). Many of the virtual worlds frequented by children are designed specifically for young people, with avatars taking a variety of forms such as penguins (Club Penguin), monsters (Moshi Monsters), real and fantasy animals (e.g., Webkinz, Pixie Hollow), or people (e.g., Bearville, Whyville, Wizard101). The vast majority of such worlds allow users to personalize their avatar to some degree by selecting outfits, body shape, skin and hair color, and/or gender.

Research has found that children use their online activities globally (Reich, Subrahmanyan, & Espinoza, 2012; Subrahmanyan & Smahel, 2011) and virtual worlds specifically (Fields & Kafai, in press) in service of developmental needs such as the formation of identity, intimacy, and independence. However, in considering the use of virtual worlds to build connections and relationships, less is known about how young users might use
these virtual spaces to form stable collectives such as peer groups, subcultures, and communities. There is evidence that adult users on sites designed for adults such as Second Life do form these types of collectives (Boellstorff, 2008). However, communication features, activities, and individuation are less restrictive in virtual worlds for adults than those designed for children.

**Safety and Restrictive Features For Children**

Prominent researchers in the area of virtual community have noted that technologies of communication are central to the development and maintenance of online communities and their shared cultural practices (e.g., Baym, 1995; Jones & Prinz, 2005). However, due to concerns about online predators and potential bullies, virtual worlds for children tend to be restrictive in their design features. The most common restriction involves the communication systems. All children’s virtual worlds have some type of chat feature that enables users to communicate with one another. The chat systems either allow free typing or have a drop-down menu messaging system in which users can select words or phrases from a menu of game-created statements and questions (e.g., “How was school today?” “I’m feeling silly!”). The free typing systems allow users to type in messages but can vary in their level of restrictiveness, ranging from having a dictionary system in which only approved and correctly spelled words can be used, all the way to allowing any character/text combinations to be typed, including misspellings and nonstandard spellings (for details see Black & Reich, in press; Reich & Black, 2012). Many of these chat systems are monitored by employees of the company hosting the virtual world or by other users (Club Penguin, 2012; Grimes & Fields, 2012), and most limit the areas of the virtual world in which communication is possible. For instance, in Webkinz World, avatars are allowed to communicate with one another in three areas only: Kinzville Park, Kinzville Clubhouse, and individual user’s own virtual room (My Room).

Additional restrictions within children’s virtual worlds include the ways in which users can select friends, find those friends when in the world, and how they can play and interact with one another in the virtual world. Like popular sites such as Facebook and MySpace, virtual worlds for children require reciprocation of friend requests for children to become “friends” or “buddies.” However, many of these virtual worlds allow for public conversations (e.g., speech bubbles overhead) between users that are not reciprocated friends. Once users are friends, it can often be challenging to find one another in the virtual world, as they must be on the same server, in the same game area, and sometimes on the same chat channel to connect. Some virtual worlds allow users to invite one another over to their personal space (e.g., room, house, igloo), but few have features that allow users to find one another when playing in different parts of the virtual world, especially if the world involves logging into one of several servers. Further, once users find each other, they are often limited in the ways in which they can interact. For instance in Webkinz World, users can play specific card games like *Go Fish* together but cannot use the cards to play other types of games or make up games of their own.

Given that the “technologies of communication,” or ways for selecting, finding, playing, and communicating with friends are limited in virtual worlds for children, this study focused on how users might build social connections and form collectives or communities even with these limited design features. Specifically, the following questions were explored:
How do users interact and share personal information with one another, especially when communication features are highly restrictive?

How do users form social connections with one another and are there ways in which users can outwardly display these connections?

Is there evidence of the formation of collectives or communities within virtual worlds designed specifically for children?

**METHOD**

To explore how users might communicate and meaningfully connect to one another in virtual worlds designed specifically for children, in-depth content analyses of these spaces were conducted in conjunction with unobtrusive observations of public spaces within these worlds.

The data used for this project were collected as part of a larger cross-case analysis of the educational, social, and developmental affordances of virtual worlds for children aged 3–12 years. Using participant-observations, all three authors with the assistance of several undergraduate students spent collectively over 2,000 hours (from May 2009 to August 2012) exploring popular virtual worlds (with popularity determined by numbers of registered users) for children and observing interactions among users in these worlds. Although nine virtual worlds were observed during this period (Club Penguin, Barbie Girls, Webkinz World, Wenkinz Jr., Bearville, Moshi Monsters, Gaia, Zwinky, and BellaSara), the bulk of the observations occurred on Webkinz World (webkinz.com) and Club Penguin (clubpenguin.com), with researchers visiting these sites several times a week.

As part of data collection, researchers gathered images from their exploration of every feature of these sites and kept detailed field notes throughout the process. Interactions between users and instructions from Non-Player Characters or NPCs (game-generated characters that interact with players through scripted messages) were video captured. Then, the field notes, videos, and screen captures were compared and discussed during weekly lab meetings. Once comprehensive maps of these worlds were created, including detailed accounts of the features of activities and spaces available to users, these were used as guides for observing user interactions. In addition to observations on the sites, content analyses of fan sites associated with two of the virtual worlds (Club Penguin and Webkinz World) were conducted. Fan sites are websites created by users to share information about a specific virtual world. These sites typically have discussion forums, Frequently Asked Questions (FAQ), and image/picture sharing and are not formally affiliated with the virtual world for which they provide information. These sites were included in the analysis because they not only served as an extension of social connections formed in the virtual worlds, but they also include a great deal of user-generated information about the affordances and constraints of virtual world features. These fan sites may be viewed as part of the networks of sociality surrounding these virtual worlds.

Because communication features in these virtual worlds are public, weekly observations were made of users’ interactions in social spaces (e.g., Webkinz Clubhouse, Club Penguin’s Disco, Bearville’s Pawforming Arts Center) as well as users’ personalization of avatars. No effort was made to communicate directly with users during these observations. Each researcher’s avatar was named “Researcher” and friend requests were never accepted. Since conversations between users occur as text bubbles, all public communication was visible. This method of unobtrusive observation (i.e., lurking) is commonplace in...
online research (e.g., Subrahmanyam, Greenfield, & Tynes, 2004) and has been considered “analogous to a researcher taking notes on a public bench” (Buchanan & Ess, 2008, p. 285). Because no individually identifiable information was collected and the focus of this study was on behaviors globally, not individually, our presence had minimal risk to users on the site. A university institutional review board approved all study activities.

Analysis

Data from the participant-observations were analyzed using an open-ended, qualitative protocol that focused on the design features of the virtual worlds including such things as communication systems, activities, social spaces, and the interactions between users in the virtual worlds and on the fan sites. Theorists have noted key features of community building (Heller, 1989; Sarason, 1974). These include shared communication, expression of personal identity as part of the group, a feeling of connection, and the establishment or observance of shared rituals and norms (Blanchard & Markus, 2004; McMillan & Chavis, 1986). We used these indicators to guide a top-down or deductive approach to coding data (Saldana, 2009). However, in virtual spaces with millions of users, traditional hallmarks of community may not always apply; therefore, we also employed a bottom-up or inductive approach to coding (Saldana, 2009) as a way of remaining open to alternative expressions of group affiliation within these technologically mediated spaces. Using our disciplinary lenses (community and developmental psychology, applied linguistics, and anthropology), we met regularly throughout the study period to identify themes that emerged both from the data and from the extant literature, refine these themes with the collection of new data, and expand our data collection technique in light of these emerging themes (Lincoln & Guba, 1985; Strauss & Corbin, 1997).

RESULTS

Communication

Data suggest that the communication features in these virtual worlds for children range from highly restrictive to less restrictive but highly monitored. The most restrictive communication systems involved drop-down menus with lists of preselected phrases in which users could only “say” site-sanctioned text. The next most restrictive chat systems allowed free typing but limited content. For instance, many of the dictionary messaging systems (e.g., Kinzchat in Webkinz World) prohibit words that would enable users to share personal information, trade insults, or discuss topics of a sexual nature. Therefore, numbers, names, most proper nouns, slang, profanity, sexually explicit terms, and misspellings are prohibited. Moreover, the site also excludes words and phrases that might somehow be used to circumvent any of these prohibitions (e.g., coming, on you, aged, baby) and words that simply have not yet made it onto their list of sanctioned terms (e.g., banjo).

Virtual worlds with completely free typing options (e.g., Club Penguin, Bearville) do not ban specific words or inventive spellings but do have heavy monitoring of chat between users. It is not uncommon for users to be banned/disappear from the site after typing excessively personal or profane text. As an example of these restrictions, the co-founder of Club Penguin explained in a recent interview that to keep their patented chat system safe, parent-approved, and kid-friendly, the site is supported by 200 professional moderators in seven offices around the world (Dignan, 2011). In spite of constantly evolving filtering and
banning technologies, moderators are kept on staff because of the nuances in meanings and word use within chat systems. Given the restrictive nature of communication on these sites, a significant topic of interest was how do users interact with one another and to what degree are they able to share information?

**Disclosing personal information.** After watching numerous interactions between users over this 3-year period, we found that players had creative ways of disclosing information that was typically prohibited on the virtual world. When free typing numbers was not possible (such as in Webkinz World), creative uses of approved words were utilized instead. For instance, when asked about age by another avatar, a user responded, “tin add tree” to denote 13. Creative uses of numbers were often exhibited for purposes such as conveying a particular room number in which to meet in the virtual world (e.g., Clubhouse #1; Park #2) and sharing information about year in school, number of years using the virtual world, and current age. Some examples of creative number sharing include “won” (1), “too” (2), “tree” (3), “sick teen” (16), and “twin tea” (20).

Similarly, in an effort to minimize the sharing of personal information, some sites ban questions like “what is your name” and “how old are you?” or responses that would involve the typing of a name. In Webkinz World, we saw a common slang phrase used to ask about names “what is your title?” and an even more creative response in which users would send a series of one word responses in which the first letter of each word would spell the name. “How hold are you?” was the common way to ask about age and “really world” to ask about the “real world.”

Slang specific to each virtual world was also evident in users’ conversations. For example, since all avatars are penguins on Club Penguin, “waa, waa, waa” became akin to the commonplace “lol” (laugh out loud) used in text messages, e-mail, and social networking sites. On several sites, common vernacular from other social media activities were used such as “BRB” (be right back), “GTG” (got to go), “TTYL” (talk to you later), “ROTF” (rolling on the floor), and “BFF” (best friends forever). On some sites, like Webkinz World, when slang words were banned and proper words were uncool, new slang was created. For instance, the word “shades” is not allowed but “sunglasses” is. However, users would comment on one another’s “shuts” rather than use “sunglasses.” Similarly, when complimenting a user on a good outfit, “rock and torn” was used to convey rare, unusual, or stylish clothes.

**Expressing emotions.** One differentiation theorists have made between virtual and traditional communities is the reduction of physical or social cues due to the computer-mediated nature of communicating in virtual sites, such as the lack of emotional (e.g., facial expression, tone of voice), behavioral (e.g., withdrawing from the conversation), and physical or space-related information. Our observations indicate users were aware of these limitations and resourcefully used other design features to provide physical and social cues during their virtual interactions. Both inventive chat and avatar manipulation were used to communicate emotion, tone, sensibility, and even ownership over space or physical intimidation.

Many of the virtual worlds for children allow users to add emoticons to their text such as a smiley face. This seemed to help convey a playful tone when typing with other users. Further, when users became frustrated or angry, many found creative ways to insult one another such as “lose her” (loser), “beach!” (bitch), and “stew putt” (stupid). Similarly, when flirting or talking with friends, many users utilized creative spellings to convey affection. For instance, “pokes” is not allowed but, when flirting, “paw oakes” is often seen
in Webkinz World. Similarly, “kiss” is prohibited on some virtual worlds, so words like “kitz” take its place. At times this was a quick “kitz” and other times users would position their avatars very close together and type a string of “kitz, kitz, kitz.”

Although avatar movement is limited in all the virtual worlds, users find creative ways to communicate nonverbally. All of the virtual worlds we studied allow users to walk around the site. Some allow avatars to jump or sit and a few have buttons that when clicked make the avatar dance. Even with these limited features, users were able to move their avatars to communicate meaning. For instance, when playful teasing or flirtations occur, users often turn their avatar away from one another or walk in a circle away from the other avatars. As an example, three avatars in Webkinz World, a poodle, a bulldog, and a horse were talking in the Kinzville Park. The two dogs were asking the horse whom he liked. When his response to “which one of us do you like like” was “the poodle I guess,” the bulldog got up from the bench, walked away then turned around and sat down on the bench again. The other two commented “giggle” and their conversation resumed.

Body language was also used to convey affection and aggression. When avatars were engaged in a hostile interaction, such as creative name calling like “as!” (ass), they would position their avatars as close as possible to each other, and in some virtual worlds, on top of one another. These were clearly seen as aggressive acts as the partner in the conflict often responded with another creatively spelled insult. Conversely, placing an avatar near or on top of another avatar was also used to convey affection, especially when used in the context of a pleasant interaction or accompanied by a term of affection like “kitz” or “hug.”

Although communication and movement features are limited in these virtual worlds, many users find ways to share personal information and express feelings, both positive and negative, toward one another. To determine the extent to which personal, and perhaps authentic (Ellison, Heino, & Gibbs, 2006), interactions and social connection were possible, we next explored these sites for signs of group connection, affiliation, and community.

Affiliations, Connections, and Communities

Given that movements and communication are limited but still usable by players to convey meaning and share information, we explored whether these features or others were used to build connections among users. Across many of the sites, there was evidence that clothing and avatar personalization were used as ways to denote connection to a group. While it was difficult to determine the level of affiliation, we saw evidence of shirt color or costumes used to denote group membership. For instance, in Club Penguin, those wearing only a hyena costume on Earth Day would talk to one another. In Bearville, users wearing all gold-color clothing marched together in support of breast cancer awareness. Or in Webkinz World, multiple avatars wearing identical red shirts were labeled as a group or family.

The creation of “families” was common on many of these sites, and on Club Penguin in particular, there were established ways in which users could connect to make a family, with each member having a specific role (e.g., mom, dad, teenager, toddler, baby). To form a family, users would visit the Pet Shop to meet and determine roles. Moreover, each of these roles required specific clothing and entailed distinct behavioral patterns (e.g., being a female toddler involves wearing a dress, preferably pink, and speaking with a w in place of the allophones r and l, a common feature of young children’s language—“wook happy” instead of “you look happy”). Interestingly, numerous fan sites associated
with Club Penguin provide detailed instructions on how to find/make a family and outline
the appropriate clothing and behavior for each role in the family.

Fan sites also provide instructions for participating in a variety of other roles such
as employer and maid, slave and slave owner, hockey team member, and robber and
business owner. These external sites also provide explicit instructions about where within
the virtual world to meet others interested in this type of role play, and for some situations,
the appropriate way to negotiate the connection, such as how much money to ask for as
a maid and then how to behave when cleaning your boss’s igloo.

Since finding “friends” in these virtual worlds is often challenging, meeting at the
same location on the same day and time was another way in which users seem to build
continuous connections and perhaps more stable relationships. For instance, in Webkinz
World, every Wednesday afternoon a group of users meet around the campfire at the
Kinzville Park to play Truth or Dare. Similarly, on Mondays in the late morning, a group of
homeschoolers can be found at the same room number in the Kinzville Clubhouse.

Some of these virtual worlds also try to foster a sense of connection and belonging in
these spaces by actively involving users in decisions about site features. For example, on
the official Club Penguin Blog there is a section titled “You Decide!” where site designers
solicit feedback. In one vote “penguins” were asked to vote for their preference of a new
game item with an associated action (e.g., a shovel that digs, a jackhammer that makes
flowers). Similarly, Webkinz World creators implemented a feature called Feedback Fridays
whereby users were able to provide feedback about adding new features to the Kinzville
Park. In addition, both Club Penguin and Webkinz World also incorporate periodic
activities that require users to work together to achieve a particular goal (e.g., penguins
throwing snowballs into a dragon’s mouth to extinguish its flame so that the entire group
can progress to a subsequent level in a game). These design features are explicit efforts
to make users feel a greater sense of investment in the game space by allowing a sense
of ownership over certain features (if they voted for them) and promoting collaborative
play between users.

Larger collectives and some communities. In Club Penguin, there was evidence of very large
group gatherings, often organized through external fan sites, in which users coordinate
dress and activities when in the virtual world. For instance, numerous robber groups meet
on external fan sites to plan the exact place and time for a robbery in Club Penguin.
In the virtual world, these penguin avatars congregate on the slopes, with bandanas over
their beaks and guns in their flippers, and collectively march into in-world businesses like
the coffee house or disco. Similarly, we identified more than 68 distinct military and spy
groups coordinated through fan sites, which execute military campaigns on Club Penguin
at regular days and times.

Interestingly, little conversation happens among members of these collectives (e.g.,
robbers, soldiers) while on the site, but in-depth conversation threads take place on the
fan sites. In part, this is due to design limitations, because there is no way to conference
or privately chat for the specific affiliation group. Fan sites, on the other hand, often offer
both asynchronous and synchronous means of communicating and planning—some of the
sites even require passwords to join the group chats to ward off espionage or participation
of nongroup members. Further, many of these fan sites work as a democracy, with elected
leaders heading the virtual world charge into robbery and mayhem. Through these fan-
generated sites, users can share personal information, provide feedback, guidance, and
mentoring to novice users, as well as advise on how to take on specific roles of various
social and fictitious characters, such as waiters, secret agents, and bank robbers.
Numerous fan sites are utilized to organize armies, brainstorm war tactics, form alliances, and recruit new members. Almost every army fan site we observed included a history of the army, a way to “join” the army, and a pitch that explained why that particular army was better than others. Some armies marketed themselves as evil, good, most populous, the oldest in the world, or the one with the highest ranking (with rankings determined by staged battles between different armies and a system of voting). Army fan sites also provided instructions for how users mark their avatar as a member of that particular army and ways to contact the army leader in the virtual world. For example, if one wanted to join the Rogue Assassins Of Club Penguin (RAOCP), one’s avatar would need to privately contact the leader of the army while in-world and demonstrate one’s affiliation with the army by wearing hooded clothing inside the Club Penguin world. In addition to roles and ranks within armies (e.g., general), ancillary roles, such as being a war correspondent or a peacekeeper, are also described through fan sites.

Space within the virtual worlds is also used to mark shared interest and affiliation within these sites. For instance, in Club Penguin, personal igloos can be made into such things as schools, clubs, or restaurants. Users can agree to roles within these spaces, and the school then will have teachers, students, and a principal, or the restaurant will have cooks, cashiers, servers, and customers who engage in shared sociodramatic play as they enact these roles.

Design minimization of collectives and community. Interestingly, during our 3 years of observations, we witnessed many user-developed groups and collectives that were incorporated into the design features of the various virtual worlds. With the formalization of each of these features, the social interactions between users were minimized. For example, Club Penguin now allows users to join the Elite Penguin Forces (EPF), a military spy organization that sends users secret messages and on special missions. While providing more elaborate ways to play soldier/spy, the EPF activities are primarily solitary in nature and either minimize user interactions or exclude them altogether. Similarly, many virtual worlds now allow for the adoption of children and pets that are NPCs rather than other users. As a result, children can play “family” with game-generated content rather than through sociodramatic role-play and interactions with other users. As another example, on Webkinz World, users can purchase a Zumbuddy, a small flying animal that hovers near the Webkinz avatar throughout play in the virtual world and simulates companionship. As additional incentive to purchase this virtual form of companionship, the addition of the Zumbuddy also makes a new area of the Webkinz World accessible to the user.

Even with these new design features, users continue to join user-created collectives and coordinate activities and in-world appearances to demonstrate membership within these groups. Some groups even actively work against these new virtual world features that replace user-created groups. For instance, The Robber Penguin Force (RPF), a user group established before Club Penguin added the Elite Penguin Force, utilizes fan and in-world interactions to undermine the EPF. Their own fan site is rife with user posts about supporting the RPF and undermining the EPF, such as this recent post:

This is a new era for RPF and we are almost dying so I want everyone in RPF at the moment to BE ACTIVE! Importantly, we must recruit in order to get more people and keep RPF alive, you can recruit on other chats, websites, CP [Club penguin] etc. We also need to DEFEAT EPF so RPF can rise! . . . DO NOT FAIL! (RPF, 2013)
Thus, in these large virtual worlds with hundreds of millions of registered users, we observed players making concerted efforts to form social connections, establish cohesive and outwardly marked social groups, and perhaps even develop communities that persist over extended periods of time.

DISCUSSION

In looking at cybercommunities, Koh and Kim (2003) identify three key components that contribute to a sense of virtual community: membership, influence, and immersion. Users must feel a sense of belonging to the group, they must feel that they have influence on the community and its members, and they should feel a state of flow during community navigation. From our observations, it is clear that virtual worlds for young children and their associated fan sites provide access to these components of virtual community. For example, users display group membership in a variety of ways, ranging from sharing personal information during regular meetings in the park, to joining a family and donning that family’s attire, all the way to planning elaborate military campaigns on fan sites and then staging them within the virtual world. Although influence is more difficult to observe within the virtual worlds, it is quite prevalent on the fan sites associated with these virtual worlds. Influence is apparent as players debate and decide on game strategies in blogs, choose group leaders in elections, and coordinate activities to be played out within the online world.

In addition, some of these virtual worlds actively seek to foster a sense of influence by providing in-world polls by which players can vote for particular features that they would like to see added to the game. Flow or immersion is much harder to determine from lurking behaviors. However, we did find that many users are regular contributors to fan sites, and avatars stay active on virtual worlds for extended (sometimes hours) periods of time. Moreover, the existence of long-standing social groups, such as avatars who meet in the same place at a scheduled time to interact in the virtual worlds or young people who maintain membership in and regularly contribute to fan sites over extended periods of time, suggests at least some measure of immersion in these worlds. It is worth noting, however, that while virtual worlds for children provide readily accessible ways for children to interact and build connections, the restrictive nature of their design features leads many users to circumvent site rules and/or turn to external sites to extend their capacity for unfettered communication and formation of social connections.

In considering these online communications, we should not, as Baym (2007) argues, conceptualize digital communication as an impoverished version of face-to-face communication but instead as a mixed modality that combines elements of what we usually conceive of as face-to-face communication, symbolic, and written communication. Used in tandem, these modalities provide a rich foundation for interaction. Moreover, in thinking about communication in virtual worlds for children, the creative bypasses of restrictive chat features might help strengthen the commitment to the communication or the importance of what is to be shared, when such creativity is needed to share it. Future research should explore more explicitly the content and intentions of communication in restrictive and open chat environments.

These multimodal means of communication and self-representation across networked spaces may be offering new forms of sociality for children. Where membership in childhood play spaces was once largely determined by geography, it is now often a function of access to various localities (or glocalities Wellman, 2002) on the Internet. The nature
of community building may have shifted as well, as expressions of personal identity and the communication of ideas is increasingly mediated by the affordances of computer technology. This mediation, however, also offers new and potentially more egalitarian possibilities for influence. Whereas influence in offline play spaces is often determined by physical prowess or financial standing, in online spaces influence can largely be a function of facility with self-expression (both in words and other modalities) and commitment to the social endeavors and ethos of a particular network or group. While research has suggested that young adults feel a deep sense of social connection to their online peers, further study is needed to determine if this sort of sentiment also exists for young users of virtual worlds.

Limitations

Even though we found evidence of community connections, this study only used data derived from participant-observation and content analyses. User interactions were observed in public spaces and no users were interviewed. As such, there is no way ask users about their feelings toward or sense of identity as a member of their collectives. Future research should explore in greater depth individuals’ feelings toward their groups, perhaps by joining or actively participating in one of the user-created groups like the RPG. Further, although we discussed the data and coding scheme during regular lab meeting, it is possible that other researchers would draw different conclusions from these data sources. Last, the majority of the data was derived from two virtual worlds (Webkinz World and Club Penguin), and these findings may not apply to other virtual worlds for children. Future work should explore how communication, affiliations, connections, and community form in other virtual worlds designed for children.

Conclusion

This study is one of the first to explore the connections and formation of community in virtual worlds designed specifically for children. Although these worlds serve almost 2 billion users, little is known about the ways in which users interact, especially when design features may limit communication and activities. Our data suggest that users find creative ways to bypass restrictive design features to share personal information, display affiliations, form cohesive groups, and perhaps even build communities online. Community norms connected to ways of chatting, manipulating avatars, expressing solidarity, and behaving appear to be learned by users in situ, negotiated in the sites themselves and outside of the sites, and improvised when need arises.

As the opportunities for children to interact in physical play spaces decline (Gray, 2011)–due to concerns about safety, increases in highly structured after-school activities, and the decline in neighborhood and public recreation areas–young people are increasingly turning to online spaces as venues for social interaction and entertainment. As a result, many young children’s experiences with community or community-like networks will be shaped by their virtual interactions, and these experiences will in turn lay the groundwork for their participation as adult community members. Therefore, it is important to have an in-depth understanding of what these virtual worlds and their accompanying networks of sociality might offer. Further, the study of these social connections in and around virtual worlds for young children may help expand our conceptualizations of community in general and virtual communities in particular.
REFERENCES


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USING eANNOTATION TOOLS FOR ELECTRONIC PROOF CORRECTION

Required software to annotate PDFs: Adobe Acrobat Professional or Acrobat Reader (version 8.0 or above). (Note that this document uses screenshots from Acrobat Reader 8. For screenshots from Acrobat Reader X, a separate document is available on the journal e-proofing site.) The latest version of Acrobat Reader can be downloaded for free at: http://get.adobe.com/reader/

Once you have Acrobat Reader 8, or higher, open on your PC you should see the Commenting Toolbar:

1. Replacement Text Tool — For replacing text.
   Strokes a line through text and opens up a replacement text box.

2. Cross-out Text Tool — For deleting text.
   Strokes a red line through selected text.

3. Highlight Tool — For highlighting a selection to be changed to bold or italic.
   Highlights text in yellow and opens up a text box.

4. Note Tool — For making notes at specific points in the text
   Marks a point on the paper where a note or question needs to be addressed.

Once you have completed your comments you may choose to show or hide the Commenting Toolbar.
5. Drawing Markup Tools — For circling parts of figures or spaces that require changes
These tools allow you to draw circles, lines and comment on these marks.

How to use it:
1. Click on one of the shape icons in the Commenting Toolbar
2. Draw the selected shape with the cursor
3. Once finished, move the cursor over the shape until an arrowhead appears and double-click
4. Type the details of the required change in the red box

6. Attach File Tool — For inserting large amounts of text or replacement figures as a file.
Inserts symbol and speech bubbles where a file has been inserted.

How to use it:
1. Right-click on the Commenting Toolbar
2. Select “Attach a File as a Comment”
3. Click on paperclip icon that appears in the Commenting Toolbar
4. Click where you want to insert the attachment
5. Select the saved file from your PC or network
6. Select type of icon to appear (paperclip, graph, attachment or tag) and close

7. Approved Tool (Stamp) — For approving a proof if no corrections are required.

How to use it:
1. Click on the Stamp Tool in the toolbar
2. Select the Approved rubber stamp from the ‘standard business’ selection
3. Click on the text where you want to rubber stamp to appear (usually first page)

Help
For further information on how to annotate proofs click on the Help button to activate a list of instructions: