Tracing Insider Knowledge Across Time and Spaces: A Connective Ethnography in a Teen Online Game World

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Abstract. In this study our goal is to conduct a "connective ethnography" that focuses on how gaming expertise spreads across a network of youth at an after-school club that simultaneously participates in a multi-player virtual environment (MUVE). We draw on multiple sources of information: observations, interviews, video recordings, online tracking and chat data, and hundreds of hours of play in the virtual environment of Whyville ourselves. By focusing on one particular type of insider knowledge, called teleporting, we traced youth learning in a variety of online and offline social contexts, both from friends in the club and outside members of Whyville. We elaborate on the unplanned social events that served as instigators for peaks in learning activity and the methodological challenges underlying the synthesis of diverse types of data that allowed us to follow youth across multiple spaces and times.

With the growing popularity of online games, discussions about their educational value have been initiated among researchers, practitioners, and policy makers (Glazer, 2006). There is an increased need to more fully understand these complex communities as promising models for learning and literacy (Gee, 2003). Though learning to participate in any of these multiplayer game communities can be quite overwhelming and confusing, there are only few first person accounts of how newcomers get access to insider knowledge (Steinkuehler, 2006). When we started studying an after-school club where twenty-one 9-12 year-olds came regularly to play in a multi-player online game community called Whyville, we were intrigued with the ways that they helped each other to navigate the geographical intricacies of the site and how the participants subsequently appeared to become peer teachers in their own right (Ching & Kafai, in press). In addition, it became clear that learning took place in both online and offline locations as well as between club members and within the larger world of Whyville. Our questions for this study became: How did club members learn insider knowledge important to socializing on Whyville and how did this spread throughout the club? Secondarily, how could we trace this learning across both virtual and physical spaces, and between the club community and the larger Whyville community? Finally, what can we learn from the informal teaching and learning practices among peers that could positively impact the design of technology that blurred the boundaries between virtual and physical spaces? In order to answer our questions, we had to draw on new methodologies that studied both online and offline activity, inside and outside of club time.

Research Background

Our research draws on two existing but distinct bodies of research about multi-player online communities. The more prominent and larger body has focused on online gaming contexts, conducting ethnographies of gaming communities (Steinkuehler, 2004; Taylor, 2006; Turkle, 1995; Yee, forthcoming). In these studies, researchers used ethnographic and interview methods to document and analyze players' interactions, preferences, and reflections as they relate to their online game play. The second smaller body has examined the offline gaming contexts in places such as after-school clubs, individuals playing at home, and especially cybercafés (Lin, forthcoming; Swalwell, 2003). While cybercafés (or LAN cafés) initially provided places for players to link computers physically in order to play multiplayer games with speedier internet access, their popularity has not decreased with the onset of cable modems in many homes (Swalwell, 2003). Ethnographic studies in Australia, Asia, and Europe have identified reasons for this continued frequenting of cybercafés, namely the informal learning and dynamic social interactions present in such spaces (Beavis, Nixon, & Atkinson, 2005; Jansz & Martens, 2005; Lægran & Stewart, 2003; Swalwell, 2003). Most if not all of the informal learning cited by cybercafé players is directly related to the physical presence of other players in the same space and includes walking around and watching other people play, checking out the patches and new computer code others have downloaded for a game, asking about adjustments to computers,

and watching their strategies in various games (Beavis, Nixon, & Atkinson, 2005).

More recently, researchers have argued that the boundaries between play in the virtual and the real are not as distinct as some have made them out to be, and both need to be considered as integrated aspects of play in virtual communities (Castronova, 2005; Jenkins, 2006; Kafai, in press; Leander & McKim, 2003). As Leander and McKim (2003) point out, experiences in cyberspace have become a part of the everyday activities and meaning-making of many adolescents and in fact often "extend rather than replace offline relationships" (p. 219). Indeed, thinking of either physical/offline/real or digital/online/virtual as self-contained denies their flexibility and the ways that people negotiate performance, meaning, and embodiment within them: "Only when we really acknowledge these spaces as legitimate and powerful sites of production, and acknowledge the diverse agents involved in their creation, can we begin to address the challenges facing them progressively" (Taylor, 2006).

Connective ethnography (Hine, 2000; Leander & McKim, 2003) is one methodology that has been proposed to address this issue of integrating research across online and offline spaces by "tracing the flows of objects, texts, and bodies" and analyzing the construction of boundaries within and between virtual and physical spaces (Leander & McKim, 2003, p. 211). Still in its nascent development it seeks to interrupt the artificial boundaries between online and offline spaces and understand "the processes by which social spaces are held apart and blended, and how boundaries and blends are recognized in everyday practice" (p. 229).

One of the reasons researchers have been so interested in studying gaming communities is because of the intricacies of game play. As Steinkuehler argues, participating in such communities is "cognitively complex and consequential" (2006, p. 50). In addition, many of them sponsor the development of distributed expertise and leaders who act as resources across the communities (Gee, 2004). This type of peer mentorship and development of expertise has been documented amongst children learning in online programming environments (Bruckman, 2000) and learning by design (Ching & Kafai, in press). Other researchers have noted the way that knowledge can spread (Roth, 1996) and even "snowball" (Anderson et al., 2001) amongst children sharing the same physical space in a classroom. What happens when children share not only a physical space but also participate in a dramatically larger virtual community?

In this study our goal is to conduct a connective ethnography that focuses on how gaming expertise spreads across a network of youth at an after-school club that simultaneously participates in a multi-player virtual world. We draw on multiple sources of information: observations (field notes), interviews, video recordings, online tracking and chat data, and hundreds of hours of play on Whyville ourselves. These different, complementary data sources embody the multi-modal aspects of connective ethnography, and allow us to trace players' activities and learning across physical and virtual spaces. Since this type of methodology is relatively new, we hope that this study will inform future efforts at researching and analyzing play and learning across blurred virtual and physical spaces.

While there are many different types of insider expertise that developed and became distributed amongst the youth of the club, in this first study we focus on one particular type of knowledge called teleporting and how it spread among club members. Teleporting consists of a simple two-word command typed in a player's chat that automatically transports players to social places unlisted in the destination menu on Whyville (e.g. "teleport moon" takes a player to a space in Whyville called the Moon not accessible in any other manner). The reason for focusing on this knowledge (teleporting) is threefold. First, it is a type of insider knowledge and a archetype of many facets of gaming capital (Consalvo, in press) discovered through personal trial and error or interaction with others. Second, it is a very traceable type of knowledge, easily identified in chat lines (though not visible to other players), and a common practice at the club that could not be learned outside of Whyville. Further, teleporting involves crossing different boundaries that are important to connective ethnography; not only does teleporting facilitate crossing between virtual spaces on Whyville, it represents passing between outsider and insider status in both the physically and virtually located communities of our study.

Research Setting and Approach

Whyville.net is a multi-user virtual environment (MUVE) with over 1.5 million registered players 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. The general consensus among Whyvillians (the citizens of the virtual community of Whyville) 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 the Whyville community (Kafai & Giang, in press). Social interactions with others are the highlight for most Whyvillians and consist primarily of ymailing (the Whyville version of email) and chatting on the site where users are visible to each other on the screen (see the picture of the Beach in Figure 1). A pull down menu offers a listing of over 30 different places to visit and hang out together on Whyville

Some of the more popular places in which to socialize are not visible to users in the menus available on the site: Earth, Moon, Mars, Jupiter, Saturn, and the Newspaper. These sites can only be reached by "teleporting," which is done by typing "teleport moon" (or "teleport [place]") in the chat bubble above one's head. Since teleporting cannot be observed on Whyville (users are zapped to the new location before others have a chance to read what they typed), the existence of these locations and the knowledge of how to get there can only be discovered through conversation with other people or by visiting one of the few cheat sites that has tips for Whyvillians. Because of this, these select places come to represent insider status and many players prize them as social hang-outs because they are not over-crowded or over-populated by newbies.

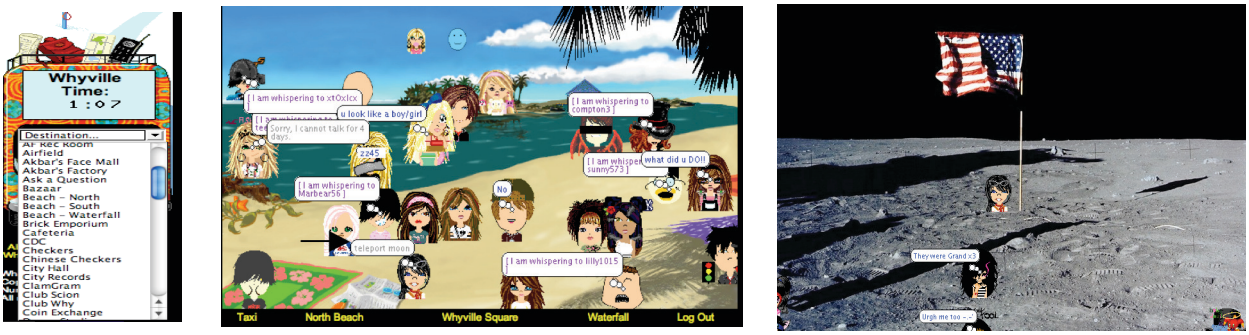

Figure 1: Destination Menu, Teleporting to the Moon from the Beach, the Moon

In early 2005 we set up an after-school club where 20 youth in the 4th-6th grades came to play on Whyville for an hour most days after school. Most youth were new to Whyville, though one had played for the year before the club started. They distributed themselves among 10 computers, often sharing a computer or wandering around the room talking to others. 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 (Kafai, in press). Often clusters of youth would form around one computer when something interesting happened on Whyville (see Figure 2).

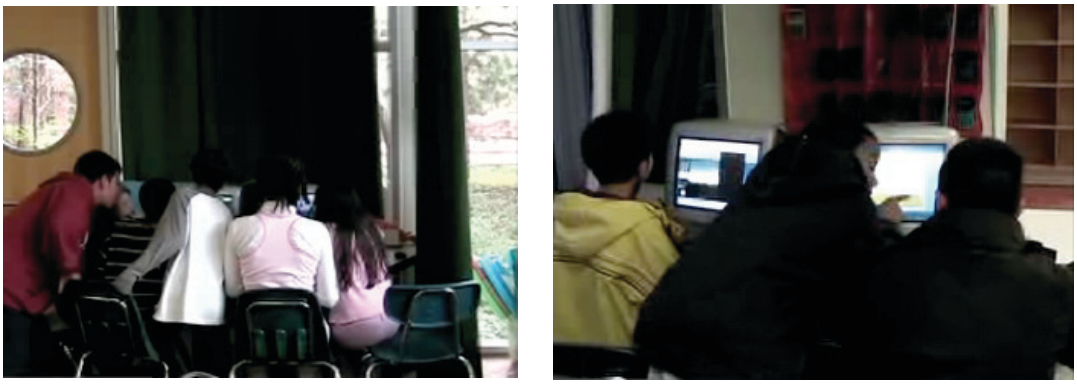

Figure 2: Club Members Clustered around Computers, One Member Helping Another

In order to study the children's activities in the "multiple, simultaneous space-time contexts" (Leander & McKim, 2003) of the club and Whyville, we gathered and analyzed numerous types of qualitative data aimed to track the youth in the club over multiple spaces (physically in the club as well as virtually over multiple spaces on Whyville). Ethnographic field notes were recorded daily to capture the overall activity of the club while video tapes focused on small groups of youth clustered at tables with 2-3 computers throughout the nine weeks the club took

place in the winter of 2005. In addition, participants were interviewed individually at the end of the club and online tracking data including location and chat in Whyville was collected.

After an initial coding of the field notes and logging of the video data, we combed both types of data for any mention of teleporting or the places to which one can teleport. Whenever teleporting was mentioned in either source it was highlighted and/or transcribed. Similarly, the online tracking data was searched for the first time children teleported, and the first time they teleported to Saturn, since that place was not commonly known early in the club. This was done by selecting out club members' chat data from the larger database and searching for the times they typed "teleport" in their chat. This data allowed us to identify the first time each participant teleported, even if they were logged on to Whyville from home, and whether they sought any online help. After these incidents of teleporting were identified from all of the data, we organized them into a timeline to coordinate when and how children learned to teleport. We then further analyzed both the online tracking data and the video data to flesh out the context(s) in which children discovered that teleporting existed and was an option for them. Through this process we were able to compile a more complete picture of how and where youth learned to teleport than if we had not had each type of data.

Findings

There are many kinds of insider knowledge not obvious to newcomers in Whyville that were revealed in our own play and learning on Whyville, as well as our observations of club members in field notes, video, and chat. Among these are whispering, throwing projectiles, designing avatars, socializing, earning a large salary, and teleporting. Almost all of these activities involve multiple types of logistical and cultural knowledge. Some of these practices can be observed and copied: the chat syntax for throwing projectiles (done by typing "throw mudball [player's name]") is visible in other players' chat. Similarly, some flirting and befriending practices can be observed in people's chat unless they are whispering (a private conversation between two individuals). Avatars' looks can be copied, but it involves a very complex practice of earning clams (Whyville's currency), knowing where and how to shop and trade for face parts, and assembling a "good look" that will make certain types of people want to talk to you. Earning a salary is perhaps the most scaffolded of these practices on Whyville, since there are whole articles in the local newspaper (*Whyville Times*) offering suggestions. Still, playing the salary-raising science games and assembling face parts are not public on Whyville. They are carried out in spaces on Whyville only visible to the individual player.

Teleporting may be the least obvious insider knowledge since one cannot observe it in others' chat (the typed command "teleport moon" is not visible to others) unless people are publicly discussing a social gathering at one of the teleport locations. The only exception to this can be found on select cheat sites where instructions on teleporting are included on "tips" for newbies, or new players (Fields, 2007). Out of 39,673 lines of chat data from club members, 2372 (5.98%) were instances when the word teleport was used. By searching through this online chat data, we were able to determine when each club member first teleported (See Table 1). This formed the basis of further investigations into from whom, how, and where participants learned to teleport. The broad trend of teleporting activity reported in Table 1 reveals a few interesting things. For one, the first six youth to teleport (Kaitlyn to Aidan) were members of the two 6th grade classes where students were also starting to use Whyville and had more opportunities to play during the daytime than other club members. It seems natural that these would be among the first club members to learn to teleport.

Second, two weeks in particular, Jan. 24–30 and Jan. 31–Feb. 6, stand out as times when the largest numbers of club members learned how to teleport. What happened during those weeks? The identities and social affiliations of the club members give us some hints. The four boys who first teleported the week of Jan. 24 liked to throw projectiles together with Gabe, Aidan, and Kyle, so it is not surprising that they would learn fairly soon after their more advanced friends. The following week starting on Jan. 31 seems to be evidence of a snowball effect on the club (Anderson et al., 2001), as more youth learned to teleport, including three more girls. There is evidence in our field notes and video data that during the week of Jan. 31 teleporting and projectile throwing became a much more public activity, with youth yelling across the room to each other to "meet me at the Moon!" This probably allowed other youth to overhear their conversations. In addition, as more youth teleported, others could glance at their computer screens while wandering the room and see places like the Moon.

Table 1: Frequency of Typing "Teleport" Activities by Individuals over a Week.

Username	Name	First time teleporting	*Jan 4-9*	*Jan 10-16*	*Jan 17-23*	*Jan 24-30*	*Jan 31-Feb 6*	*Feb 7-13*	*Feb 14-20*	*Feb 21-27*	*Feb 28-Mar 3*
fairi60	Kaitlyn	*pre-club*	16	7	20	8	1	3	4		
whskr29	Briana	Jan 7	31	16	1		1				
WOW4	Gabe	Jan 7	1	7	2	6	3	1	1	5	
bluwave	Zoe	Jan 13		14	11	18	36	49	29	28	5
sharky404	Kyle	Jan 14		3	20	5	8		22	7	
masher47	Aidan	Jan 19			3	5	30	38	36	15	8
raybeams	Blake	Jan 24				20	10	14	48	5	13
stngray09	Trevor	Jan 24				1	7		20	19	
zink	Bryce	Jan 25				5		2			
leo95	Cole	Jan 28				14	9	4	13		
ivy06	Isabel	Jan 31					3		49	33	21
betelguice	Paolo	Feb 1					113	48	63	69	
vulcan61	Brad	Feb 2					16	9	25	11	14
sirius	Scott	Feb 2					8	18	17	8	5
amarylys	Jill	Feb 3					2		2		
Peachy5	Leslie	Feb 3					36	37	90	17	3
funster	Paul	Feb 8						52	27	40	11
Lucky7	Marissa	Feb 16							17	20	2
violet5	Ulani	Feb 16							9	4	
BluSwirls93	Molly	Mar 3									5
bloofer	Paige	Mar 24									
	Total teleport frequency		48	47	95	82	283	283	275	482	281

Upon a closer look, we found that club members learned to teleport in a variety of social contexts. Two among the first youth to teleport found out on Whyville by asking questions online (e.g. whskr29 and bluwave). This is perhaps the easiest learning method to identify since it is literally spelled out in the text (see Figure 3). Consider bluwave below, who on January 13 sought advice on a lot of things, including whispering, making friends, dancing, and teleporting:

ONLINE CHAT		INTERPRETATION
bluwave	i want to go to the moon	*First time she asks how to go to the Moon.*
...		
bluwave	how do you wisper to someone?	*Asks for help in whispering.*
bluwave	then what??	
...		
bluwave	do you like Whyville??	*Tries to make a friend, but performs a faux pax by asking for someone's real name.*
bluwave	what's your real name?	
bluwave	HOW?	
bluwave	what am I doing to bother you??	
bluwave	what's wrong with talking to someone??..I am just trying to be your friend	*Is criticized for her newbie look, probably created of cheap or free face parts.*
bluwave	you don't have to be mean just because I am ugly	
...		*Asks for help to stop dancing.*
bluwave	stop dancing	

bluwave how do you stop dancing?	*Asks how to get to the Moon.*
...	*Probably told to type it.*
bluwave do you knw how to get to the moon?	
bluwave HOW??	*Types it incorrectly – probably corrected by a*
bluwave ok	*helpful Whyvillian.*
bluwave wanna go??	*Types it correctly.*
bluwave transpertation moon	
bluwave teleport moon	

Figure 3: Online Transcript of January 13: Sparkle 59 Learns to Go to the Moon

We chose this example because it reveals how teleporting is one of a number of things new Whyvillians learn. In addition, bluwave, like many of the club members, did not ask how to teleport but how to get to the moon. She tried asking anonymous people several times before getting the answers she needed. Unfortunately, the online data do not show us how bluwave first heard about the Moon. However, there are other cases where we have more information.

Instead of learning solely on Whyville, some club members learned how to teleport solely in the club by directly asking a club members. For instance, Gabe learned from Briana (whskr29, one of the earliest teleporters) while they were working on separate computers side by side (see Figure 4).

VIDEO TRANSCRIPT	INTERPRETATION
Briana: Teleport to the moon!	
Gabe: Okay, I don't know how to though.	*Briana tells Gabe to go to the Moon.*
Briana: No no wait, hold on.	
Gabe: You teleport me there, please.	*Gabe asks her to just type it in on his computer since he doesn't know how.*
Briana: Just write Hey Marv.	
Gabe: Hi- how do you spell Marv. *((typing "Hi"))*	
Briana: M-a-r-v-, just write a he doesn't care. *((Gabe types))*	*Instead of answering, Briana recognizes another school friend, and tells Gabe to say hi.*
Briana: No you didn't do r.	
Briana: M-a-v enter	
Gabe: Enter. *((laughs as he presses "Enter"))*	*Gabe types a greeting to Marv.*
...	
Gabe: "Let's go to the moon." *((reading))* Okay. *((Gabe types a response))*	*Marv tells him to go to the Moon.* *Gabe responds that he will.*
Gabe: Hey how do you teleport to the moon.	*Gabe realizes he doesn't know how to get there and asks for help.*
Briana: Write, write that. Teleport moon.	
Gabe: Okay.	
Gabe: Tel-e-port *((typing as he talks))*	
Briana: Don't write "to" just write "teleport moon," m-o-o-n *((spelling Moon))*	*Briana identifies an error in Gabe's command and corrects it.*
Gabe: Teleport moon. *((types))*	*Gabe successfully goes to the Moon.*

Figure 4: Video Transcript of January 7: Gabe Learns how to Teleport

It is interesting that Gabe learned to teleport in the context of a social need to meet his friend Marv, a classmate who did not participate in the after-school club. In addition, since he was sitting next to Briana, she was able to observe him typing and corrected his initial mistake of typing "teleport to moon," a mistake that she made frequently when she learned how to teleport on Whyvlle earlier that day.

Yet while some youth were relatively easy to trace in terms of learning how to teleport, others were more difficult to trace in that they appeared to learn in both the club and Whyville, and even in Whyville learned from either or both club members and Whyvillians in general. For instance, on Jan. 31, the video data show that Blake yelled across the room to Cole, telling him to meet him at the Moon. While it is apparent from the field notes that Cole was in the room with Isabel and logged on to her computer not long after Blake's call, the online tracking data show that Isabel (ivy06) teleported to the moon directly after Blake called to Cole, then gossiped to someone on Whyville that Cole (leo95) was "hot." The table below is a shortened version of the event that shows what we were able to glean about the incident from the three primary types of data (see Table 2).

Table 2: Connecting Data Sources for January 31

FIELD NOTES	VIDEO DATA	ONLINE CHAT RECORDS	INTERPRETATION
~3:45pm Cole visits with Isabel, telling her about a girl who sent him a ymail. He types the girl's username on Isabel's computer so she can what the girl looks like.	Blake: Cole! Meet me at the Moon!" Cole: Hang on! *((far away))*:	4:01:32pm ivy06 teleport moon 4:02:38pm ivy06 leo95 says that u are hott	*Cole is at Isabel's computer showing her a girl he had flirted with.* *Blake urgently tells Cole to go to the Moon,* *Cole types in "teleport moon" on Isabel's computer.* *Isabel sees the girl Cole pointed out earlier and whispers to her.*
~4:00pm Cole asks Isabel to log off so he can use the computer			*Isabel logs off and Cole logs on to her computer*

This incident explains Isabel's effort to learn how to teleport on the following day. It seems apparent that Cole either gave her direct instructions or typed "teleport moon" on her computer while she was logged on because the next day during club she tried to teleport but did it incorrectly a number of times and asked Whyvillians several times how to get to the Moon (see Figure 5).

ivy06	15:13:24pm	chat	go to moon
ivy06	15:13:42pm	whisper	do u now how to go to the moon?
ivy06	15:14:09pm	whisper	how?
ivy06	15:14:48pm	chat	teleport mars
ivy06	15:15:42pm	chat	teleoport moon
ivy06	15:16:13pm	chat	teleoport moon
ivy06	15:17:01pm	whisper	no how to go to moon?
ivy06	15:24:06pm	whisper	how do u go to the moon?

Figure 5: Online Transcript of February 1: Isabel Tries to Teleport

Isabel eventually learned how to teleport consistently to Mars and the Moon, because on the following dates her tracking data show a typical club member pattern of teleporting from one location to the next in rapid succession (teleport Mars, teleport Moon, teleport Earth) while on Whyville. Interestingly, while Isabel saw the Moon and chatted with someone there on Jan. 31, in her interview, she said that she learned how to teleport from people at Whyville. Other members of the club received mixed instruction on teleporting from youth physically present in the club and from club members virtually present on Whyville.

The difficulty of tracing teleporting throughout the club is further complicated by participants often learning to teleport to one or two locations (generally the Moon and Mars) first and later adding to their knowledge through the discovery of other locations, like Saturn. Often this was done by trial and error or by knowing other planet names. For instance, on the same day that Cole first teleported, he also experimented with teleporting to a number of locations in the solar system, some of which existed, and some of which did not. Through this process, he discovered Saturn as yet another social location on Whyville (see Figure 6).

leo95	15:13:52	chat	teleport moon
leo95	15:14:22	chat	teleport Pluto
leo95	15:14:31	chat	teleport mars
leo95	15:15:04	chat	teleport Uranus
leo95	15:15:12	chat	teleport venus
leo95	15:15:33	chat	teleport sun
leo95	15:16:11	chat	teleport saturn

Figure 6. Online Transcript of January 28: Leo95 Discovers Saturn

Others discovered Saturn in an unusual club-wide social incident on February 16th. On this day, Leslie, who had learned about Saturn through experimentation (like Cole) a few days earlier, organized a get-together with Marissa, Ulani, and Isabel on that planet, inviting them by ymail to meet her at Saturn. This invitation seems to have provided the instigation for Marissa and Ulani to teleport for the first time, and while Isabel knew how to teleport to the Moon, Mars, and Earth, she had not been to Saturn before that day. While at Saturn, a Whyvillian not a part of the club insulted Ulani, who yelled out to the club that someone had insulted her on Saturn. Immediately several other club members teleported to Saturn, two for the first time (they had to ask how to spell it), and threw projectiles at the offender. By the end of the day, almost all of the club members had been to Saturn, doubling the daily average of Saturn visits by club members, a trend that continued through the remainder of the week.

Despite the many different ways that club members learned how to teleport, interviews revealed a decided preference for learning from other friends in the room (whether physically or virtually). Almost two-thirds (64%) of the youth interviewed said that the best way to learn something on Whyville was by talking to someone in the same room. The remaining youth preferred to talk to someone on Whyville. Specifically regarding teleporting, all but three of the youth interviewed reported learning from a friend in the club.

Discussion

Our study focused on how teleporting, a type of gaming expertise, spread across a network of youth at an after-school club that simultaneously participated in a multi-player virtual world. From our data it is clear that this particular type of information was only known to one member at the beginning of the after-school club and six weeks later it had spread to all but one of its members. The main mechanism we observed was a type of peer pedagogy (Ching & Kafai, in press) provided online and offline. By peer pedagogy we mean to describe the informal strategies of teaching others employed by teens. In addition to the direct mentoring found by Ching and Kafai (in press), overhearing others and wandering the room observing people's screens and activities planted seeds of curiosity about teleporting that were followed up on later. In a sense, it allowed for learning things that one did not know enough to ask about. Similarly, unplanned social activities served as instigators for learning; teleporting served an innately social purpose by providing transportation to places for people to hang out, and in turn social gatherings were big motivators for people to learn how to teleport. We also found that these opportunities for learning about insider knowledge were present online, perhaps most prominent in the anonymous asking often documented in the tracking data. It was a quick and easy way to get information from more than one person. It is perhaps this feature of information sharing and requesting which makes online gaming a fruitful learning environment as some researchers have argued (Gee, 2003). For those who want to learn, they develop strategies online and offline to request and receive help from others. For those who want to provide assistance, it is a good way to showcase their understanding. The motivations for such helping, ranging from altruistic to self serving are not always clear and require further investigations.

Studying interactions between online and offline gaming contexts presents considerable methodological challenges and requires new approaches as some researchers have argued (Hine, 2000; Leander & McKim, 2003), particularly because of the dynamic nature of interactions across spaces. The after-school setting in our study added another layer of complexity because movements, interactions and play among club members were not constrained in a specific space or time. Our observations indicate that the teens engaged in many of the interactions around gaming observed in adult commercial cybercafés (e.g., Beavis, Nixon, & Atkinson, 2005). In our analyses we found that each data source on its own presented us with an important slice of information about players' movements and purposes but no data source alone was complete. While the tracking data provided us with an accurate account of

where players were going and what they were chatting about, it was often hard to discern why members did what they did. At times we also realized that the player logged in was not the player performing in Whyville as in Isabel's case; the tracking data alone would never reveal such information. The observational data provided both context and detail to players' interactions. The talk and movements captured in video and field notes often revealed how and why players decided to meet at certain locations and thus initiated learning about teleporting. The exit interviews confirmed the role of others as support in learning about new features in online gaming.

In what we would like to call 'multi-streaming' the different data sources, we were able to reconstruct and integrate a stream of complex interactions. In our particular case, we were also able to combine quantitative and qualitative data sources using online tracking logfiles and offline observational video and field note data. This allowed us to develop trajectories of how teleporting insider knowledge traveled through the player community. This was at first a gradual and then nearly exponential process through which all players (with one exception) became knowledgeable of this insider activity. We also needed to add to this stream of data our own player experiences that were an instrumental part in understanding what the club members were talking about in Whyville. While ethnographic analysis has always factored in the voice and role of the observer it is rarely complemented with logfile analysis.

Through this process of multi-streaming we were able to approximate one aspect of our research that is the seamless integration of online and offline interactions. For rhetorical purposes, we often use these distinctions to refer to different data sources but it was clear from our observations that our participants did not make these distinctions while being in Whyville. For them what happened online in Whyville was as much part of the same activity structure as what happened in the after-school club. Other researchers have for that reason started referring to synthetic worlds (Castronova, 2005) or as we have to synthetic play (Kafai, in press) to indicate the merging or synthesizing nature of online and offline worlds. This study demonstrates that research methodologies need to be adapted to match the complexities of interactions across the spaces of these worlds.

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