Cheating in virtual worlds: transgressive designs for learning

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Abstract

Purpose – *This paper aims to present and discuss cheat sites and cheating practices associated with Whyville.net, a virtual world with over 1.7 million registered players aged eight to 16 that includes game and science activities. The goal is to examine how the development of cheats can present learning opportunities for players and designers alike.*

Design/methodology/approach – *The types of cheats were categorized and science content examined in hundreds of cheat sites created for Whyville. The work of a cheat site designer in developing a cheat together with other Whyville players was observed.*

Findings – *It was found that a great variety of cheats are available in educational worlds and that science games that require more than one simple answer also require the development of more sophisticated cheats.*

Originality/value – *Cheating is a transgressive practice widely accepted in gaming but mostly condemned in schooling. The features of cheating and its associated practices allow us to consider transgressive designs for learning in virtual worlds that offer opportunities for youth to participate in creative and critical media production, to engage in science inquiry, and to raise ethical issues.*

Keywords *Cheating, Internet, Sciences, Learning, Indoor games*

Paper type *Research paper*

As millions of youth are playing and modding in virtual worlds and games different approaches have been developed to leverage their participation for educational benefits. Most proposals have sought to fit educational games to the existing curricular structures and goals of schools utilizing some of games' contextual and collaborative features (e.g., Federation of American Scientists, 2006). A less common proposal, but one that is gaining popularity, is to think of games as learning environments (Gee, 2003). Here, researchers study either the playing of games (Steinkuehler, 2007) or the making of games (Kafai, 1995) documenting how thinking like a gamer or game designer can promote twenty-first century learning skills. Rarely do we consider corollaries of gaming activities and communities that might hold equal promise in providing opportunities for youth to participate in creative and critical media production, to ponder ethical issues, and to engage in science inquiry.

Cheating practices and their associated cheat sites are such a corollary immensely popular in virtual worlds and gaming communities (Consalvo, 2007). Most commercial games have large fan communities that sprout numerous fan sites, among them cheat sites where players post explanations of how to complete various games, hints for how things work, and even discovered or manufactured (i.e. hacks) shortcuts through games (Salen and Zimmerman, 2004). Among players there is great variety on what counts as cheating, what the repercussions are, and how and when one should use cheats (Stevens *et al.*, 2007). What is perhaps most interesting about cheat sites is that many companies that would have the most interest in keeping cheats away from players actually sponsor official guides that provide hints or outright answers for how to complete a game and forums where players post

their own solutions or strategies (Consalvo, 2007). Further complicating is that the gaming industry's stance is much less lenient in regard to other trangressive player behaviors such as copying software or selling avatar parts (Taylor, 2002). Thus individual players' ''transgressions'' are in fact part of the larger gaming culture in which players creatively push back on the designs and rules of games imposed by the industry. This is one of the reasons why cheating offers a promising prospect to discuss ethics at large because the boundaries of what is legitimate are a moving target and are redefined by both individual players and community actions.

Cheating in schooling, on the other hand, has officially a very different position: it is considered illegitimate, but is widely practiced. Cheating is condemned because it presumes that the learner has solved a problem under false pretenses: another person or a borrowed source contributed to the solution rather than her or his understanding. Recent studies of high school and college students report that the majority of them admit to practicing various forms of cheating such as copying texts and answers from exams (MacCabe *et al.*, 2001). Not only students, but also parents and school administrators might have differing views on cheating. A recent incident illustrated that when a high school teacher failed students because of plagiarized homework, the principal reinstated students' grades bowing to pressures of the school board and parents (Wilgoren, 2002). Some studies show significant differences between students', teachers', and parents' judgments and rationales about appropriate computer and internet uses (Kafai, Nixon and Burnam, 2007; Nixon and Kafai, 2005). While cheating in schools is officially condemned, these standards are not universally shared among all stakeholders in the school community.

These different perspectives of cheating create fertile grounds to challenge beliefs about what is legitimate and, more importantly, what it means to learn: in schooling, individuals are seen as solely responsible for mastering the curricular content whereas in gaming players' search for support of others is considered acceptable, if not crucial, for advancing the game. Cheating then provides a vivid illustration of the different notions of learning assumed and valued in each community. In cheating boundaries and norms are transgressed that not only concern ethical issues, but also touch at the core of education. This aspect of cheating might be of importance to those who consider the introduction of games an opportunity to challenge schooling in the form of a ''Trojan Horse'' strategy that seeds with cheating different ideas on what is legitimate as learning (Papert, 1997).

As an example of transgressive practices, we will use cheat sites and discussions about cheating associated with Whyville.net, a large virtual world with over 1.7 million registered players aged eight to 16 (Fields and Kafai, 2007a). Whyville provides its players, called Whyvillians, with dozens of different places to visit, to socialize with each other and opportunities to learn about science (Kafai and Giang, 2008). When Whyvillians enter the site, they immediately arrive at the Welcome Page with links to events for the week, *The Whyville Times* newspaper articles, survival tips, and FAQs. Upon arrival, users can also check their personal e-mail, status on their Whyville salary, and their latest bank statement. Whyville has an active community life that elects its own mayor, organizes annual virtual proms, and posts many public petitions that campaign to include or change features of Whyville. Places such as the trading post allow Whyvillians to exchange goods. Whyville also allots plenty of opportunities for online social interactions such as chatting, whispering, and sending e-mail to others. Whyvillians may head straight to the sunroof, pool party, and other locales to chat with friends and other users on topics related to school, friendships, and appearance.

For this paper, the hundreds of cheat sites created by players outside of Whyville are of particular interest. These cheat sites cover various aspects such as answers and short cuts in salary-raising science games and cultural knowledge about social participation. As it turns out learning how to participate in virtual worlds is no trivial matter. Whyvillians have to master avatar design (Kafai, Fields and Cook, 2007; Feldon and Kafai, in press; Fields and Kafai, in press) and deal with issues of ethnic representation and social activism (Kafai, Cook and Fields, 2007). Peer-to-peer learning is how many participants learn how to navigate virtual worlds, online and offline (Fields and Kafai, 2007b, 2008). The social interactions on

Whyville are also impacted by a virtual epidemic called Whypox that immerses the whole community once a year and allows users to draw parallels to real infectious diseases in terms of its spread, symptoms, duration, and cures (Kafai, Feldon, Fields, Giang and Qunitero, 2007).

Most cheat sites provide information on how to solve the numerous science games often found adjacent to social hangouts. One example is the popular Hot Air Balloon race. In this science game, Whyvillians have to navigate a hot air balloon, drop a bean bag over a target on the ground, and safely land the balloon by keeping in mind the burning fuel and releasing hot air (i.e. relationship between temperature and density of gas), speed and wind vectors (i.e. directional forces), and the balloon's position on a coordinate graph. The success in each science game equates to increases in players' clam salary and in return the ability to improve their looks and opportunities in socializing – which appears to be the core activity for many Whyvillians. In addition, public discussions about experiences and reactions to cheating can be found in numerous articles written by Whyville players themselves.

The existence of these sites and discussions illustrates that cheating is a prominent but also contested practice in Whyville. These analyses will provide us with insights about the dimensions of transgressive practices. Transgressive designs extend these practices into learning activities by asking players to become designers of cheat sites as a way to engage in science, ethics and technology. A case study of an existing cheat site then serves as an illustration of how these aspects come into play in transgressive designs. More importantly, the analysis of transgressive designs reveals which aspects of game mechanics players deem acceptable for cheating. We will discuss how these choices can have implications for the design of educational activities in virtual worlds.

Transgressive practices in cheat sites and discussions

In our research, we have examined various aspects of cheat sites and discussions about cheating in Whyville.net (for more detail, see Fields and Kafai, 2007a) that are illustrative of the transgressive practices in virtual worlds and gaming communities. It was crucial to establish first the popularity of cheat sites and discussions to make the case that cheating is a common practice in virtual worlds with a science focus. Sources were publicly available records such as the cheat sites identified via Google.com and the discussions about cheating in articles published in *The Whyville Times*, the weekly online newspaper written by players for the Whyville community. The search in Google revealed over 257 sites that responded to the term ''Whyville cheat or cheats''. The search of the archive of *The Whyville Times*, by using the *Times*' search tool with the words ''cheat,'' ''cheats,'' and ''cheating'', identified over 100 articles from 2000-2005 that discussed cheating in Whyville, about one article every three weeks. These numbers alone are a clear indicator that cheating and cheat sites about Whyville are neither rare, nor a hidden phenomena; in fact, they are frequent and openly discussed within the larger community.

Cheating provided opportunities for youth to participate in media production by making their own cheat sites and by contributing to the newspaper. Our examination of cheat sites in Whyville indicated that the Whyville cheat sites included a large number of different cheats. The design and production of the sites involve technical skills that go beyond posting a web page to include discussion forums, bulletin boards, and advertisements and many other common web applets. The web site designs of the interfaces model those of commercial sites. We found that cheat sites for Whyville incorporated all of the types of cheats identified by Salen and Zimmerman (2004) in commercial games and cover the whole gamut: from helping players to make more clams to cheating players out of their clams. These include hidden spaces or secret commands that provided players with a richer gaming experience or step-by-step instructions of how to complete science games that helped players increase their salary. Many sites were also scams to get another player's password in order to enter and empty their accounts. Here, more sophisticated skills were in evidence as designers needed to collect the data input. Some of them even went so far as to emulate official looking sites to reassure the visitor of their less than honorable intentions.

In this process, youth also engaged in science by finding and posting cheats that provided solutions to salary-increasing science games in Whyville. For some of the games, these cheats were easy to generate as they only required simple answers as inputs whereas others involved the design of visual aids in form of screen shots or graphic representations that would help the player understand different steps. In rating a random sample of cheat sites, we noted that the level of explanation varied in its sophistication because only 15 per cent of the sites provided solutions and/or directions for how to complete all the games. An even smaller number of sites provided solutions for four to ten games and included in their solutions some directions or illustrations that facilitated completing games. At the lower level of quality were sites that only gave unexplained or incomplete answers to games. Finally, we identified a few cheat sites that were clearly plagiarizing other Whyville cheat sites, noted by the identical language and punctuation in their solutions. Even for such cheats that did not involve any science work on part of the designer, some technical skills were needed in order to copy the content from one web site to the next.

We could also gather from the large number of writings in *The Whyville Times* that cheating is not a secret but its controversy is openly discussed in the community. Just as in the commercial gaming world (Gee, 2003), cheating was a hotly debated topic in Whyville and the newspaper articles criticize the practice of using cheat sites to increase salaries illegitimately: ''when just one person uses cheats it could affect our whole town'' (Ickamcoy, 2003). By far the predominant view of cheating in the articles was that cheating is bad, lazy, dishonest, and unfair. Many of the arguments were based on the idea that such practices are wrong in real life and therefore are also wrong in virtual life: ''On Whyville you have to earn your things and earn a living, just like in real life'' (Twigsy, 2002). About half of the 100 articles that mentioned cheats from 2000-2005 condemned cheating in salary raising games while some considered cheats also clever solutions. The other half of articles concerned itself more with fraudulent practices in general such as scamming someone's password, cheating in dating relationships, or having multiple accounts. Writers' opinions varied widely from condemnations to more nuanced views or endorsements of cheating.

In this process, youth pondered various positions about cheating: a lively ongoing exchange evaluated the pros and cons of cheating and its impact on the individual and the community at large. While not the majority, many writers also saw intellectual and creative elements in cheating practices on Whyville. Some writers pointed out how cheats could be useful in getting people to the next step of their participation in Whyville: ''And how many of you got help earning your salary, whether from a friend or by using a cheat site?'' (Kemario, 2005). In addition, we discovered seemingly innumerable other types of cheating on Whyville that we could not have imagined on our own. Some of the more interesting cheats included obtaining passwords by offering ''makeovers,'' copying face parts (a designer/copyright issue), and creatively coordinating cussing that tried to get around the censorship word filter on Whyville. Beyond just the existence of the debate of cheats on Whyville, one of the most evident effects is disillusionment about elections and leaders on Whyville. What transpired in many of these articles is that writers had a sense of the ''Whyville way'' – a philosophy that values learning, mutual support, and positively contributing to the community.

These investigations of the publicly accessible cheat sites and discussions about cheating reveal that transgressive practices involve learning of multiple aspects: technical skills that encompass everything from scripting to databases and web hosting; creative skills that concern interface designs and production of text; media skills that touch upon consumer issues with the inclusion of advertising; science skills that involve the use and creation of representations and explanations; and ethical skills that mean participation in a public discourse discussing individual and social responsibilities. As such transgressive practices provide a fertile learning context that could be leveraged more explicitly for design purposes discussed in the next section.

Transgressive designs for learning

While our examination of transgressive practices focused on the different dimensions of the cheating culture associated with Whyville, the proposal of transgressive designs requires a

different analysis that captures the process of how such cheat sites are created. A case study of GameSite.net (a pseudonym), a cheat site for Whyville, reveals how technical, creative, science, media, and ethical skills are involved in designing and maintaining the site. More importantly, this case study provides a better understanding of the community involvement in developing cheats. In describing the content of GameSite.net, we note that is was one of the most comprehensive cheat sites associated with Whyville.net, providing multiple cheat types for science games in addition to other relevant cultural knowledge not intrinsic to monetary success on Whyville, and a space to discuss appropriate behavior on the forum.

A review of the home page features on the top a banner that proclaims GameSite.net as ''Whyville's Best International Cheat Site'' (see Figure 1). To the left is a site menu that leads players to different sections on the site such as cheats, forum, newbies, stores, tips and provides information about the designer. Further down are links to the site's affiliates web sites. Google ads are featured with the site designer's annotation ''Yes, this is a Ad!'' indicating that he is aware of media conventions about mixing content with advertisement often found on children's sites. On the bottom, advertisement shows the web design platform chosen for the site ''GameSite.net runs on Firefox 1.5!'' The site also features a counter keeping track of web traffic. All these elements reveal that considerable effort went into designing this web site requiring technical skills and knowledge of available common web resources. The site's design is rather simple with a white background and some simple frames that enclose the discussion area. In fact, its simplicity might speak to the designers' awareness of not overloading the interface with unnecessary adornments – a feature glut often favored by new designers. Setting up and hosting the discussion forum also involves technical skills and communication management that will be discussed below in more detail.

Figure 1 The layout of Gamesite.net
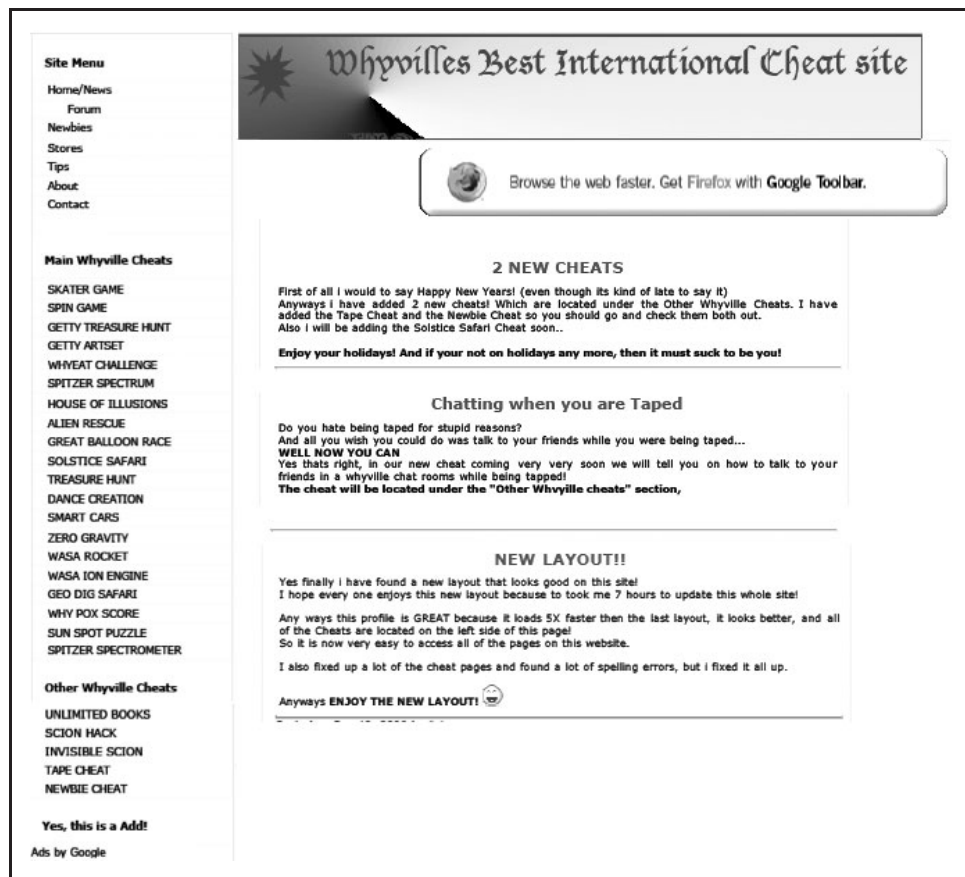
While many cheat sites merely list the cheats, GameSite.net also provided a discussion forum for more active participation. The site owner and designer, a 14 year-old young man, and his three administrators posted new messages on the home page of the site roughly four times a month, not counting numerous responses to messages on the forums. In fact, the heading of the forum pointed out ''GameSite.net new improved discussion forum'' that even here technical updates take place to improve the communication between the designer and his community. Further, the owner closely watched forum postings for inappropriate material and advertising of other sites: ''every one who swears a lot, spams, or cusses . . . will be banned.'' Looking through the forum, one can see many times when messages or parts of them were locked or erased by the owner. In addition, other forum participants pointed out things that they thought rude about some comments left on the site. For instance, when one user complained that there were not enough cheats or that the site did not help him enough, another user replied that the site owner did a lot of work on others' behalf and we should be grateful for the help he provided.

During the time of our observations, we were fortunate to witness how the cheat site designer orchestrated the community involvement in finding a cheat for a new salary-raising science game, the Spitzer Spectrometer that made its appearance in August 2006. When the new game appeared on Whyville, players encountered a great deal of difficulty in winning the game. Encountering these difficulties, the site owner posted the following message: ''We have read up on Spectroscopy on the Internet and found nothing on it! Now since we can't figure the game out we need your help to give us the answers so we can give them to every one else. We will give the first person who respondes [*sic.*] to us with the correct answers *2000 clams!*''– a mighty sum considering that 130 clams was the upper limit of a daily salary. There were many frustrated postings on the site by Whyvillians discouraged in their efforts to play the game. Finally, one week after the original plea, a girl came up with a clever solution, posted her solution online, and told the forum about her cheat. The cheat consisted of individual screenshots taken of each element's spectra and listed as a table, what one might consider a scientific reference guide similar to what professional scientists might use to discern what element's spectra they are observing. It changed the game strategy from trial and error to a more systematic and less time-consuming search by providing a reference table of the spectra of all the elements.

It is here that the collective involvement in cheat design becomes most apparent which is also reflected in other ways. For instance, on the home page the site designer wrote regular updates about ''our'' progress in developing and researching cheats for new games or versions of games. Other players posted comments about cheats they figured out in a game, pleas for more or better cheats, and praises for the help offered on the site. While the site designer and his site administrators officially managed and posted the cheats, the activity of gathering and synthesizing the cheats is a collaborative effort, and the leaders gave credit to those who had assisted with various parts of researching and developing the cheats.

Perhaps one of the more interesting aspects of the site was the owner's decision not to post certain cheats. For instance, while answers to the chat license test were posted, there was a warning that one should understand the reasons for the answers and not just use the cheats without considering their meaning. Similarly, the site never posted answers to the ''ymail helper'' test, presumably because it is a sought-after leadership position on Whyville and the owner thought it should not be cheated. This kind of fine-tuned decision-making illustrates that individuals also set norms for themselves concerning where transgressions were acceptable and where they crossed a line. The science games in Whyville were ''fair'' game so to speak but scamming others of their identity or clams was not. One might disagree whether such an honor code among thieves can count as ethical but it at least showcases some sensitivity to the larger community. It also demonstrates the high value placed on the ''real'' game of Whyville – socializing with peers – versus the science games which educators might find more relevant but which Whyvillians see as a means to an end.

Discussion

When we look beyond cheating to the resulting corollaries in form of cheat sites and discussions it is evident that Whyville.net provides home to a community of players whose engagement reaches far beyond the original virtual world. One can argue about whether those who use cheat codes deprive themselves of a learning opportunity by not playing the science games. At the same time, we know that a large number of players was involved in creating cheats thus finding a way to engage with the science games, perhaps not in the initially intended way. What transpires from these observations is that when cheating becomes a community practice rather than an individual act, then cheating becomes part of learning. This also means that learners need to become involved in new forms of participation just like the ones we observed around designing cheat sites and participating in discussions. We found that some Whyvillians already have taken this initiative when we examined the quality of help provided on the cheat sites. One Whyville player, a cheat site designer himself, provided his own ranking that coincidentally agreed with our own ratings. Here, we see that players understand the cheat sites as a form of community service. Taking on the responsibility of evaluating the quality of cheats means taking cheating outside of its assigned illegitimacy and turning it into commodity open to public inspection.

Our proposal of moving from transgressive practices to designs also shifts our focus from players to designers of cheats and sites. We found that the design and interactions on cheat sites reveal a great deal about the designers' understanding of the community and associated practices. All are invested in Whyville, in promoting others' success on Whyville, and in displaying their knowledge of Whyville. They view the object of the ''game'' as getting a salary to buy face parts and participate in the larger Whyvillian culture. In fact, they value the morals of Whyville as displayed in qualifiers to their chat cheats, asking viewers to read carefully and understand the principles behind the questions. Still further, they have taken the time to learn the inside secrets of Whyville. In addition, the designers often do substantial research to develop their sites and learn how to complete science games.

By extension, transgressive designs then use the design of cheat sites as a starting point to engage students in key aspects of learning within virtual worlds. Designing cheats and cheat sites embodies the very idea of youth as media contributors rather than consumers. In today's media culture it is no longer enough to know how to browse the web, search and evaluate information; it is equally important to be a contributor and know how to share one's cultural knowledge. The ability to understand different genres of cheat sites and to use design tools add essential participatory skills. This design process also contributes to the understanding of how information is shared and allows designers to become critical of the role which industry might play in promoting but also withholding information. With the growing presence of professional gaming, a leisure activity is now moving into the larger business arena and adds a financial angle to achieving gaming success, with implications for cheating in games.

In addition, designers of cheats often face the challenge of providing explanations of complex procedures or phenomena. In educational games played on Whyville, the benefits are twofold because players not only learn how to play the game, but also (presumably) something about the content. Our analysis revealed some interesting aspects about the instructional design of the science games themselves. Perhaps, the most basic kind of cheat for Whyville's mini-games is a list of answers which means the basic skill of using a cheat is similar to having a cheat for a multiple-choice test; one only has to type in or choose the correct answer from a list provided by a cheat site. This generally leaves very little potential for learning in a game. When science games only require simple answers such as in the Alien Rescue Game where a set of answers takes away all of the thinking about spatial relations between the Sun and the Earth, one might wonder how much there really is to learn aside from finding the right number. In an interesting turn, the cheats reveal how much there is to explore and experiment within a game. They also suggest that educational science games should be designed in such a way that they might require more research, and Whyville-sponsored sites should be developed that encourage kids to draw in research from other sites (texts, web sites, experts) and contribute to the knowledge of the larger

community. Having other forms of recognition besides a high salary could assist in this, for instance sponsoring marks of status by knowledge or theory development.

Most importantly, these designs also engage designers to consider the complexities of ethical issues. Cheating by its very nature raises issues about intellectual ownership, fair participation, and community standards – which are at the core of ethics. Cheat site designers must debate what is ethical to put on their sites; they generally differentiate between gaming cheats, cheats on tests to become Whyville leaders, and deceptive identity theft. The actual design, rather than a hypothetical discussion, of cheats and cheat sites provides an authentic context to promote an informed discussion about these issues that acknowledges its controversial nature. All too often, conversations about ethics are hypothetical and disconnected – with cheating they are at the heart of what matters to youth as participants in digital media culture. Jay Lemke (personal communication) once commented that all science is cheating as one ends up using the tools and knowledge developed by others to understand the world; no one would expect any of us to start anew each time we face a different problem. Instead we are building on and extending existing knowledge and tools designed by others. Knowledge building while often portrayed as an individual activity is in fact a collective effort in both real and virtual worlds.

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