

Not Just for the Love of the Game: Finding Professional Quality in Game-Based Wikis

Amanda Ochsner, Crystle Martin, University of Wisconsin-Madison, 225 N Mills St., Madison WI 53706

Amanda.Ochsner@gmail.com, Crystle.Martin@gmail.com

Abstract: User-created wikis around popular videogames function as affinity spaces (Gee, 2004) and sites of participatory culture (Jenkins, 2006), forming a constellation of literacies (Steinkuehler, 2007) and information (Martin, 2011) around the game. In previous research on wiki editors, we determined that many contributors hope to leverage their experience to gain entry into professional industry positions. The question we address in this paper is whether the content created by these editors is comparable to the professionally published guides around games. Based on lexical and Coh-Metrix analyses of game-based wiki texts, our findings would suggest that the texts themselves do stand up to professional texts.

Game-Based Wiki Communities

User-created wikis around popular videogames offer a space for fans to collaboratively create a resource used by the entire community. Players collaborate to pool their collective knowledge in a single organized space, acting as an asynchronous and persistent information resource. These communities function as affinity spaces (Gee, 2004) and sites of participatory culture (Jenkins, 2006), forming a constellation of literacies (Steinkuehler, 2007) and information (Martin, 2011) around the game. Functioning through strictly enforced cultural norms, when users add information to the wiki, it is checked for accuracy; writing style is critiqued and edited; and speculation is reserved for forums only. Unlike traditional information literacy practices, which are characterized by an individual's search for information, information literacy practices pertaining to online affinity spaces require networks and peer learning in order to become a valued member in the community. The more a person participates as a contributor, and in many cases an editor, the more social capital they have with the community.

The Task: Assessing the Wiki Texts

Some of the more dedicated contributors to games-based wikis commit dozens of work hours each week to their efforts, and many hope to leverage the skills and experience they gain through this work to acquire jobs as professionals in industry jobs. While previous steps of our research, including case study interviews with active contributors in these communities, have shed light on the motivations and imagined trajectories of these individuals, interviews give little information about the wiki texts themselves. If committed wiki editors want to take the skills and experience they gain in interest-based affinity spaces and put those to work as professionals in industry, we need to know whether their work is of sufficient quality. To answer this question, we turned to the wikis around two popular single-player role-playing game franchises: Bioware's *Mass Effect* series and Bethesda's *Elder Scrolls* series.

To determine the quality of the wiki texts, we conducted lexical and Coh-Metrix analyses of randomly selected pages on each of these wikis. The lexical analyses include measures from several lexical analysis tools, giving feedback about the text complexity for both wikis. For the *Mass Effect* wiki, we also utilized the Coh-Metrix Text Easability Assessor (TEA), which provides information beyond the grade-level or reading difficulty measures, instead giving feedback about the abstractness or concreteness of the words in the text, the simplicity or complexity of syntactic structures, a gauge of the narrativity of the text, and measures of the deep and referential cohesion.

Lexical Analysis

The lexical and Coh-Metrix analyses of the wiki texts are meant to help us determine that. We analyzed wiki texts using several lexical analysis tools, including the Lexile Analyzer, Flesch Reading Ease, Flesch-Kincaid, and Gunning fog index. Table 1 shows the average results of these lexical analysis tools broken down by wiki and total.

	Lexile Analyzer	Gunning fog index	Flesch Reading Ease	Flesch-Kincaid
Skyrim	1070L	10.70	68.1	7.8
Mass Effect 2	1260L	12.49	53.1	10.1
Total	1180L	11.59	60.6	9.0

Table 1: Lexical Analysis results.

The overall Lexile measure for the text places the reading level between eleventh and twelfth grade (based on United States school grade level), which is higher than that of many popular magazines and newspapers published in the US.

Coh-Matrix Data	Narrativity	Syntactic Simplicity	Word Concreteness	Referential Cohesion	Deep Cohesion	Flesch-Kincaid Grade Level
Mass Effect Wiki	35	58	50	32	59	9.5
Mass Effect Official Guide	29	60	53	13	55	8.8

Table 2: Coh-Matrix results.

Text Easability Assessor (TEA) Analysis

Overall, a comparison of the textual features of the user-created wiki texts and the professionally produced official guide text reveals that these texts are very similar. This similarity suggests that the wiki community produces texts that are similar in style, tone, and reading difficulty, indicating that the interest-driven community—which is organized largely by the more active contributors in such spaces—is able to produce professional quality information resources around the game.

Conclusions

The lexical analysis shows the high level of intellectual work that is done within the wikis, similar finding have been found by Steinkuehler (2011) using the *World of Warcraft* wiki. Coh-Matrix analyses reveal that the features of the texts across the user-created wiki and professionally produced guide for *Mass Effect* are remarkably similar. What is so critical about these spaces is that the participants find them out of an authentic interest in the content area and contribute voluntarily. Since we live in a world where learning is often confused as being inextricably tied up in school, as academics, particularly those who work in areas related to learning and education, we need to pay attention to places where people find the means to learn voluntarily and work collaboratively to create something they care deeply about. Opportunities for these individuals to leverage their work in interest-based spaces toward their professional career trajectories are worthy of further consideration by leaders in both industry and education.

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Moving From Content to Discovery: STEM for Younger Learners

Meagan K. Rothschild, University of Wisconsin-Madison, meagan.rothschild@gmail.com

Carla Engelbrecht Fisher, No Crusts Interactive, carlaeng@gmail.com

Dixie Ching, New York University – Games for Learning Institute, dixieching@gmail.com

Abstract: This poster addresses the question “What are the implications for STEM-focused games and interactive media spaces when pedagogical foci shift from content-based to discovery-based approaches?” The intended audience is broad, from educator to researcher to developer. Information presented includes not only content from literature and industry reviews, but also from field professionals following their own professional applications of STEM in the development and implementation of learning environments. The target outcome is to address current challenges and opportunities prompted by shifting STEM pedagogies from content-driven to discovery-driven learning environments. In embracing these pedagogical shifts, the development and application of game and interactive media spaces serve to provide young learners with deeper foundations on which to build long-term STEM literacy and achievement.

Games as a Vehicle for Shifting Approaches to STEM Learning

At its core, Science, Technology, Engineering, and Math (STEM) pedagogy is about fostering curiosity and discovery. It is about instilling in children the desire to find out on their own, not always to be taught (Fisher, Bryant, Akerman, & Fischer, 2010). While discovery is a natural inclination of children, it has not been a fundamental goal of today’s traditional science and math pedagogy. While standards-based educational frameworks are changing to include practices of science and engineering and crosscutting concepts (NRC, 2011), traditional pedagogical structures focus much more on disciplinary content. Ideally, STEM is about encouraging exploration of the environment, asking questions, and being curious beyond initial comprehension. Doing so fosters the *mindset* of STEM rather than the facts of STEM. This poster argues that games are a key medium in which to support children’s development of a STEM mindset.

Sometimes fostering a STEM mindset is as simple as giving a child the space to wonder, and the tools and encouragement to try out ideas. Games and interactive media spaces can be powerful environments for such wondering and experimentation to playfully take place. They are ripe with opportunities for meaning-making. Play that takes place within game spaces requires high level of textual understandings. Game worlds require players to make sense of signs, moving back and forth between interactions with known and unknown information. Players gain understanding by interacting within the world, and by making interpretations that shift and change based on the way the players use signs and symbols in different ways (Salen and Zimmerman, 2004). What play through various media allows is the possibility for children to create patterns of knowing and understanding based on experimentation, discovery, and role negotiations. Mediated play, therefore, becomes a tool with great promise for STEM supportive environments for younger learners.

A Poster to Identify Implications for Development, Implementation, and Research

With so many products proliferating the market, particularly those claiming to have educational merit, how can developers, educators, and researchers evaluate existing products to identify critical elements of STEM play? Beyond this, how can researchers and developers understand media needs, trends, and opportunities in order to further develop STEM supportive products and platforms? This poster will identify issues regarding the development, implementation, and research of games and other interactive media platforms for supporting STEM learning for young audiences, particularly preschool and early elementary ages.

Statement Samples for Inclusion From Industry Professionals

Carla Engelbrecht Fisher

Founder, No Crusts Interactive

Games are a perfect opportunity to grow this mindset as well as help reeducate adults about STEM learning experiences. Intergenerational play, including cooperative simultaneous play as well as pass-back-and-forth interactions, are increasingly supported by the various gaming technologies. Game designers and researchers should leverage these trends to explore the STEM educational

opportunities for both children and adults, particularly through games that foster cooperation, trial and error, and holistic systems thinking.

David E. Kanter

Director, SciPlay

In my early work, I explored the impact of project-based science curricula in formal classroom settings. Such curricula were designed to support students working on real-world projects. My findings were interesting in that I could show that these kinds of curricula brought about improvements in students' meaningful understanding, but students' affect did not improve in parallel as initially anticipated. While I believe such curricula are a good approach for developing meaningful understanding across disciplines, I have become concerned about their negative impact on affect due to the significant mental effort they require, resulting in a situation that is at odds with ideal classroom practices and thus negatively experienced by students. Taking a different tack, I have recently begun to explore the potential of guided play games to improve both affect and learning. I believe that play in an informal setting can be carefully guided as a game-with-rules that integrates science content in a compelling and intrinsic manner. Also, such play may serve as an important bridge from the informal to the formal setting to promote deeper understanding while also building students' positive affect toward science.

Scot Osterweil

Creative Director, MIT Education Arcade

While harnessing the natural curiosity of children in the service of exploration is a necessary first condition of STEM education, it is not in itself sufficient. As children explore the world, their curiosity leads them into observation and sometimes hypothesis formation, but it can also lead them to misconceptions and even magic thinking. Properly taught, STEM education helps students understand that the formation of knowledge comes through systematic modeling, testing and iterating as well as exploring. Traditional education kills the exploration by emphasizing the memorization of facts, but it also fails at promoting systems thinking by reducing it to a "scientific method" that flattens the experience for students, and drains the sense of wonder from what should be inspiring engagement with real phenomena. Happily, though this form of systems thinking does not come easily, it does emerge in the ways children engage with the models and simulations that animate most electronic games. Through game-play children do learn to reason about cause and effect, test hypotheses, and control for variables. The challenge of designing opportunities for reflection into the game ecology is second in difficulty only to the challenge of designing a genuinely engaging game, but it is a challenge well worth the effort.

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Emulation as archive and archival practice

Chris Russell

Abstract: With some alarm, Henry Lowood *et al* describe the looming issue of digital game preservation—posing the question, "What if we do nothing," they argue *de facto* that we are, in fact, doing nothing. I argue that digital gaming industry and culture is organized around a logic of supersession; in the words of James Newman, "the next game is the best game." In this milieu, the practice of game emulation reclaims and relocates the gaming archive. Emulation is legally ambiguous and contingent on evading corporate notice; games are distributed freely through back channels. Emulated games bear the trace of their pirated nature - as a preservation and reproductive strategy, emulation creates an archive that is both fugitive and ephemeral. In the pseudo-anonymous bittorrent swarm and the ROM site threatened with takedown, the work of digital preservation is conducted without sanction, constantly shifting and endangered.

The archive is always already in peril. Unless we act now, it will be lost. So the authors of "Before It's Too Late" tell us—the problem of game preservation is staring us in the face while "the games you are making will disappear, probably in the next few decades." (Lowood et al., 2009) Strikingly, the authors of the paper mention very little of the enormous community of developers creating ad-hoc emulators to preserve older games, and completely disregard the bootleg trading and distribution of games that has been going on for years. Perhaps this is because they're self-consciously addressing game developers, who likely view emulation as a profit-stealing threat. Perhaps this is because they're concerned with saving the marginalia of games—their manuals, design documents and so on. Regardless, extant emulation practice is rendered invisible. In this paper, I offer a preliminary discussion of the online, borderline illegal practice, development, and distribution of emulators and games—henceforth abbreviated as the "emuscene." I approach this first through making a large claim, arguing that the crisis foretold by Lowood, *et al* is real, embodied by a games industry organized around an infatuation with newness and nextness. Through this, the emulation underbelly is supported even as it is decried, and works as an archive and an archival practice at the borders of legitimacy.

Unlike other entertainment media, such as film, the distribution of games is remarkably single-tiered. Whereas we're used to the progression of movies being played in theaters, moving to on demand, then to DVD and so on, games are released and move directly to the second-hand market. Once production has stopped, the number of copies in circulation is rarely increased. While you might think this would result in high prices, you'd be wrong. Used games depreciate rapidly—if you walk into your local games retailer, buy a copy of the last AAA release at \$60, walk right in and sell it back, you'd be lucky to get \$15 for your trouble. The high profit margins on the repurchase of "old" games entering the secondary market— somewhere around 40%—drives the business model of GameStops, Electronic Boutiques, and other video game specialty stores. More recently, bigger box retailers such as WalMart and BestBuy have entered the arena because of the attractive profits. The working definition of "old" in this case probably extends back 5-6 years—any farther back, and Ebay is likely your best bet.

The creation and consumption of the product of emulation offers an example of what Eugene Levy (1984) has called the "hacker's ethic," an ideological stance organizing the practice of technological enthusiasts at the fringe. For Levy, hackers approach technology with a ludic attitude, seeking to decode and recover data and processes hidden by the mechanisms of copy protection, to lay bare what Gittelman (2006) identifies as the unknowable functioning of the computational digital device. The hacker's ethic involves free distribution, open source coding practices, and most tellingly, the pseudo-anonymized mobility of an un-policed Internet. Mizrach (1997) defines the term succinctly: "the basis of the Hacker Ethic, then and now, has been a rhetoric of opposition to the idea of intellectual property and the conservative worldview of corporate computing practices." (p. 138)

The emulator, first and foremost, exists as programmed by a developer, in a certain programming language, to interpret another programming language—that of the game. The emulator ostensibly is a container format, a method to play back other texts. The emulator itself, however, is a historical document designed at a specific time for a specific use. Consider two competing SNES (Super

Nintendo) emulators, bsnes and ZSNES. The former, designed to exactly emulate every behavior of the original console down to the level of code, requires enormous computing power to simply run. The latter, by comparison, uses a number of workarounds to make the emulator workable on almost any hardware setup. ZSNES is intended to be used to play games now, without significant concern for accuracy. Bsnes, by contrast, is a museum emulator—to make the games function as closely as possible to their original use. Both emulators, however, will eventually become outdated as their programming languages become stop being supported; they themselves will require an emulator to run. The emulator, as archival practice, is somehow always *ephemeral*.

The act of emulation bears the trace of the emulator. Like Gittelman's example of the first appearance of the word "internet" in ProQuest's database due to a transcription error, so emulation bears the marks of that which emulates. Some of these traces can, in Byuu's (2011) words, be "maddening"—the music in the title of *Legend of Zelda: Link to the Past* (Nintendo, 1991) running slightly out of sync with the animation—but they mark the game's transition from one platform to another. The invisible text of the emulator, usually hidden from all but the most tenacious, becomes writ large upon the text it reproduces.

Finally, the emulated are the collections of ROM images exchanged, hidden and migrated. The collections of ROMs scattered throughout the web constantly shift and change; their dubious legality making them always subject to potential disappearance. Bittorrent swarms for torrents containing entire catalogs for consoles may be active today, but tomorrow it may be empty, only hinting at its contents. Nevertheless, the discourse of emulation is convinced of its own tenacity—there's a feeling that no matter how many ROM sites are shut down, no matter how many swarms dwindle down, the games will still be "out there," somewhere in the technological imaginary. The ROM archive is always *fugitive*.

The notion of emulation as an archival practice, as seen through the active gaming practice, is simple on the surface but profoundly fraught beneath. The interaction of the illegality of emulating with the tacit approval of a relatively unconcerned gaming industry has created a free floating archive, hidden except to those with insider knowledge, curated by the shifting bittorrent swarm, the ephemeral ROM site, and the development of emulation at the margins.

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