



Sparklier Worlds: Understanding Games for Girls as Style Intervention

Carly A. Kocurek

ckocurek@iit.edu, Illinois Institute of Technology, Chicago, USA

ABSTRACT

This paper examines audiovisual style and play principles of successful mid-1990s games for girls titles including *Barbie Fashion Designer* (Mattel Media, 1996), *Chop Suey* (Magnet Interactive, 1995), *Rockett's New School* (Purple Moon, 1997), *Secret Paths to the Forest* (Purple Moon, 1997), and related titles. These games, developed for an audience of tween girl consumers, demonstrate a distinct style informed by the affordances of the then-emergent CD-ROM medium, by established play patterns, and by emerging research on girls' desire for and discomfort with emerging technologies. This paper, combining methods from historical and media studies research, utilizes artifact analysis, archival research, and original and historical interviews with game developers, argues that the media-rich, multi-media design practices deployed in games for girls titles have broad utility in story-based games and for non-expert users. By using playful media cues integrated into the game's visual and narrative environment, this approach offers users subtle scaffolding, avoiding the pitfalls of overt pedagogical strategies and embedding moments of surprise and delight in sometimes unexpected places.

CCS CONCEPTS

• **Applied computing** → Computers in other domains; Personal computers and PC applications; Computer games; • **Social and professional topics** → User characteristics; Gender; Women; • **Human-centered computing**;

KEYWORDS

games for girls, video game history, CD-ROM, multimedia history, game design, design research

ACM Reference Format:

Carly A. Kocurek. 2022. Sparklier Worlds: Understanding Games for Girls as Style Intervention. In *FDG '22: Proceedings of the 17th International Conference on the Foundations of Digital Games (FDG '22)*, September 05–08, 2022, Athens, Greece. ACM, New York, NY, USA, 8 pages. <https://doi.org/10.1145/3555858.3555872>

1 INTRODUCTION

By the early 1990s, the majority of video games produced for the U.S. market assumed an audience of boys and young men. To some extent, this reflected a market reality: boys and men represented 75-85% of spending on video games [1]. However, this disparity also presented a bit of a self-fulfilling cycle with largely male game

developers producing games that appealed to their own interests [2]. This approach, which Potanin has termed the “I” methodology of game design” remains prevalent in much of the industry [3]. In the U.S. in the mid-1990s, a number of U.S.-based game developers attempted to address this disparity by releasing new titles targeting girls. Games like *Chop Suey* (Magnet Interactive, 1995) and *Barbie Fashion Designer* (Mattel Media, 1996) ushered in new interest in girls as game users while building on earlier efforts such as those in the adventure game genre or in so-called “cute games” within the arcade game industry [4]. Contributors to the loosely defined and even more loosely affiliated movement included startups like Interval Research spinoff Purple Moon and the Texas-based Girl Games, Inc. alongside established toy and game brands like Mattel.

At the time, design research was rare and usually completed late in the process if at all. While *Chop Suey*, produced by Theresa Duncan and Monica Gesue and published by Magnet Interactive, was an experimental, creative project in its approach, many games for girls titles reflected a robust, research-driven approach to design. Girl Games, Her Interactive, Mattel Media, Purple Moon, and Sony all conducted research on girls' computer and game usage, interests, and play patterns and then used this research to inform both game development and marketing [5–8, 8]. The girl market as defined by these companies ranged approximately from ages 7-14 with some companies focused on the younger or older end of the range specifically.

While the games' development teams differed in their design approaches and emphasis, they shared a concentrated focus on girls. Duncan, for example, summarized her design approach: “My stated goal in life is to make the most beautiful thing a seven-year old has ever seen” [9]. Additionally, most games for girls companies relied heavily on the then-emergent medium of the CD-ROM, focusing on computer rather than console gaming, and leaning heavily into the multimedia aesthetics and affordances of the medium. Perhaps unsurprisingly, then, these games reveal a number of commonalities. In this paper, I consider the approach to audiovisual style and gameplay evidenced through successful games for girls titles. These games present a distinctive style informed by the affordances of the CD-ROM medium, by established play patterns, and by emerging research on girls' desire for and discomfort with emerging technologies.

The games for girls movement presents a fraught historical moment and one that has passed. Game and media platforms have changed and the gender diversity of game players and game developers have both increased significantly, although games culture and the games industry still have significant room for improvement. However, the movement's effort to reach an underserved market continues to provide compelling examples of how designers might approach efforts to diversify market reach or to reach underserved audiences.



This work is licensed under a Creative Commons Attribution-NonCommercial International 4.0 License.

FDG '22, September 05–08, 2022, Athens, Greece

© 2022 Copyright held by the owner/author(s).

ACM ISBN 978-1-4503-9795-7/22/09.

<https://doi.org/10.1145/3555858.3555872>

2 CD-ROM AS INDUSTRY AND MEDIUM

The technological history of the CD-ROM is much lengthier than its cultural history, which dates to, roughly, 1985, when Grolier's released both *KnowledgeDisc: The World's First Laser Videodisc Encyclopedia* on laserdisc for the school and library market and the *New Grolier Electronic Encyclopedia* on CD-ROM. These two text-only products reflect the early understanding of CD-ROM as a data storage format with clear application in education and library reference [10, 11]. That interpretation of CD-ROM as database, information, and reference tool persisted and may have contributed to an often lackluster response from consumers: "The early response to the technology was largely a yawn" [11]. Part of that muted response likely owed to the relative dryness of the content initially produced and to the relatively low market penetration of personal computers. While affordable, accessible storage of databases and reference materials has a high utility and clear application in particular professional and educational contexts, these aspects are not necessarily enticing to a broader audience of users unlikely to have access to a personal computer. Within this early framework, the CD-ROM, like the floppy disc, is a storage or information tool.

2.1 CD-ROM aesthetics

By the early 1990s, the CD-ROM was increasingly positioned and understood as a media form in its own right, one defined by its ability to incorporate not only seemingly massive volumes of text, but sound, images, and video. In this form—as multimedia entertainment—CD-ROM generated a great deal of enthusiasm and a large number of startup companies and studios. The CD-ROM business expanded rapidly. Fewer than 100 titles were published in 1987 while in 1995, there were 9,300; only 75 companies globally published CD-ROMs in 1987, but in 1995, there were 3,565 publishers [12]. This expansion also saw diversification of the medium's use and application. While the early emphasis on databases and educational applications persisted, this expansion also facilitated a large number of experimental and entertainment-oriented applications.

CD-ROM did not have a unified aesthetic in part due to the same affordances that made it appealing for experimentation. But, at the same time, genre conventions seemed to develop quickly with various types of CD-ROM titles such as educational titles, entertainment-focused multimedia, and games leveraging distinctive visual and narrative styling. Järvinen argues that computer and video games evidence styles that can be categorized broadly under three umbrella terms, photorealism, caricaturism, and abstractionism defined by both visual and audio elements [13]. CD-ROM or multimedia titles are not necessarily games, and similarly developed their own audiovisual styles. Here, I consider three styles: educational media, which evokes the norms of print reference material and educational audiovisuals, such as the authoritative narration style of school film strips; bricolage, which often takes multimedia quite literally and evokes collage and assemblage art; and photorealism, which aims towards photographic representation, either through sophisticated rendering techniques or through the use of approaches like full motion video capture (FMV). I offer these not as an exhaustive guide to CD-ROM, but rather as a summary of the stylistic landscape into which the games for girls movement



Figure 1: Screen capture from *Compton's Interactive Encyclopedia 1995*.

launched. While games for girls are often understood in the context of video and computer games, I argue they should also be understood specifically in the context of CD-ROM and their stylistic approach is often in direct conversation with multimedia discourse.

2.1.1 Educational Media. The understanding of CD-ROMs as books, references, and educational tools had a significant impact in shaping the visual aesthetics and user interfaces of these titles. While Grolier first introduced a text-only CD-ROM encyclopedia, by the mid 1990s, the company was producing multimedia editions that incorporated images, video, and audio narration in a straightforward manner. Compton's, Britannica, and other companies released their own multimedia and interactive CD-ROM titles alongside web-based services. In the *Compton's Interactive Encyclopedia 1995*, Patrick Stewart takes the role of guide "through this powerful yet easy to use multimedia universe of information" (see Figure 1). The approaches to information display and media use reflected those of educational film, television, and software productions mixed with the types of print layouts common to comparable book titles. The Compton's example is particularly illustrative of this; the tableau screen serves as the primary interface, articles appear on the right with videos and images on the left and a row of buttons along the left edge.

While visibly integrating multimedia, the interactive encyclopedias and other reference titles frequently recycled the conventions of their print counterparts and often echoed the standards of earlier game and software titles. For example, *Where in the World is Carmen Sandiego* (Broderbund, 1985) had used a similar interface style a decade earlier (see Figure 2).

2.1.2 Bricolage. While educational titles often self-consciously referenced earlier print media in their approaches to graphic and page design, creators focused on arts and entertainment leaned into the concept of multimedia as assemblage. For example, the Residents' *Freak Show* (Voyager, 1994), considered among the most influential early CD-ROMs, demonstrates the kind of music and media experimentation the group was known for in a deliberate homage to "outcast culture" [14]. Early adoption of the medium brought the Residents a level of mainstream visibility the underground band had previously avoided, but it also enabled them to bring a certain



Figure 2: Screen capture from *Where in the World is Carmen Sandiego?*



Figure 3: Screen capture from *Freak Show*.

pastiche-driven, surrealist aesthetic (see Figure 3) to the emergent medium: *Freak Show*'s success sent a shock wave through the interactive world. The possibilities of the new medium had finally been blown open, and *The Residents* had made it happen" [15]. Michael Nash, who served as executive producer on *Freak Show*, had a background in interactive media art, and went on to produce a number of other CD-ROM projects, including the *Residents*' follow up CD-ROM, *Bad Day on the Midway* (Inkscape, 1995), the literary fever dream *The Dark Eye* (Inscape, 1995), and *Devo Presents Adventures of the Smart Patrol* (Inscape, 1996). All titles evidence an aesthetic devotion to bricolage with varied textures colors and media artifacts side by side, and their influence on CD-ROM was profound.

For example, *Dr. Sulfur's Night Lab* (McGraw-Hill, 1996), a chemistry-focused learning game, features a haunting, jumbled lab set; *Peter Gabriel: Eve* (Real World Multimedia, 1996) intermingles photos and computer graphics into striking and uncanny visuals; and *MindGym* (Simon & Schuster, 1996), a title intended to teach creative thinking, pays visual homage to surrealism (see Figure 4). While not everything on CD-ROM shared a style, *Freak Show* embodied and inspired a particular multimedia aesthetic that was applied to disparate ends.

2.1.3 Photorealism and Full Motion Video. Both historically and in the present, photorealism is often invoked as a standard for sophistication, fidelity, and realism in game development [17, 17]. CD-ROM-based games helped drive interest in computer games in part because of their capacity for photorealism and FMV [18]. *Myst* (Cyan Ventures, 1993), widely considered the killer app for the CD-ROM drive, increasing adoption of the technology among consumers eager to play the game, managed to use pre-rendered graphics to offer a level of graphical representation that proved deeply enticing [19]. While *Myst* is a work of fantasy, its rich graphics speak to the representational aspirations of a medium for which photorealism was both an ideal and a hallmark.

FMV capture found particularly wide usage in horror games like *Night Trap* (Digital Pictures, 1992), *The Seventh Guest* (Trilobyte, 1993), and *Phantasmagoria* (Sierra Entertainment, 1995) (see Figure 5), and the use of FMV in *Night Trap* in particular helped animate the U.S. congressional hearings on violent video games [20]. The relative fidelity of CD-ROM graphics including FMV was, of course, the result of the technical affordances of the storage medium and home computers, but the technical affordances of a medium are also its stylistic ones.

3 DESIGN RESEARCH FOR GIRLS

One of the defining characteristics of the games for girls movement is just how much companies incorporated and relied on research [4]. For example, American Laser Games VP of Marketing Patricia Flannagan made an arrangement with the Albuquerque Independent School District, enabling the company to survey 3,000 girls; the company also conducted focus groups and, later, formed an advisory board of girls who offered their input throughout the design process as the company formed Her Interactive [5]. At Interval Research Brenda Laurel oversaw a project on girls' relationship with and interest in technology and games that reflected a \$5 million USD investment in the project, later using those findings to launch *Purple Moon* [21]. These companies were not alone in using research to drive design and decision making when making efforts to create and pursue the girls market. At least some of this reflects a tacit understanding that convincing managers and investors these projects were worthwhile would require pitches firmly anchored in numbers. Michealene Cristini Risley, who helped form the Sega Girls Task Force, summarized this approach:

"I went back to Sega, and I developed a presentation. I remember this, I had all the executives in. I think there might have been one or two women in there, but it was all males. And I went in and I said, 'Look, here's how big the market is. Here's what we're missing out on.' So, I did the same thing Judith Rosener did. You know what? Turn my passion into financial dollars for them. And I said, 'No one's in the market. Look at the opportunity we have.' . . . I was so passionate about it. I'm like, 'God. Guys, look at it. There's so much money left on the table'" [23].

Regardless of *why* research became so central to the games for girls movement, it became a defining characteristic. The games were anchored in design, marketing, and business research into what girls in the U.S. wanted, why they wanted it, and how they



Figure 4: Screen captures for *Dr. Sulfur's Night Lab* (left), *Peter Gabriel: Eve* (center), and *MindGym* (right).



Figure 5: Screen captures for *Night Trap* (left), *The Seventh Guest* (center), and *Phantasmagoria* (right).

wanted it. In an industry enmeshed in the I design methodology, this approach was radical; in one laser-focused on the pursuit of boys' attention and dollars, it was doubly radical. That emphasis on research, however, also explains some of the consistencies across games for girls titles produced by different teams. Among these findings were a preference for story-driven, collaborative play, a different set of expectations and commitments with regards to time spent on the computer, and inconsistent access to hardware.

Developers and researchers also drew on research from other fields, in particular research about children's development and modes of play. Worth noting is that both the research conducted by games for girls developers and read by them focused on samples drawn entirely from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies; this is not a problem in a case where research is intended to inform design for or marketing to members of those same societies, but it does place a real limitation on how broadly applicable research findings might be [31].

3.1 Game characteristics

Researchers at multiple companies found girls had strong preferences for how they wanted to use computers and what kinds of games they found appealing or worth spending time on. These findings showed girls' preferences often at direct odds with major game industry trends at the time.

3.1.1 Collaboration and Creativity. While researchers found certain types of competitive games appealed to girls, in many cases, girls expressed a strong preference for interactive storybooks and other story-driven games [6, 8, 22]. Indeed, the games for girls movement included a number of such titles, including *Chop Suey*

and Theresa Duncan's other titles, the *Rockett Movado* and *Secret Paths* series at Purple Moon, and Her Interactive licensed books for story-driven titles like *The Vampire Diaries* (Her Interactive, 1996) and *Nancy Drew: Secrets Can Kill* (Her Interactive, 1998).

While these games might include narrative conflict, the conflict was rarely with another player. Instead, these titles assumed that if girls did play, they'd likely play together collaboratively or alone. Advertising for *Barbie Fashion Designer*, for example, featured two girls using the computer side by side, the on-screen activity seamlessly transitioning into hands-on crafting and doll play.

Creative expression, too, is a central play style in a number of games for girls titles. *American Girls Premiere* and *Rockett's Adventure Maker* (Purple Moon, 1998) invited users to adapt the characters and settings of familiar stories to make stories of their own. At Mattel Media, Durchin focused heavily on games as a medium to facilitate players' creativity: "The endgame was to get something better than when you started it from, because your ideas had to be involved with it. Every game." [6].

3.1.2 Time. Laura Groppe's research on games for girls led to several findings, including that girls tended to use computers for shorter periods of time and wanted to do things that were both fun and useful [4]. When Groppe's game company launched their first product, *Let's Talk About Me* (Girl Games, 1995), the game incorporated a diversity of educational and playful content with function inspired by teen magazines [23]. Importantly, the game's approach enabled girls to drop in and out of activities with relatively low stakes, catering to those shorter bursts of computer use.

Many storybook-style games also incorporate elements of this. For example, in *Secret Paths in the Forest* (Purple Moon, 1997), the

game is divided into individual, character-driven chapter. In each, the player encounters a problem relayed by a character's story; the player then solves a puzzle after which, as a reward, they receive a story that contains a lesson relevant to the character's problem. The game can be played end to end, but it doesn't have to be, and girls could easily play a single chapter. Time pressure in the games is limited, rather, play is open ended, repeatable, and sometimes meandering—an aspect that some critics attacked, but that aligned with girls' stated preferences.

3.1.3 Hardware Access. Access to hardware came up repeatedly as an issue with girls' ability to play games. Researchers at Mattel found that girls were often secondary users of computers: "when a boy walked in the room she'd have to give it up to the boy" [8]. In fact, Mattel Media produced *Barbie Fashion Designer* in part because research indicated the number of older, hand-me-down computers—more likely to be under the control of girls—was sufficient to justify the investment [6]. Brenda Laurel's research for Purple Moon similarly indicated that hardware access was a significant barrier and many games and game consoles were viewed as belonging to boys exclusively [21]. Worth noting is that more recent research shows hardware access continues to be a friction point in girls' access to computer and video games [24].

3.1.4 Problems with failures. One key finding from Mattel's child testing of *Barbie Fashion Designer* was that girls often internalized or blamed themselves for problems with the CD-ROM, regardless of whose fault the failure was [6]. This finding may also suggest why girls didn't prefer high stakes or competitive computer games—the technology felt fundamentally unfriendly and unfamiliar and experiences of failure while using the technology felt like personal failings. Less competitive games, games in which the user has ample opportunity to replay challenging parts or find alternate modes of engagement, help eliminate this concern.

3.2 Play Patterns

Play patterns are, simply put, modes of play. Roger Caillois famously divided play into two types, *ludus* and *paidia*, and four forms: *agon* (competition), *alea* (chance), *mimicry* (role playing), and *ilinx* (the alteration of perception) [25]. The National Institute for Play instead points to attunement play, body play and movement, object play, social play, imaginative and pretend play, storytelling-narrative play, and creative play [26]. Both taxonomies have utility, but the more important aspect in this context is that games for girls titles leaned on different play patterns than many other games.

For example, *Barbie Fashion Designer* invited girls into role playing or mimicry, as they took on the role of fashion designer, but it also presented opportunities for mimicry, storytelling-narrative play, and creative play. The game, designed in part not to feel like a game *did* feel like the best parts of playing with dolls or engaging in craft projects, activities that girls already had a proven interest in [6]. Titles like *Let's Talk About Me*, *Rockett's New School*, and *McKenzie & Co.* all offered girls opportunities to imagine themselves and their lives a few years in the future—much in the way that teen magazines or realistic young adult novels might. In both examples, the games evoke other forms of play already appealing to girls and transposed those onto a new medium.

4 MULTIMEDIA FOR GIRLS

While research helped define approaches by games for girls developers, the movement also coincided with a particular moment in the history of games, culture, and technology. The games for girls movement launched into the landscape of CD-ROM and multimedia just as much as that of computer and video games. And, indeed, most of the best-known games for girls titles were released on CD-ROM. However, these titles also exhibit distinctive audiovisual and play styles at a distance from those of the larger multimedia landscape. Games for girls as audiovisual style

4.1 Games for girls as aesthetic

Like other types of games, games for girls titles evidence some variation in audiovisual style. However, they also resonate with one another—games for girls titles are often recognizable as such because of their distinctive audiovisual elements and narrative approaches. These reflect both the larger context of the CD-ROM and multimedia industry and ideas derived from research.

4.1.1 Derived from CD-ROM. Certainly, games for girls titles incorporate the educational media, bricolage, and photorealism of other CD-ROM titles, they do so differently. Throughout, colors are brighter, female characters are more prominently featured, female narrators and voice actors are more common, and audio cues tend to be gentler.

Educational Media. Games for girls titles are often subtly or overtly relayed educational content. Purple Moon's *Rockett* series provided opportunities for emotional rehearsal, enabling girls to think through how they might react in various social scenarios as they helped Rockett navigate school and friendships. *Let's Talk About Me* incorporates horoscopes, personality quizzes, and other magazine-style fare, but it also included educational material delivered in a similar style. For example, in the "My Body" section includes a nutrition lesson led by "Miss Hottie Body," who informs the user about the benefits of drinking water or consuming particular kinds of nutrients. The style is visually playful, but also includes relatively straightforward information clearly labeled—for example, that biotin is found in nuts and is good for hair (see Figure 6). The content is educational, but the page layouts and visuals are less straightforward than most educational content and the voices and sounds are less authoritative and formal. The style hearkens, again, to the teen magazines of the time (complete with their vexed and vexing approach to health and beauty culture).

Rather than offer straightforward information by text, *American Girls Premiere* (The Learning Company, 1997) allows girls to make their own animated plays using the American Girl historical characters, historical settings, and historical artifacts. That control means girls can place artifacts as they choose like stickers; when the plays are completed, a red velvet curtain pulls back from the set. The title was marketed as educational, and surely it contains a wealth of historical content, but the interface is less focused on text-based information; there's no panel filled with text about Josefina's trunk and its significance, but the trunk is there along with its historical setting and visual context (see Figure 7).

Bricolage. Games for girls titles used multimedia assemblage just as much as other CD-ROM titles did, but they assembled from



Figure 6: The menu for the “My Body” section of *Let’s Talk About Me* (right) and the nutrition lesson provided by Miss Hottie Body (right).



Figure 7: Screen captures from *American Girls Premiere*.



Figure 8: Screen Captures from *Chop Suey*.

different kinds of sources. *Chop Suey* drew inspiration from folk art and the Richard Scarry’s *Busytown* CD-ROM; throughout, it uses elements of bricolage, combining vintage film clips alongside hand-drawn art, and using an array of original audio, including narration by David Sedaris, singing and ukulele music, and other assorted materials (see figure 8). *Let’s Talk About Me*’s “The Ultimate Closet” mixes photographs of clothing, slick computerized graphics, and looping cursive text, and the navigation screen for *McKenzie & Co.* (Her Interactive, 1995) takes the form of a corkboard covered in ephemera.

In Purple Moon’s *Secret Paths to the Sea*, the splash screen for the game combines a funky purple graphical keyhole frame with lush storybook style graphics—the illustration style was chosen, in part

because of the game’s focus on girls’ interior lives. Laurel’s research found that girls imagined themselves older when talking about their social lives, but imagined themselves as their real age when talking about their interior lives [22]. The stories and parables unlocked when the user completes all puzzles for a particular character use separate illustration styles, visually distinguishing these stories from larger game narrative while embedding them directly in it. The audio landscape mixes original compositions, narration, nature recordings, and sound effects to demarcate and create narrative space.

Photorealism. Rather than the gritty realism of popular horror CD-ROM titles or the moody fantasy world of *Myst*, games for girls titles aim for a kind of glossy, girly photorealism. The video



Figure 9: Screen capture from *McKenzie & Co.*

in *McKenzie & Co.* (Her Interactive, 1995) depicts teenagers who could easily have wandered off the set of the original *Saved By the Bell* sitcom, and settings—classrooms, bedrooms, and various teen hangouts—are similarly part of the visual vernacular of youth media franchises (see Figure 9). Similarly, *Let's Talk About Me* incorporates photorealism into “The Ultimate Closet” and other sections like “Hair Master – 2000” in which the user can swap out hairstyles on a photo of a real girl with the click of a mouse.

The Vampire Diaries, of course, presents an interesting point of overlap—a games for girls title steeped in the horror genre, although one with a distinct narrative framed by a teen girl protagonist. The same source material was later adapted into a successful television series that found its primary audience among teen girls and young adults.

4.1.2 Cooties. Durchin made efforts to make games for girls “as alien as possible” to the established gamer audience [6]. Laurel described the process of giving Purple Moon products “cooties” to try to ensure boys wouldn’t want to touch—and potentially take over—titles meant for girl players [22]. The visual style of games for girls titles is, in part, about appealing to girls, but it is equally as much about repelling players who might stand in the way of girls’ access to the titles. These games were for girls—and only girls. Audiovisual style clearly articulated this and placed that principle at the forefront of users’ interactions with the games, beginning with their advertising and packaging.

4.1.3 Multisensory Interfaces. Many games for girls titles incorporate gentle bell and chime sounds to cue activity. Games for girls titles don’t just look different, they sound different, too. This reflects research indicating that girls were extremely sensitive to audio cues and would, often, find harsh cues upsetting [G, I]. The audio and animated elements of the interface combined work to combat girl players’ inclination to internalize failure. Everything in the games is made to look, sound, and feel welcoming and encouraging. Durchin calls this the “brrrring factor” [6].

4.2 Games for girls as modes of play

Games for girls titles didn’t just look different from other CD-ROM titles of the period; they were different in their audiovisual elements at multiple levels and also leveraged distinct approaches

to computer-mediated play. The principles evident in the games reflect developers’ efforts to implement research findings within the affordances of the medium.

4.2.1 Low Conflict. Game for girls titles rarely involve direct competition, in keeping with the developers’ research findings. Loops

Some titles like *Chop Suey*, *Let’s Talk About Me*, or *Barbie Fashion Design* and games that emphasized girls’ own creative efforts relied on a kind of looping, non-linear experience. There is no clear beginning or end, exactly, and the user can drop in or out of the game without any real consequence.

Rehearsal. The games made by Purple Moon emphasized social and emotional rehearsal. Girls could play and replay games to test out what they could do in various scenarios that were fairly true to life. If the player did not like the outcome of a choice she made, she could easily replay, making different choices to find other outcomes. If roguelike games featuring permadeath are on one extreme of player stakes, most games for girls titles are on the other. Everything the player does can be done over differently. In this way, the games emphasize an exploratory ethos anchored in replayability.

4.2.2 Satisfaction. Player satisfaction is, of course, a general concern in game development, but in games for girls titles it was paramount and considered at the micro level. Developers stressed the satisfaction of even small interactions within the game. In line with Brenda Laurel’s principle of whole actions, the plot of the game or of the interactions within it are incomplete without the collaboration of the player [29].

Girls also expressed a desire for things of their own—wanting to make choices that felt meaningful to them and to exert influence over the world around them, and games for girls titles worked to satisfy those desires. The *Secret Paths* series evolved based on feedback from girls; researchers had assumed the girls would want to go into the forest with their friends or to take care of animals, but the girls wanted to be alone and to be taken care of [7, 21]. For *Barbie Fashion Designer*, the developers found that the girls added narrative context they found deeply meaningful and that allowed for streamlining of in-game choices:

“It’s just as satisfying for a child to pick from all the different outfits. And they didn’t need a lot of choices. They would always pick the same outfit, but in their minds, it would be a different one each time. Because it was different to a story, or contextually different to them each time. So, my point was like, let’s do less better. And let’s not give them so many different controls that it becomes confusing. Everything they do should start out beautiful and end beautiful” [6].

5 CONCLUSION

This is not a complete survey of the games for girls movement and its history. Rather, the goal here is to explicate some of what made games for girls both recognizable and distinctive in their historical and industrial context. While the games for girls movement is framed as a diversity intervention—and it certainly was part of a deliberate effort to diversify the player base for video and computer games and to reach new audiences—it was also an intervention into the medium itself. In short, games for girls looked, felt, and played

differently from other games produced at the time. Games for girls exhibited a distinctive audiovisual style that is recognizable across games. They centered research in the development approach to an unusual degree.

At least some of this is owing to the research-informed approach *and* the relative gender diversity of development teams. In an industry that still struggles with basic diversity in terms of gender (and race and other categories of identity), the number of women in leadership on games for girls projects and at games for girls companies is striking. While the games for girls movement is a historical movement now past, the successful game titles launched by companies participating in these efforts provide compelling examples of how design approaches can be leveraged to diversify and expand markets. Further, they underscore the importance of audiovisual and play styles in reaching specific audiences.

That said, some aspects of these titles can also demonstrate now dated or outmoded understandings or assumptions. For example, the same magazines that inspired *Let's Talk About Me* have, rightly, come under significant criticism for their impact on girls' self-concept. Studies show, for example, that higher levels of magazine reading are associated with "greater body surveillance and body shame" [30]. Girls' media culture could be heavily homogenous and disproportionately white [31]. Some games for girls titles made a deliberate effort to create a more supportive and inclusive media environment, but the success of these efforts varied, and, even at the time, developers would sometimes face sharp criticism for their representational choices and thematic content. Further, broader awareness of the many ways individuals experience and embody gender means that the binary construction at the heart of the games for girls movement can make the very premise seem reductive. However, as much as the games for girls movement represents an imperfect and incomplete effort, it remains worthy of serious consideration and study as we continue to work towards more inclusive and representative design practices and better and more meaningful connections with the full range of players.

ACKNOWLEDGMENTS

This material is based upon work supported by the National Science Foundation under Grant 1922391 and by the University of North Carolina Wilmington Visiting Scholars Program.

REFERENCES

- [1] Justine Cassell and Henry Jenkins (Ed.). 1998. *From Barbie to Mortal Kombat: Gender and Computer Games* (1st ed.). The MIT Press, Cambridge. DOI: <https://doi.org/10.7551/mitpress/3125.001.0001>.
- [2] Justine Cassell. 2003. Genderizing human-computer interaction. In Julie A. Jacko and Andrew Sears, eds. *The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications*, Lawrence Erlbaum Associates, Mahwah, 2003, 401-412.
- [3] Robin Potanin. 2010. Forces in play: the business and culture of videogame production. In *Proceedings of the 3rd International Conference on Fun and Games (Fun and Games '10)*. Association for Computing Machinery, New York, 135-143. DOI: <https://doi.org/10.1145/1823818.1823833>
- [4] McDivitt, A. L. (2020). *Hot Tubs and Pac-Man: Gender and the Early Video Game Industry in the United States (1950s–1980s)* (Vol. 1). Walter de Gruyter GmbH & Co KG. .
- [5] Lisa Gerrard. 1999. Feminist research in computers and composition. In Kristine Blair and Pamela Takayoshi, eds. *Feminist Cyberscapes: Mapping Gendered Academic Spaces*. Praeger Publishing, Westport, 1999, 377-400.
- [6] Sheri Graner Ray. 2021, November 4. Interview by Author. [video recording].
- [7] Jesyca Durchin. 2021, October 16. Interview by Author. [video recording].
- [8] Brenda Laurel. 2001. *Utopian Entrepreneur*. The MIT Press, Cambridge.
- [9] Richard Moss. 2019, May 27. What happened when Sega courted female players in the mid-'90s. Polygon. <https://www.polygon.com/features/2019/5/27/18526122/sega-girls-task-force-female-players>
- [10] Michael Connor, *The Theresa Duncan CD-ROMs*, New York, Rhizome, <https://sites.rhizome.org/theresa-duncan-cdroms/#section-1>
- [11] Kay E. Vandergrift, Marlyn Kemper, Sandra Champion, and Jane Anne Hannigan. 1987, June-July. CD-ROM: Perspectives on an emerging technology. *School Library Journal*. 27-31.
- [12] Nancy K. Herther. 1995, May/June. CD-ROM in libraries. *Online*. Vol. 19, Iss 3. 109-117.
- [13] Kathleen M. Rassuli and Michael J. Tippins. 1995. History and cyberspace: A marketing history of the CD-ROM book industry. *The Marketing History Conference Proceedings*. Vol. VII. 221-236.
- [14] Aki Järvinen. 2002. Gran stylissimo: The audiovisual elements and styles in computer and video games. In Frans Mäyrä (ed.). *Proceedings of the Computer Games and Digital Cultures Conference*. Tampere, Tampere University Press. 113-128.
- [15] Ralph Lombreglia. 1997, June 5. What happened to multimedia? The Atlantic Online. <https://www.theatlantic.com/past/docs/unbound/digicult/dc9706/dc9706.htm>
- [16] Lynn Ginsburg. 1995, September 1. Twin Peaks meets SimCity. *Wired*. <https://www.wired.com/1995/09/residents/>
- [17] Wages, R., Grünvogel, S.M., Grützmacher, B. (2004). How Realistic is Realism? Considerations on the Aesthetics of Computer Games. In: Rautenberg, M. (eds) *Entertainment Computing – ICEC 2004*. ICEC 2004. *Lecture Notes in Computer Science*, vol 3166. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-540-28643-1_28
- [18] Jarvis, N. (2013). *Photorealism versus Non-Photorealism: Art styles in computer games and the default bias* (Doctoral dissertation, University of Huddersfield).
- [19] Mark J.P. Wolf and Bernard Perron. 2003. An Introduction to the Video Game Theory. In Mark J.P. Wolf and Bernard Perron (eds.). *The Video Game Theory Reader*. London, Routledge. 1-24.
- [20] Mark J.P. Wolf. 2011. *Myst and Riven: The World of the D'ni*. Ann Arbor, University of Michigan Press.
- [21] Carly A. Kocurek. 2019. Night Trap: Moral panic. In Matthew Thomas Payne and Nina B. Huntemann (eds.). *How to Play Video Games*. New York, New York University Press.
- [22] Carly A. Kocurek. 2017. *Brenda Laurel: Pioneering Games for Girls*. Minneapolis, University of Minnesota Press.
- [23] Michealene Cristini Risley. 2022, January 25. Interview by Author. [video recording].
- [24] Henrich, J., Heine, S., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(2-3), 61-83. doi:10.1017/S0140525X0999152X.
- [25] Heather Kelley. 1998. An interview with Heather Kelley (Girl Games). In Justine Cassell and Henry Jenkins (eds.). *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, The MIT Press. 152-170.
- [26] Carolyn M. Cunningham. 2018. *Games girls play: Contexts of girls and video games*. Lenham, Lexington Books.
- [27] Roger Caillois. 1961. The definition of play, the classification of games. In Katie Salen and Eric Zimmerman (eds.). 2006. *The Game Design Reader: A Rules of Play Anthology*. Cambridge, The MIT Press. 122-155.
- [28] National Institute for Play. 2022. Types of play. <https://www.nifplay.org/what-is-play/types-of-play/>
- [29] Brenda Laurel. 1993. *Computers As Theatre*. Reading, Addison-Wesley Longman.
- [30] Elizabeth A. Daniels. (2006). *Media representations of Active Women* (Doctoral dissertation, University of California Santa Cruz). .
- [31] Duke, L. (2000). Black in a Blonde World: Race and Girls' Interpretation of the Feminine Ideal in Teen Magazines. *Journalism & Mass Communication Quarterly*, 77(2), 367-392. <https://doi.org/10.1177/107769900007700210>.