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Preserving Soundscapes–The Necessity to Archive Pokemon Black & White: Super Music Collection

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Abstract. Preserving video games is a growing challenge as legacy hardware and software slowly disappear. This paper examines the issue by analyzing the track “Final Battle! (N)” from the four-disc compilation of *Pokemon Black & Pokemon White: Super Music Collection (2010)* for the Nintendo DS. In doing so, a fundamental paradox in game preservation emerges: how do we capture a dynamic, interactive piece of music on a static, physical format like a compact disc? To safeguard the legacy of this medium, institutional libraries must actively archive video game soundtracks and their underlying code to save the history of interactive music before the original devices and digital files disappear forever.

Keywords. Ludomusicology, Digital Preservation, Adaptive Audio, Transdiegetic Audio

Introduction

In a world that is driven by rapid technological advances, preserving foundational digital media requires a deliberate effort to protect vulnerable history before it is too late. Libraries need to protect the baseline data of dynamic musical systems that would otherwise vanish alongside obsolete gaming platforms. One critical example of a collection that needs this protection is the four-disc box set of “Pokemon Black & Pokemon White: Super Music Collection” that was originally released for the Nintendo DS.

However, in doing so library archives face a foundational paradox. A CD box compilation cannot fully capture an interactive, always changing video game musical system. Musicologists Ludovico et. al (2022) points out this exact “paradox of digital preservation,” noting that “when the music is rendered in real-time thru the algorithmic manipulation of some building blocks” there is no fixed score or reference point. However, archiving this physical media is essential, because it serves as a permanent historical record of how early composers innovated within strict hardware limits. When access to the original source becomes impossible, “recordings remain the only viable solution when the entire artifact cannot be preserved” (Ludovico et. al, 2022). Consequently these audio files serve as a permanent historical record, capturing exactly how early composers innovated within strict technological limitations.

Hardware Limitations and Audio Design of the Nintendo DS

“Pokemon Black and White” was released in 2010 for the Nintendo DS. This game was a new phenomenon that had a deeper and more mature storyline. Rather than focusing on tournament battles, this game focuses on a narrative on navigating through complex moral dilemmas, and leads to the final showdown with anti-hero king, N. To support this intense plot, the sound team had to rethink how handheld audio worked. The DS cartridges did not have enough storage space to hold large pre-recorded music tracks like MP3s. Instead, the hardware had to rely on built-in sound chips that read sequenced code to trigger tiny instrument samples in real-time. This process aligns with the early game preservation frameworks mentioned by music scholar Henry Lowood (2009), who notes that early digital games were dictated by hardware limits and memory mapping. As the primary composer for the game, Junichi Masuda worked within this framework to push the boundaries of the Nintendo DS when programming “Final Battle (N).” By squeezing an epic narrative scope out of a tiny device with limited digital memory, Masuda made the track sound like a massive, studio-quality production. He engineered “Final Battle! (N)” to respond directly to the player’s successes and failures in real-time.

Shift to Adaptive Audio and Dynamic Storytelling

Handheld games used to rely on static, generic background tracks that looped multiple times from start to finish. Because the loops were endless, there was no need to think about what was occurring on the screen. Masuda changed this standard by designing music that mirrored the psychological stakes of the battle. Contemporary interactive audio manuals such as Guy Somberg’s *Game Audio Programming* (2018) shows that this is due to horizontal resequencing and vertical layering. Horizontal resequence moves players between distinct musical segments based on the state of the game and vertical layering adds or removes musical stems driven by various variables in the game. Masuda showed that a game did not need large console systems to create dynamic music, which would make audio engineering easier due to larger storage capabilities. Rather, storytelling was possible even on tiny devices as long as composers programmed in a smart and innovative way. After the release, other handheld games started using similar methods to make their soundtracks exciting and dynamic. Masuda proved that composers could be innovative even within hardware limitations. His work significantly changed how programmers looked at handheld sound chips and raised the standard for future mobile gaming music.

Musical Analysis and Compositional Tensions in “Final Battle! (N)”

At the beginning of the track, the piece starts with a series of fast arpeggios that mimic the sound of a ticking clock or metronome. Players feel anxious and nervous right off the bat, and this sense of urgency keeps the players on their toes throughout the game. The opening motif creates rhythmic instability. Despite a driving, frantic tempo, the initial notes feel detached from a steady metric grid, causing tension. Following this introduction, the track starts playing intense combinations of church organ and electric guitars, blending sacred tradition-like aesthetics with modern energy. By separating the deep bass register of the guitars from the high register of the organ, the track uses wide frequency-space separation and chromatic harmonies to make the stakes of gameplay feel grand. Jumping between bright textures in the upper register and the sudden heavy bass drops gives a sense of unpredictability that matches N’s warped worldview.

Non-Deterministic Design and Transdiegetic Innovation

Horizontal resequencing offers one clear window into non-deterministic design. The system constantly tracks internal memory variables generated by the match itself. Because the N battle unfolds differently depending on these variables, no two players experience the same fight.

Earlier Pokemon games handled low health crudely: a repetitive diegetic beep layered on top of whatever music was already playing, often clashing with it. In *Black and White*, something more ambitious happens. Once a Pokemon's HP drops to the critical zone, the game doesn't just add a warning sound—it restructures itself. As Somberg (2018) explains, the audio engine monitors the live health variable and swaps out the main battle theme entirely for a new frantic loop built around the rhythm of the old alarm beep.

Ludomusicologists have a term for this kind of effect: transdiegetic audio. This means sound that deliberately blurs the line between the diegetic world of the characters and the non-diegetic world of the interface (Jørgensen, 2007). Rather than keeping those two audio registers separate, the game lets them combine into a single, unified sonic experience.

What makes this move so effective and clever is that it doesn't just add drama—it relocates the low HP alarm from background noise into the structural core of the music. By turning a user interface warning sound into the primary music material, the soundtrack becomes a direct psychological mirror of the battle's volatility. The player doesn't just hear that their Pokemon is in danger; they feel it, and that pressure pushes them to rethink strategy in real-time.

Conclusion

Archiving the CD box set in the library collection allows for the track to remain in a safe environment. Many times, fans upload snippets of the audio on social media platforms like YouTube, but there are risks of copyright, meaning that files have to be taken down. In addition, streaming these tracks online would not make the pieces credible for academia purposes. Since playing games on physical devices is diminishing, libraries need to preserve items like the Super Music Collection. Doing so ensures that future generations of scholars and gamers can easily study how early composers used innovative programming to overcome the strict hardware limitations.

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