The Lost 87%: Towards Improved Access to Games for Game Design Education

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INTRODUCTION

Access to a diverse range of past and current games is essential for the effective design of new video games. As games become an increasingly entrenched part of modern culture and game development tools become more accessible, the volume of games has escalated at an unprecedented rate. In 2022, the numbers of new releases on *Steam* alone were 10,963 (Clement, 2023), a 13,098% increase compared to the *Nintendo Entertainment System*, which averaged 83.7 (ThePhleo, 2020) titles a year. Despite the significant increase in the number of games, the preservation and accessibility of these games remain a critical issue. The recent report by the Video Game History Foundation (VGHF) shows that only 13% of legacy games are accessible through reasonable means (Salvador, 2023), which highlights two major questions regarding game education curricula: 1) which games should be included in these programs to better prepare future generations of game developers, and 2) how can we ensure that games and relevant artifacts remain accessible and available for students? While various efforts are being made to preserve games at cultural heritage institutions, due to the Digital Millennium Copyright Act (DMCA), libraries can only provide digital access within the physical location itself, meaning patrons must be on site to access physical or digital copies of games. This exacerbates the challenges associated with game design education, where instructors find themselves unable to provide access to games that would best communicate key elements or aspects related to the games design or course materials for their students (Zeilinger & Jayemanne, 2021). As a result, curricula are often explicitly designed around the games that educators know are in distribution, regardless of whether they are the best examples of the desired learning. This was revealed through our preliminary interviews with game design educators and historians regarding their knowledge of DMCA and games they wanted to incorporate into their work and their accessibility,

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conducted as part of research for the game availability study in partnership with the VGHF (Salvador, 2023).

Our project aims to contribute to improving access to games that are considered as important in the context of game education. The project has two goals: 1) To identify games that domain experts consider as important to game education, analyzing what shared characteristics these games have and why the stakeholders find these games important, as well as investigating how accessible they are, and 2) To develop a clear understanding of what accessibility issues exist regarding games, game hardware, and game-related artifacts within cultural heritage institutions and current strategies for navigating these accessibility issues.

METHODS

Our study employs a user-centered, qualitative approach. Our focus is on collecting information regarding difficulties in accessing games that are important for game education, best practices for how to investigate if a game is accessible, and compiling a non-exhaustive list of games that ideally would be accessible for educational programs. The data will be collected through recorded interviews with domain experts such as game educators, game designers, and cultural heritage staff that work with digital game collections. The transcripts are coded through thematic coding (Terry & Hayfield, 2021) aimed at identifying patterns and themes within the data. The codebook is generated inductively via an iterative process to consolidate similar challenges and criteria (Strauss & Corbin, 1998). Additionally, the analysis of the games nominated will reveal what characteristics that lead participants to consider certain titles as critical in future work.

PRELIMINARY FINDINGS AND FUTURE WORK

To date, we have conducted 39 interviews with various experts including game developers, game educators and researchers, and information professionals at cultural heritage institutions with game collections. While the analysis is on-going, we provide several key observations that have emerged across our diverse participants. The primary shared criteria among the participants as to which games are important include:

1. The first example of a game element being included
2. Most well-known example of game element being included
3. Current most well-known example of a game element being included
4. Best example(s) of game element being included from different eras

We also have responses indicating that watching video content of games is not enough for students to learn about game mechanics and systems, and that these elements should be experienced through play. In addition, we found that few have familiarity of the organizations involved with game preservation and access efforts, with many educators relying on current digital storefronts for access to games they use in their curricula or only have one physical copy for the entire class.

Our responses have also drawn attention to the accelerated loss of access for games for social good as they are often developed with grant funding and once the funding

ends, no additional maintenance is provided for many of these games. Also interestingly, several argued that poorly designed games (as bad examples) should be accessible for educational purposes. We also noted a divide among participants regarding the importance of original hardware -- while game educators and developers emphasized access to the game itself, researchers voiced the importance of original hardware. This was communicated alongside an understanding that preserving the game in its original state is a failing and costly endeavor (McDonough, 2010). The hardware discussion encapsulates the importance of the context surrounding the game objects, beyond the games themselves when presented in educational programs.

To conclude, our preliminary results show that there are shared characteristics of games that should be prioritized in wide access preservation and accessibility efforts, and that there is significant work that needs to be done to improve the availability of information regarding accessing games for non-recreational purposes. After completing the data analysis, our next step will be to distribute a survey to a wider audience. This will allow us to verify our findings and confirm the alignment with the interview data and help improve our understanding of the access needs of larger populations of educators and industry professionals.

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