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One Game, Multiple Platforms: Enhancing Usability and Accessibility in Dead by Daylight

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Abstract

In 2024, the online gaming community reached a staggering 1.17 billion users, necessitating a focus on cross-platform game development for consistent user experiences. This study investigates the usability and accessibility challenges present in Dead By Daylight (DBD), a popular online multiplayer horror game, across PlayStation4 (PS4), Personal Computer (PC), and Nintendo Switch platforms. Despite its global player base and extensive sales, DBD faces usability hurdles due to platform variations and diverse user demographics. By employing established usability principles and accessibility guidelines, this research identifies common issues impacting user experience and proposes solutions for developers. Key questions explored include usability issues across platforms, their impact on accessibility, and implications for developers and researchers. By evaluating tutorial effectiveness, in-game instructions, and interface consistency, the study aims to enhance DBD's overall usability and accessibility, promoting a seamless gaming experience for players worldwide.

Keywords

usability, online gaming, video game, universal design, accessibility, UI/UX

Introduction

Online gaming continues to grow in popularity, with the online gaming community reaching 1.17 billion users as of 2024 (Katatikarn, 2024). These users play across a diverse range of gaming consoles, and so creating cross-platform games has become a hot topic for game developers. However, addressing the gaps in technological capabilities across the various platforms to ensure a consistent experience for all users poses a novel challenge in usability.

One popular cross-platform game, Dead by Daylight (DBD), averages approximately 50,000 online players per month worldwide, an all-time peak of more than 100,000 online players in May 2021, and 60 million copies sold as of November 2023 across all platforms (SteamCharts, 2024). DBD is an online horror game that consists of five players per match: four survivors versus one killer. The objective for the survivors is to work together to find and fix generators and escape the killer. Meanwhile, the role of the killer is to stop the survivors from escaping by killing them off one by one. The game offers players the opportunity to engage in multiplayer gaming with other users on different platforms, and ensuring a consistent and intuitive user experience poses a significant challenge. This challenge is compounded by the diverse user base, varying levels of familiarity with the game, and the differences between gaming platforms.

To gain better insight into the challenges of designing cross-platform games, the current research focuses on evaluating the usability and accessibility of DBD, particularly in the context of its cross-platform functionality across PlayStation 4 (PS4), Personal Computer (PC), and Nintendo Switch systems. Evaluations using established usability principles highlight common usability and accessibility issues and areas for improvement across the three gaming platforms. The key research questions explored were:

1. What are the key usability issues in the game DBD across different gaming platforms?
2. How do these usability issues impact the user experience and accessibility of the game?
3. How can user-centered design principles and usability evaluations be integrated into the development

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and testing phases of interactive software, including existing games, to develop a more consistent user experience across platforms?

These research questions were assessed by examining the effectiveness of the game's tutorial, the clarity of in-game labels and instructions, and the consistency of user controls and interfaces across platforms. By applying these usability and accessibility analysis tools, the overall usability and accessibility of DBD and other cross-platform games can be improved, thus ensuring that players across different platforms can enjoy a seamless and engaging gaming experience.

Methods

The usability evaluation of DBD across PS4, PC, and Switch platforms included four evaluators, each with varying expertise in the game and usability evaluations in order to provide diverse perspectives. Utilizing three sets of criteria—the seven Principles of Universal Design (Mace, 1997), an extended version of Nielsen's usability heuristics (Nielsen, 1994), and the Web Content Accessibility Guidelines Evaluation Methodology (WCAG-EM) Report Tool (Abou-Zahra et al., 2024)—evaluators meticulously documented their experiences while going through the game tutorial, playing matches, and analyzing the menu screens. Screenshots and screen recordings of displays and related interactions were captured to facilitate review and analysis. Independently, evaluators assessed the game's usability and accessibility on each platform using established criteria, focusing on unclear elements or difficulties encountered in the menus and during gameplay.

Subsequently, individual evaluations were consolidated into a cohesive document, ensuring comprehensive coverage of usability and accessibility issues across platforms. This collaborative process facilitated the identification of common challenges and allowed for a nuanced understanding of the game's usability landscape. Evaluators then proposed solutions aimed at addressing the identified usability issues. By following established protocols for usability evaluations and incorporating both standardized principles and tailored criteria for game assessment, the evaluation framework ensured a thorough examination of the user experience across the three platforms.

Findings

Consistent Issues Across Platforms

The heuristic evaluation across the Switch, PS4, and PC platforms revealed several consistent strengths and weaknesses across all three platforms; however, the current study focuses on the drawbacks of the game in order to identify potential areas of improvement and create user-centered recommendations. While evaluators identified a range of violations, the main usability concern centered around the game menus. The in-system documentation and guidance heavily rely on previous knowledge of the game itself, failing to take advantage of external consistency—issues that also carry over into gameplay. In general, external consistency was a major concern, with inconsistent icon usage and terminology requiring users to relearn new meanings for already familiar interactions. For example, an icon that is universally recognized to mean "accessibility" is used in DBD to access avatar outfit customization options.

Outside of icon usage, the on-screen buttons themselves suffered from further issues related to consistency. While hovering over icons and buttons, text descriptions appear, which does help in minimizing the users' working memory demands. However, these descriptions are not always in the same location relative to the button—some are right above and others are to the side, resulting in inconsistent proximity. The internal consistency of the buttons was also violated, with mismatched styles and unrelated functions placed in close proximity to one another.

Another ubiquitous usability issue related to the visibility of the system state, especially in the screens just before a match begins. An example of this is when players "ready up" (i.e., when a player indicates that they are ready for a match to begin). When other players are readied up, a red checkmark shows above their avatars' heads, but when the user themself is readied up, there is no such checkmark. Without this clear indication of system state, it is difficult for a user to identify whether they have readied up, which may delay the match starting.

Finally, across all platforms, help and documentation were available but not easily accessible or well-integrated. There are different types of help information available; however, they are placed in different areas of the interface, making them difficult to find efficiently, especially during gameplay when a user may need a quick reference for icons or terminology. There is a generally helpful tutorial on how to play the game as either the killer or the survivor with practice matches, but there is no tutorial or clear introduction on how to use or set up different elements of the game (e.g., leveling up, using items). Because of both the lack of tutorial and general inconsistencies in the menus, new users may not be aware of these features or be able to use them without the guidance of a more experienced player.

Personal Computer

Several issues related to external consistency and user experience were noted specifically for the PC version of DBD. There is an inconsistency in wording for closing menus—using "Back" [ESC] on the PC versus "Save & Close" on other platforms. The keyboard and mouse controls are not optimized for those individuals with proportions differing from the average male user. While the game's design is generally consistent with other PC games, making it easier for

players familiar with PC setups to learn, it poses challenges for ergonomic use. The PC version does include the option to adapt controllers for alternative styles of play, which can be a benefit to players who are aware of this option, though the setup for these controllers is not necessarily intuitive.

PlayStation 4

DBD on the PS4 faced issues with cursor navigation, deviating from the typical game controls for the PS4. In most PS4 games and menu interactions, the cursor snaps to on-screen buttons and users can scroll between these options using either the joystick or arrow keys. In DBD, however, the cursor behaves more like a computer mouse, scrolling freely across the screen, which makes selecting buttons particularly difficult when navigating with a joystick on a typical PS4 controller. The cursor navigation also fails to use the arrow keys on the controller as an option for navigation, a behavior users would likely be familiar with. There were also fewer settings options available compared to the PC menu.

Nintendo Switch

The Switch had similar usability issues to the PS4, with cursor navigation deviating from typical Switch game controls and limited setting options when compared to the PC. Additionally, the game's graphics on the Switch are lower quality compared to the other systems, making it difficult to see gameplay details that are helpful to user performance.

Accessibility

The game provides accessibility settings that are open for customization, including a visual representation of some sound effects, subtitles, color blind modes (deuteranopia, protanopia, tritanopia), interaction changes between pressing and holding interaction keys, and allowing for different style of controllers to be used (system-dependent).

However, despite the existence of these features, the evaluation of the game's accessibility highlights several critical issues affecting various types of disabilities, including auditory, visual, motor, and cognitive. While the evaluation focuses on specific types of disabilities affected by the game setup, it is important to note that other players may also struggle with these same elements.

During gameplay, the location of other players may be revealed through auditory cues that indicate both direction and closeness. These in-game sounds lack subtitles or directional cues, making it difficult for those who are deaf or hard of hearing to follow these audio cues.

For both menu and in-game text, DBD does not provide options to resize text or adjust text spacing, complicating readability for users with visual impairments. Also, the low contrast of inactive on-screen buttons poses difficulties for players with color blindness or low vision.

Looking more generally at system navigation, the layout in the pre-match area has avatar customization and game settings placed in a non-intuitive order, posing issues for players with cognitive disabilities. Further, these pre-match screens include timed elements that do not necessarily impact gameplay or enjoyment, but these timers can be problematic for players who need more time to process information. Additionally, information is present alongside a moving loading bar which can be overwhelming for users with cognitive disabilities.

For users with motor disabilities, precision issues are a concern. The game's menu interface includes interactions that are triggered by small on-screen buttons, which can be challenging for users with motor impairments who may have difficulty with precise control. This is especially true for the PS4 and Switch, where the cursors are controlled by joysticks and do not snap to the menu options. Furthermore, the inability to programmatically determine names, roles, and values complicates navigation for users who rely on assistive technologies.

In general, the game provides limited navigation options on most screens, which can restrict flexibility. Inconsistencies in headings and labels within player customization settings make it harder to locate and understand information. Inconsistent placement of on-screen information buttons across different pages can confuse users who rely on a predictable interface. Additionally, unclear labels or instructions for certain functions can lead to confusion across different systems.

Recommendations

Based on the findings from the heuristic evaluation across Switch, PS4, and PC platforms, several recommendations were created to enhance usability and accessibility of the game.

1. Take Advantage of External Consistency:
    a. Standardize icons and terminology across all platforms.
    b. Follow the standard navigation control styling for the system the game is being designed for.
2. Improve Internal Consistency:
    a. Standardize button styles and functions across the interface.
    b. Ensure uniform visual styles and behaviors for on-screen buttons within similar functional groups.
    c. Ensure text descriptions that appear when hovering over icons and on-screen buttons are consistently placed for better visibility.
3. Maintain a clear system state:
    a. Display player readiness consistently for all players.
    b. Clearly show which perks and items each character has in the ready screen.

4. Integrate and Simplify Help and Documentation:
    a. Consolidate help resources into a single, easily navigable location.
    b. Ensure documentation is clear, concise, and easy to access.
    c. Include a tutorial that walks through how to use the bloodweb, perks, objects, and offerings.
5. Address Platform-Specific Issues:
    a. PC:
        i. Standardize menu navigation terms across all systems (e.g., "Back" vs. "Save & Close").
        ii. Enhance ergonomic options for keyboard and mouse controls.
        iii. Ensure users are aware of the option to adapt controllers for alternative styles of play.
    b. PS4:
        i. Expand the range of available settings to match those on the PC.
    c. Switch:
        i. Expand the range of available settings to match those on the PC.
        ii. Improve graphics and contrast for better visibility.
6. Strengthen Accessibility Features:
    a. Add subtitles and directional audio cues for all in-game sounds to support players with auditory disabilities.
    b. Provide options to resize text, adjust text spacing, and enhance contrast for inactive on-screen buttons for users with visual impairments.
    c. Simplify the layout in the waiting area and provide more time for processing information to aid users with cognitive disabilities.
    d. Design interface elements to be more accessible and allow programmatic determination of names, roles, and values to support users with motor impairments.

Discussion/Conclusion

The online gaming environment is expanding rapidly, with new games and platforms being developed and deployed constantly. Developing, understanding and utilizing cross-platform usability concepts and practices are essential skills for gaming researchers and developers alike. The current evaluation of DBD reveals critical cross-platform gaming insights, underscoring the importance of uniformity across gaming platforms and emphasizing the need for external consistency to align with user expectations. Embracing user-centered design principles throughout the development process helps to prioritize design resources toward user needs and preferences.

By conducting a thorough usability evaluation that considers key principles in usability, accessibility, and universal design, developers can create interactive software that caters to a broad range of users. From there, researchers can further explore the intersection of human factors, usability, and digital entertainment to advance our understanding of user experience in gaming environments.

Finally, the importance of accessibility cannot be overlooked. Designing for accessibility not only ensures compliance with governmental regulations (i.e., ADA) but also fosters inclusivity and broadens the user base. Incorporating accessibility features such as clear labeling, keyboard shortcuts, alternative mediums, and comprehensive documentation benefits all users, regardless of their abilities.

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