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LUDO KING THROUGH THE LENS OF USER INTERFACE (UI) AND TECHNOLOGY ACCEPTANCE MODEL (TAM)

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Abstract

Ludo King, a popular game app that saw a steady rise in its number of downloads during the pandemic period consists of effective features to keep their players engaged. Studies in mobile game apps are effectively understood from the perspective of human-computer interaction and its ability to be easily accepted. There are a limited number of studies conducted to explore interactive mobile games and their effective UI and TAM. The significance of an effective user interface and technology acceptance model enables us to understand the effective utility and ease of engagement of a mobile game app experienced by the user. With that in mind, User-friendly game apps are easy to use and give a user pleasant experience with an easy user interface laden with attractive visual graphics, which is one of the key determinants of success for mobile apps in terms of increase in number of downloads and retaining users for a long time. In this paper, we analyze Ludo King, through an extensive review and discussion of the User Interface and Technology Acceptance utilized in the game.

Keywords: TAM, Gaming, User-Centered Design, Ludo King, Graphic User Interface, Usability.

Introduction

(Source: ludoking.com)

Ludo King is a casual game app based on the classic Indian board game called 'Ludo', which in turn was inspired by the traditional Pachisi dice game of kings (Madras Courier, 2018). Ludo King was developed by Gametion, it is a cross-platform multiplayer game where players can compete with friends and family members and also other players using both online and offline gaming

modes. The game is available for download and play on both Android and iOS mobile platforms. The game features offline mode, where players can play with Computers or, local multiplayer (pass-and-play mode) through Bluetooth connectivity. As of today, the game has crossed 500 million plus downloads as mentioned in Google Play Store (Gametion, n.d.), while it ranks 9th in the chart of top grossing app on the mobile platforms as on April 4th, 2021, found on Similarweb (Similarweb, 2021).

Ludo King also comprises additional features such as:

- Live Voice Chat
- Multiplayer
- Facebook Shareability
- Save/Load Ludo game option
- Player statistics with experience points and level-up system
- Extended support to run on low-end devices
- Multiplayer option allowing six players (Displayed on Exhibit B) (Gametion, n.d.)

Ludo King follows the same set of rules as followed by its predecessor where the fate of the player's win and lose conditions are dependent on the rolling dice, it features almost similar visuals as seen on the traditional board game, displayed in Exhibit A (Gametion, n.d.)

Exhibit A

Exhibit A: Main Menu, Play level with GUI and Tokens similar to the traditional board game, (Source: https://play.google.com/store/apps/details?id=com.ludo.king&hl=en_IN&gl=US)

Exhibit B

Exhibit B: Six Player level, with their distinct tokens and colors (Source: https://play.google.com/store/apps/details?id=com.ludo.king&hl=en_IN&gl=US)

Literature

Understanding User Interface

Alan Dix, in the book 'Encyclopedia of Data Systems' defines Human-Computer Interaction as a study that views the impact of technology and its influences on human-based tasks and activities. Computing technology is inclusive of hardware and software elements and can involve a range of topics such as hardware casing, screen/touchscreen, keyboards/keypads, ergonomic covers on tech gadgets, etc. HCI is popularly also associated with other terms related to design discipline, in application, it is also considered as Interaction Design or User-Centered Design and focuses on the development and designing of technology products such that they're easy and pleasant to use. One of the most crucial parts of this discipline is the idea and nature of "usability," which implies the level of efficiency, effectiveness, and satisfaction experienced by the user. In general, it applies to more important elements of aesthetics and design in systems created for personal utility or personal consumption (Dix, 2009). HCI encompasses extensive areas of designing effective

interfaces with UI as one of the key areas of emphasis. Thus, effective interfaces provide the potential to enhance overall system performance. It's an excellent challenge to build an efficient UI, as it requires an understanding of various disciplines relating to physical and cognitive capabilities, sociological contexts, computing and engineering, graphics design, etc. An efficient interface is created with the knowledge gained from these (Bennett, 2005). And User Interface consistently evolves in response to technological changes throughout time. Historically, HCI focused on the way to facilitate convenient means for one user to use a computer on a hard and fast platform, like a desktop computer. Later, HCI evolved further and now is also inclusive of creating platforms through mobile computing and futuristic tech innovation in developing effective UI. These developments started back in the late 90s and have continued to evolve, today users receive instant feedback on a small screen with a limited number of buttons, and has gained significance in the genre of HCI and UI communities (Kim, 2015).

Understanding Technology Acceptance Model (TAM)

Originally coined in 1989 by Davis to explain the human-computer relationship, TAM proposed two general determinants of acceptance of a broad range of computer technology being consumed by users and outlined two important factors, they are perceived usefulness (PU) and perceived ease of use (PEU) in terms of achieving progression during utility and achievement of outcome without putting much efforts. The TAM model was further modified based on the earlier premises of perceived usefulness and perceived ease of use by Venkatesh and Davis in 2000, which revealed detailed insights about how the above two factors PU and PEU were found to have a direct influence on behavior intention of a user. (Venkatesh & Davis, 2000). Furthermore, UI and TAM are interconnected and their relationship has been established through several studies including their connection with the effectiveness of UX put together (Hornbæk & Hertzum, 2017). Studies in TAM have revealed that perceptional feedback plays an important role in the perceived usefulness of the app and the cognitive ease of understanding and interaction makes the adoption of technology faster and more interesting, especially in smartphones and touch screens (Roy, 2017, p. 242).

UI and TAM

UI and TAM collaboratively have been studied for productive and professional apps, while recreational and gaming apps have been least explored. As of today, a very limited number of studies have explored the connection between HCI and popular mobile games, despite the challenges of lack of organized understanding. Thus, it becomes imperative to study and explain the factors contributing to the success of a game app that is actively being consumed by users to experience enjoyment and satisfaction. The evolution of microcomputing technology will keep on proceeding ahead with innovations in design interfaces such as input, display, graphics, networking, etc. (Bernhaupt et al., 2015, p. 199). Although mobile game apps are different from productive apps, they also carry similarities from the perspective of technology, communication, perceived interest, virtual assets and environments, etc. The need to study UI and TAM digital

video games is inevitable. Conventional studies associated with UI and TAM are yet incompletely defined but guarantee an exciting future scope in research.

Graphic User Interface and TAM in Mobile Apps

The challenges of creating mobile interface design have evolved. In the early days of research in computing studies, mobile phone design only focused on hardware ergonomics and physical design. Mobile Interface design nowadays also involves designing attractive apps with good visuals. Unlike the hardware shape and size of mobile phones have remained largely consistent with some modifications, the need to create a good-looking mobile app is a challenge. Mobile app consists of interfaces that need to be interacted with minimum effort, thus making such mobile applications with interfaces that fit the standard screen size of the device a mandatory requirement for perceived ease of use (Mobile Computing, 2017). Visual graphics and animation components are an essential part of designing an interface for mobile apps and computers. The various components under this category will involve lighting, colors, and Graphic user interfaces such as icons, buttons, and display controls (Miranda, 2011). Effective visual graphics also consist of motion graphics, images, animation, and 3D, which have been explored in recent studies with suggested guidelines. These guidelines propound the application of quality designs that enhance the interaction and communicability of the app. Also, let us not forget the aspect of light and color as they are an existential part of the visual environment, be it the real world or virtual environment, HCI/ affective computing studies have established that colors play an important role in appealing to emotions of individual users depending on demographic, gender and cultural perspectives (Sokolova & Fernández-Caballero, 2015, p. 286) Therefore, it can be concluded that graphic user interface and TAM are interconnected with applications of icons, images, visuals, graphics design, colours, animation and motion graphics playing an important role in the acceptability of the app.

Discussion

Ludo King and its User Interface

As discussed before, Ludo King is a popular app and has gained a lot of fan followers in recent years. The game has been designed to provide engaging content to users and to satisfy their experience of it while playing. The graphic user interface of Ludo King is very simple, attractive, and intuitive as seen in Exhibit A. The main menu screen itself is easy to navigate with easy-to-understand buttons, thereby making it possible for users to identify and navigate through the app easily. The colors used in the game are easy on the eye and are easy to look at without causing any harm or strain to the eye of the user the game has a very optimal and responsive design with audio-visual feedback on buttons and icons. Ludo King is played on mobile devices and has been optimized to responsively adjust itself in various mobile screen sizes even in low-end mobile phones. The overall content of Ludo King is very immersive with various features contributing to its effective user experience (UX). The game is fun to play and can be played with family members, friends, co-workers, etc. The game also includes visually stunning reward systems such as coins, leaderboards, diamonds, gifts, and prizes among others.

Technology Acceptance of Ludo King

As seen in Exhibit A, the UI of Ludo King reinforces its ability as an intuitive app that can be easily understood and navigated. The game app has minimalistic visual elements and easy-to-understand language that enables users to understand and engage with the game app easily. Audio and visual cues such as feedback gained after the pushing of a button, playing a particular level, winning the game, unlocking rewards, coins, diamonds, etc. make it easy to understand for the user to play the game to make rewards.

One of the studies recently concluded in Indonesia, which analyzed the Ludo King game app from the perspective of the Technology Acceptance Model, received positive results and established that the app's ease of use and ease of perception as the major contributing factors to the game's popularity (The Technology Acceptance Model for Playing Mobile Games in Indonesia | KNE Social Sciences, n.d.)

A recent report by KPMG mentioned Ludo King as the only game that was made in India that gained great popularity in the Android Play Store simply due to its ease of playing reinforcing its acceptance among a massive number of users and contributing to an overall growth of Indian mobile gaming industry (KPMG, 2021)

Conclusion

Based on the literature and discussion, it is well understood that a game app must have an attractive User Interface for it to be easily perceived by the user and further help them to interact with the app flawlessly. From the literature and discussion, it can also be said that Ludo King has gained popularity across the world due to its intuitive and optimal design and visual feedback mechanisms. The game's icons, graphics, and other visual elements are the major contributing factors to the game's success as it has not only enhanced the overall visual appeal but also its effective user experience. As mentioned in the discussion, the Ludo King game has been studied from the perspective of its overall acceptance both in India and Indonesia, and been confirmed that most users playing this game are smartphone users. It has an effective human-computer communication aspect that enhances its perceived usefulness and perceived ease of use as a great recreational game.

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