Hybrid Tabletop Games: A Study of the Impact of Digital Augmentation on Gameplay Experience and Player Acceptance

Chua Soo Han
School of Media, Arts and Design
Asia Pacific University of Technology and Innovation (APU)
Kuala Lumpur, Malaysia
chua.soohan@mail.apu.edu.my

Ts. Ong Tee Chuan
School of Media, Arts and Design
Asia Pacific University of Technology and Innovation (APU)
Kuala Lumpur, Malaysia
teechuan.ong@apu.edu.my

Liew Yong Kian
School of Media, Arts and Design
Asia Pacific University of Technology and Innovation (APU)
Kuala Lumpur, Malaysia
liew.yongkian@apu.edu.my

***Abstract*— This paper explores the phenomenon of hybrid tabletop games, which combine traditional physical game elements with digital technologies. The paper reviews the evolution and classification of hybrid tabletop games and proposes a theoretical framework to understand their gameplay experience and player acceptance. The paper draws on theories from media studies, game studies, and technology adoption, such as Media Richness Theory, Theory of Immersion, Flow Theory, and Technology Acceptance Model. The paper aims to provide a comprehensive and critical analysis of hybrid tabletop games, and to identify the opportunities and challenges for their design and development. The paper also suggests directions for future research in this emerging and innovative field of game design.**

Keywords—tabletop gaming, hybrid gaming, tabletop role playing games

I. INTRODUCTION

This research aims to provide a comprehensive introduction to the exploration of hybrid tabletop games, which have become increasingly significant in the context of a resurging tabletop gaming industry. The chapter articulates the background of tabletop games, tracing their historical significance and evolution into modern, innovative forms. The problem statement highlights the challenges posed by the COVID-19 pandemic, emphasizing the disruption of traditional face-to-face gaming and the subsequent need for innovative solutions. The threefold purpose of the study is outlined: investigation of hybrid experiences, identification of challenges faced by players, and proposal of a novel gaming experience for the tabletop community. Research questions delve into player preferences, the role of game masters, and the impact of automation and audio ambiance. The study's significance lies in contributing to the understanding and development of hybrid tabletop games, particularly in the realms of social health and immersive gaming experiences. Theoretical, managerial, and academic perspectives are incorporated, providing a multifaceted view of the study's implications. The scope is defined by a qualitative research approach focused on individuals in Malaysia with tabletop gaming experience, and limitations are acknowledged, including the exclusive focus on those engaged in both digital and physical forms of tabletop games. Overall, this study lays a solid foundation for the subsequent in-depth exploration of hybrid tabletop games, promising valuable contributions to the evolving landscape of tabletop gaming.

II. LITERATURE REVIEW

The digital-analogue hybridization of tabletop games marks an innovative crossroad in the evolution of gaming (Zagal & Deterding, 2020). As such, a critical review of relevant literature is paramount for a comprehensive understanding of the topic at hand. The purpose of this chapter is to scrutinize the various scholarly discussions, analyses, and debates that focus on the integration of digital technologies in tabletop games. This study strives to evaluate the advancements made, explore the challenges faced, and highlight the gaps in existing research that this study seeks to fill.

This literature review covers three key areas. First, it delves into the unique aspects of tabletop gaming that need to be retained in a digital-analogue hybrid game to ensure the charm of traditional gameplay isn't lost (Apperley & Jayemane, 2019). The review then explores various studies on digital technology's role in enhancing gameplay, focusing on technological advancements like augmented reality (AR), artificial intelligence (AI), and the Internet of Things (IoT) (Firouzi et al., 2022). The final focus of the review is to analyze the effect of hybrid gaming on social dynamics, with emphasis on the social interactions inherent in tabletop gaming ((De Boer & Lamers, 2004)).

As we navigate these intricacies, we will also uncover opportunities for future research and the potential implications these findings hold for the gaming industry. The breadth of the literature review provides a comprehensive understanding of the various aspects of hybrid tabletop gaming.

Throughout this review, the importance of maintaining a balanced approach to hybridization becomes apparent. The integration of digital elements should not, in the process of transforming the gameplay experience, undermine the fundamental essence of tabletop gaming. Carefully examined and informed by robust research, this literature review sets the foundation for the subsequent parts of the study.

III. HISTORY OF TABLETOP GAMES

Tabletop games, dating back to Ancient Egypt, have evolved significantly over centuries, reflecting cultural shifts and technological advancements. The 20th century saw the advent of complex games like Monopoly, Risk, and Dungeons

& Dragons, each mirroring the societal contexts of their times (Saunders & Gurley, 2023). The turn of the millennium marked the rise of Eurogames, combining strategic depth with accessible rules, contributing to a 'golden age' of tabletop games (Apperley & Jayemane, 2019). Concurrently, digital technologies began augmenting analogue games, with early examples like Destinies and now Pokemon Go ((Ferdig et al., 2023). The 21st century witnessed more sophisticated hybrid games, utilizing DVDs, AR, internet connectivity, and mobile technologies for enhanced gameplay. Recent developments include companion apps central to gameplay, as seen in Mansions of Madness: Second Edition and XCOM: The Board Game (Noorudin et al., 2021). This evolution of tabletop games, intertwined with digital augmentation, continues to shape the genre's future (Rossato et al., 2023).

IV. Research Methodology

Understanding the hybridisation of tabletop games and the impact of this transformation on players necessitates a robust theoretical framework. A comparative analysis was done in this section to review pertinent theories from the domains of media studies, game studies, and technology adoption that could inform this research.

A. Media Richness Theory

Media Richness Theory (MRT), proposed by Daft and Lengel (1986), posits that the effectiveness of a communication medium depends on its 'media richness'—its capacity to reproduce necessary information for a task or interaction. This richness is determined by the medium's ability to provide immediate feedback, incorporate multiple cues, use natural language, and maintain personal focus. Face-to-face communication is considered 'richer' than written letters due to its non-verbal cues and immediate feedback (Chao et al., 2020). In the context of hybrid tabletop games, traditional games offer a rich gaming experience with direct feedback, multiple sensory cues, and personal interactions. The integration of digital components alters this richness, potentially introducing novel feedback forms, additional cues, and more personalized experiences, or introducing complexities that may reduce personal interactions (Faraj & Azad, 2012). Thus, MRT can help investigate how digital augmentation impacts the quality of gameplay acts

B. Theory of Immersion

The Theory of Immersion, conceptualised by Brown and Cairns (2004), posits that a player's psychological integration into the game world, or 'immersion', is a key aspect of gameplay. This immersion is categorised into three levels: engagement, engrossment, and total immersion. Engagement involves time and effort investment, while engrossment includes deeper emotional involvement. Total immersion, or 'presence', describes complete absorption in the game world (Cairns, Cox, & Nordin, 2014). Applied to hybrid tabletop games, this theory suggests that digital technologies can enhance immersion by creating vivid, interactive environments and augmenting sensory cues. Physical game elements further deepen this immersion through tactile engagement. Interactive digital features can stimulate emotional engagement, facilitating transition from engagement to engrossment, and potentially leading to total immersion. However, poorly designed digital features may disrupt game flow and hinder immersion. Thus, the Theory of Immersion can guide the integration of digital and physical elements in game design to enhance player immersion.

C. Flow Theory

Flow Theory was proposed by Csikszentmihalyi in 1990, to describe a unique mental state of deep focus and enjoyment in an activity. In the state of 'flow', individuals lose their sense of time and self, becoming completely engrossed in the activity at hand. The conditions to achieve this state in the context of gaming involve a balance between the game's challenge and the player's skill level. This balance allows players to reach and maintain an optimal gameplay experience, engendering satisfaction and continuous play (Mekler et al., 2014). Flow Theory provides a valuable framework to investigate the gameplay experience in hybrid tabletop games. As these games amalgamate traditional mechanics and digital enhancements, they can create unique flow experiences.

For instance, digital elements could provide adaptive difficulty levels, tailoring the game's challenge to the player's skill, thereby facilitating a continuous state of 'flow'. Interactive digital features might also engage players more deeply, maintaining their focus on the game. However, complexities introduced by digital elements could potentially disrupt the balance, pulling players out of the 'flow' state. Thus, Flow Theory is a useful tool for examining the various ways hybridization can enhance, disrupt, or redefine 'flow' in the gameplay experience.

D. Technology Acceptance Modal (TAM)

The Technology Acceptance Model (TAM) was developed by Davis (1989) as a tool to predict and explain user acceptance of information technology. TAM posits that user acceptance of a new technology or system is primarily determined by two factors: perceived usefulness (PU) and perceived ease of use (PEOU). PU refers to the user's belief that using the system will enhance their performance, while PEOU is the degree to which the user expects the system to be free of effort (Venkatesh & Davis, 2000). TAM can be a potent tool in evaluating player acceptance of digital elements in hybrid tabletop games. For instance, a well-designed digital augmentation might enhance gameplay, increasing the perceived usefulness of the technology. If these digital features are also intuitive and easy to use, they could further encourage player acceptance to hybrid methods of playing Tabletop Games.

Conversely, if players perceive the digital aspects as complicated or feel they add little value to the gameplay, acceptance might be lower. Thus, the TAM can offer significant insights into player acceptance to the digital-physical hybridization in tabletop games, game design and research in this field.

V. Methodoglical Issues

Investigating hybrid tabletop games presents a unique set of methodological challenges. The interplay of physical and digital elements in these games necessitates the development and application of research methodologies capable of capturing this complexity (Epstein et al., 2021)

A primary concern lies in effectively tracking player interactions with both the physical and digital elements of

hybrid tabletop games. Traditional methods used in game research, such as playtesting, surveys, and observational studies, may not sufficiently capture these complex interactions. For instance, the digital components might involve computer-based algorithms and interactive user interfaces that could be challenging to document using conventional research tools (Yuan et al., 2021).

Moreover, measuring player engagement and immersion in hybrid tabletop games may require innovative approaches. Existing methods for assessing engagement and immersion in traditional tabletop games may not be applicable or may fail to capture the full extent of the experience in hybrid games (Rogerson et al., 2021). New measures or adaptations of existing ones may be required. Furthermore, the fast-paced nature of technology presents another methodological challenge. The constant evolution of digital tools and platforms could render certain research findings obsolete relatively quickly, necessitating continuous updates of research methods and findings (Gekker, 2021).

Finally, the diverse range of hybrid tabletop games currently available poses a challenge in terms of generalizability. Findings from studies focusing on specific games or genres may not be broadly applicable across the field, making it crucial to employ a variety of methodologies and approaches to build a more comprehensive understanding of this area (Peukert, 2020).

Collectively, these methodological issues underline the need for innovative, adaptable, and comprehensive approaches to researching hybrid tabletop games. Addressing these challenges is a critical next step in advancing our understanding of this exciting field.

Article No.	Journal Name	Article Title	Author or Publication	Quotation	Discussion and Research Gap
1	The role of the dice: The dichotomy of randomness in analogue and digital games	The role of the dice: The dichotomy of randomness in analogue and digital games	Boyd, L., & Nieuwdorp, E.	"Dice are central to a large number of tabletop games, acting as a mediator for chance, luck, and risk."	Analyses the dichotomy between chance and strategy in tabletop games, but more work is needed to integrate this into hybrid game design.
2	CHI Conference	Research methods for understanding player experience	Cairns, P., & Cox, A. L.	"Game studies has burgeoned into a multi-disciplinary field of study with its own unique challenges and methodologies."	Establishes methodologies for studying player experience but there is a gap in applying these methods to hybrid tabletop games.
3	Springer	Interactive surfaces and tangibles	Ferrer, J., Garcia-Sanjuan, F., Jaen, J., & Nacher, V	"Tangible interaction is often associated with a richer and more engaging user experience."	Explores the value of tangible interaction but lacks specific research on the integration of tangible and digital elements in hybrid tabletop games.
4	Game Studies	Board games and the construction of cultural memory	Peukert, X	"Board games are not just simple entertainment; they also act as vehicles for cultural memory."	Discusses the role of board games in cultural memory but does not consider the implications of this for the design of hybrid tabletop games.
5	International Journal of Human–Computer Interaction	Understanding the Continuance Use of Mobile Gaming: Comparison of Two Market Segments	Wang, C.-H., Li, H.-C., & Lim, M. K.	"Mobile games are often designed with 'continuance usage' in mind."	Investigates mobile gaming, yet there is a gap in research when it comes to hybrid tabletop games that incorporate mobile technology.
6	Springer	The motivational pull of video game feedback, presence and difficulty	Ryan, R. M., Rigby, C. S., & Przybylski, A.	"We argue that games are capable of satisfying basic psychological needs for competence, autonomy, and relatedness."	Discusses the psychology of video game engagement, but more research is needed to see how these principles apply to hybrid tabletop games.
7	Management Science	A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies	Venkatesh, V., & Davis, F. D.	"User acceptance of information technology has been a vital issue for over a decade."	Expands the Technology Acceptance Model (TAM) but further study is needed to apply it to hybrid tabletop games.
8	Centre for the Study of	How people treat	Reeves, B., &	"Media offer a variety of	Discusses human-computer

	Language and Information	computers, television, and new media like real people and places	Nass, C. I.	cues that can cause viewers to respond as if they were interacting with actual people and places."	interaction, yet the unique context of hybrid tabletop games is not specifically addressed.

Table 1: Literature Matrix of studies conducted in relation to Tabletop games and experiences.

VI. Virtual Table-Top

Virtual tabletops (VTTs) are digital platforms that facilitate the playing of tabletop games over the internet. They provide a shared virtual space where players can manipulate game pieces, dice, and other elements typically found in physical tabletop games. VTTs have gained popularity due to their ability to bring together players from different geographical locations, overcoming the traditional requirement of physical proximity for tabletop gaming. They also offer additional features such as automated rule enforcement and game state persistence, which can enhance the gaming experience (Webb & César, 2019).

Foundry Virtual Tabletop (VTT) is a newer platform in the virtual tabletop market, which was released in 2019, and has been gaining popularity due to its quality-of-life features, customization options and performance (Lynch, 2023). It offers a high level of customization, with a multitude of options for different player roles and permissions, and supports many mods, which can enhance the gaming experience (Scroll, 2022). One of its significant features is the ability to host games locally, providing a more stable connection and smoother gameplay experience. In comparison to other platforms like Roll20 and Fantasy Grounds, Foundry VTT stands out for its modern features and supportive community. While Roll20 is more accessible and appealing for new players as it doesn't require any downloads, compared to Foundry, while initially overwhelming, offers more room for customization and advanced features. However, Foundry VTT's library of games and ready-made content is not as extensive as some other platforms, although it is continuously growing Foundry Hub. (2022, July 27. Foundry Hub. https://www.foundryvtt-hub.com/.) Despite some potential drawbacks, such as the necessity of organizing assets in a folder structure and the difficulty of improvising in-game due to the drawing tools, users are generally satisfied with Foundry VTT and see it as a strong contender in the virtual tabletop market. Overall, Foundry VTT is recommended for those seeking a more streamlined, customizable experience with a stable connection, while other platforms might be more appealing to those looking for a larger, established community with many integrated game systems.

VII. Conclusion

Finally, this research has explored the phenomenon of hybrid tabletop games, which combine traditional game elements with digital augmentation. It has reviewed relevant theories from media studies, game studies, and technology adoption that could inform the research on this topic. The research has also acknowledged the limitations and challenges of that was faced, such as ethical issues, technical difficulties, and sampling bias. The research has suggested some directions for to look for in the future, such as exploring different types of hybrid games, comparing hybrid and non-hybrid games, and examining the social and cultural aspects of hybrid gaming. In conclusion, the research has shown that immersing a player into a traditional table-top game can be achieved with the help of technology, if it's intuitive and not complicated. Other add on such as sound and music also helps the players dive deeper into the game, creating an even more immerse environment for players to enjoy.

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