Shaping Time in Games: Developer Approaches to Temporality

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INTRODUCTION

Digital play involves a combination of both a player's time and a game's interactive capacity. While this capacity has been examined spatially (levels and content [McGregor 2007]) and in terms of aspiration (challenge and immersion [Quantic Foundry 2024]), this project seeks to examine the temporal capacity of video games. Juul (2003) notes that time is an unavoidable cost for players, regardless of a game's design, genre, or goal. This raises the question of how this 'cost' is designed in game development. How are dimensions of game time, play time, and player time valued, measured, and implemented into video game production? How are these aspects communicated, prioritised, and supported internally? To answer these questions this project conducted semi-structured interviews with game developers of diverse genres and studio sizes. These interviews targeted topics such as pacing, player time metrics, and temporal aspects (flow [Csikszentmihalyi 2014], cooldowns [Alvarez Igarzábal 2019], and menu systems [Kraj 2020]). This project also investigated the subjective perspectives of game developers toward temporal dimensions in design, including their personal experiences and their views on broader industry practices. Twenty Participants were selected for their expertise across various roles and game genres, including AAA, mobile, Indie, and live-service games (from across Europe, America, and Australia). Recruitment was carried out via existing professional networks, cold contact emails using publicly available addresses, and LinkedIn Premium outreach. All interviews were conducted via Zoom in a single round and lasted approximately 45–60 minutes. Sessions were audio-recorded with participant consent and transcribed verbatim. By exploring developer strategies, the study will address the identified gap in research on designed temporality and build our understanding of the temporal dimensions of play that drive player engagement, while also considering the organisational and commercial contexts of game development.

Despite some limited research on games and game developers that includes aspects of temporality in game design (McGregor 2007; Klassen et al. 2007; Losi 2018; Sunshine-Hill 2019), there is still a lack of clear insight into how time is integrated into

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industry practices and commercial priorities. In a rare example, the developer of Braid (Number None 2008), spoke about how the rewind system presented not only an infinite resource to give temporal agency to players but also to minimise programming hurdles (Yeung 2014). Temporal player data has also been examined by Drachen et al. (2013) as a metric to benefit game developers by addressing the utility of average playtimes and time spent at checkpoints. Yet how developers value or approach these metrics initially, iteratively, and developmentally is under-explored. As Seif El-Nasr et al. (2013, 367) summarise in *Game Analytics Maximizing the Value of Player Data*, temporal player data is essential in the development of progression, path building, AI systems, retention, strategy building, and other analytical frames that impact design and game balance. The use of tools like heatmaps, overlays, and trajectory analysis help visualise temporal data, but whether there is a standardised approach, novel systems, or unique organisational cultures surrounding these practices remains unclear in current literature.

While temporal data and design aspects align with commercially driven goals, how time affects players through design choices is also worth understanding. Howe, (2017), the Creative Producer and overseer at Owlchemy Labs, spoke at the 2017 Game Developers Conference with the recognition that "Time is the core currency for live games". In a talk that was focused on Freemium mobile games, the qualitative value of player engagement, being the emotional and psychological thought and effort towards a game over time, was highlighted as a key design value over player retention and engagement metrics. This perspective is supported by Klassen et al. (2007), who examined the development strategies of the game studio Meantime. A central aspect of Meantime's design philosophy was the goal of filling users' 'deadtime' with meaningful interactivity. By probing how developers value temporal dimensions in design and player affect, a standardised framework can be developed to benefit and inform ethical game design choices.

This project aims to explore the intersection of user-centred and commercial significance in the temporal dimensions of game design. We are particularly interested in understanding how game developers navigate the dual roles of time in their work: on the one hand, designing temporal structures and mechanics that support player experience and engagement; on the other hand, making design decisions that align with commercial goals such as marketability, production efficiency, and team coordination. Rather than positioning these as separate or mutually exclusive categories, we recognise that these dimensions often overlap and may even come into tension within the same design process. By investigating how developers approach temporal design both as a means to foster engaging experiences for players and as a strategy to meet commercial objectives, we aim to identify the complex priorities that shape video games as both cultural artifacts (that impact individuals and groups in multifaceted ways [Greenfield 1970; Henderson 2005]) and market-driven products (which must balance creativity with financial support and compensation to continue development [Keogh 2023]).

By directly interviewing game developers, this project moves beyond speculative concerns about persuasive technologies (Tran et al. 2019) and malicious system design (Zagal et al. 2013). While prior research often focuses on understanding and categorising in-game mechanisms accountable for their impact on user temporalities (Zagal & Mateas 2010; Rapp 2022; Alvarez Igarzábal 2019), this study seeks to understand the intentions and constraints developers face when designing for time. This research contributes to and continues a nuanced framework that values the qualitative dimensions of time. It expands beyond quantitative lump totals of play

time to explore how temporal structures motivate engagement, balance user satisfaction, and align with commercial goals. The findings will offer a resource for developers and researchers to evaluate time in design, grounded in real-world practices and ethical considerations, and informed by current game development processes.

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