Author/s:
Byers, T;Gibbs, M;Nansen, B

Title:
Evaluating Time in Play and Temporal Satisfaction: Time-Centric Language in Video Game User Reviews on Steam

Date:
2025-11-28

Citation:
Byers, T., Gibbs, M. & Nansen, B. (2025). Evaluating Time in Play and Temporal Satisfaction: Time-Centric Language in Video Game User Reviews on Steam. Ozchi 2025 Proceedings of the 37th Australian Conference on Human Computer Interaction, pp.440-454. ACM. https://doi.org/10.1145/3764687.3764693.

Persistent Link:
https://hdl.handle.net/11343/366884

Published: 29 November 2025

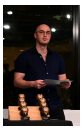
Citation in BibTeX format

OZCHI '25: 37th Australian Conference on Human-Computer Interaction
November 29 - December 3, 2025
Gadigal | Sydney, Australia

RESEARCH-ARTICLE

Evaluating Time in Play and Temporal Satisfaction: Time-Centric Language in Video Game User Reviews on Steam

THOMAS BYERS, University of Melbourne, Melbourne, VIC, Australia



Tom Byers is a PhD candidate at the Faculty of Engineering & IT (HCI) at the University of Melbourne, researching time and temporality in how video games are designed and experienced.

MARTIN R J GIBBS, University of Melbourne, Melbourne, VIC, Australia

BJØRN NANSEN, School of Culture and Communication, Melbourne, VIC, Australia

Open Access Support provided by:

University of Melbourne

School of Culture and Communication

Evaluating Time in Play and Temporal Satisfaction: Time-Centric Language in Video Game User Reviews on Steam

Thomas Byers
Faculty of Engineering and IT
The University of Melbourne
Melbourne, Victoria, Australia
tom.byers@unimelb.edu.au

Martin Gibbs
Interaction Design Lab
The University of Melbourne
Melbourne, Victoria, Australia
martin.gibbs@unimelb.edu.au

Bjørn Nansen
School of Culture & Communication
University of Melbourne
Melbourne, Victoria, Australia
nansenb@unimelb.edu.au

Abstract

User reviews provide a means for players to communicate experiential value and evaluate video game quality, yet the role of time in these evaluations remains underexplored. Through thematic analysis of time-centric language found in 5,423 user reviews from 100 popular video games on Steam, we identify six themes that communicate *Temporal Priorities* – users' key concerns and values regarding time in play – to evaluate video game quality, personal engagement, and developer practices. This study furthers existing HCI examinations of temporality and situates *Temporal Satisfaction* – a user's evaluation of whether their time spent in play feels worthwhile – as a novel metric to guide system design and improve user experience. We contribute a user-centered conceptual framework that organises these *Temporal Priorities* to advance UX evaluation beyond task-based performance to encompass hedonic attributes. From this framework, we propose the generation and use of *Temporal Satisfaction* profiles, representative of user *Temporal Priorities*, to support iterative and ethical design processes.

CCS Concepts

• **Human-centered computing**; • **Human computer interaction (HCI)**; • **HCI theory, concepts and models**;

Keywords

Steam, user reviews, Temporal Priorities, Temporal Satisfaction, evaluation, time, temporality

ACM Reference Format:
Thomas Byers, Martin Gibbs, and Bjørn Nansen. 2025. Evaluating Time in Play and Temporal Satisfaction: Time-Centric Language in Video Game User Reviews on Steam. In *37th Australian Conference on Human-Computer Interaction (HCI) (OZCHI '25), November 29–December 03, 2025, Sydney, Australia.* ACM, New York, NY, USA, 15 pages. https://doi.org/10.1145/3764687.3764693

1 Introduction

Digital play has often been critiqued as a 'waste of time,' yet there is a growing demand for games to 'respect' the time of the user [68][72]. Despite this call from users, time-relevant games research has remained concerned with excessive play and moderation [8][10][14][33][97]. While these concerns are relevant to healthcare and educational objectives, studies that examine the complexity and experiential value of time in play develop our understanding of time, user experience, and product evaluation. Rapp et al. [66], in the *Introduction to the special issue on time and HCI* highlight "how the HCI community was originally anchored to clock time, but more recently the field has begun to incorporate the existential, social, and cultural dimensions of time." Yet despite players consistently invoking time as a measure of quality and engagement in public forums such as video game user reviews, the use of time as a user-driven evaluative lens remains underexamined in HCI and games research. While time is often treated as a constraint or resource in design, it is rarely studied as something players themselves interpret, negotiate, and use to express value. However, current time-centric studies are still framed as task-based and problem-focused, looking to reduce screen engagement [106], fill waiting time [107], or kill time [15]. In approaching our research design, we note the call to action by Karapanos et al. [38] to examine temporality "beyond the instrumental, resulting in an increasing body of knowledge about how users form overall evaluative judgments" – a call mirrored by other scholars to better understand time, user engagement, and thoughtful design [44][48][50].

In response to this call, our study provides an exploratory, qualitative, *user-centered* analysis of temporality through user reviews posted on Steam, the largest digital game storefront and distribution platform for PC titles [79]. Contributing to HCI research that examines how design, time, and engagement are linked [65]. To achieve this, we asked two key questions:

1. How do Steam user reviews communicate time spent in play to evaluate video game quality?
2. What themes, patterns, or priorities of time-centric language emerge across user reviews?

These queries revealed two key concepts – *Temporal Priorities* and *Temporal Satisfaction* – as user-centered tools for interpreting how time is valued, structured, and evaluated in digital play. We present Temporal Priorities as six themes that capture how players communicate and assess time in their gaming experiences – not only their own time, but also that of others. These priorities inform Temporal Satisfaction, defined as a user's evaluative judgment of whether their time spent in a game is worthwhile. We propose this as a novel metric for informing system design and enhancing user experience. Through thematic analysis of Steam user reviews containing time-centric language – such as general temporal units ('day' and 'hour') and gaming-specific terms ('roadmap' and 'season') – we establish time as a multifaceted element and evaluative criteria for video game quality, personal engagement, and developer practices. The six themes that articulate Temporal

OZCHI '25, Sydney, Australia

ACM ISBN 979-8-4007-2016-1/2025/11
https://doi.org/10.1145/3764687.3764693

Priorities are: *Momentary* (experiences relative to time), *Historic* (legacy and reflection), *Projected* (future expectations and potential), *Interval* (duration and structure), *Development* (engagement and maintenance), and *Economic* (time in play relative to cost). These themes engage with hedonic attributes of user experience, such as aesthetics, self-expression, and memory [51].

Prior research has often examined the relationship between users and in-game systems as the leading association to understand temporalities of play (such as collaborative play or narrative [35][60][65]). However, these associations overlook how users value their time and the effect of engaging with systems that align (or fail to) with their Temporal Priorities, potentially leading to dissatisfaction. To address this, we examine how the Temporal Priorities of users motivate their engagement – a value shaped not only by in-game experiences but also by external social and cultural influences, incorporating hedonic attributes to the approach [51]. To that end, we focused on the time that users manage, relative to the passing of real-world time, reflecting personal investment and priorities, rather than being inherently tied to in-game systems or mechanics. This approach builds upon existing research on time and temporality on Steam [17][21][46][47][75] furthering our understanding of the relationship between time and user reviews on video game storefronts. By offering an experiential, user-centered examination of time as an evaluative framework, we address noted gaps in HCI research [38][66].

Key findings include that time *is* consistently used to evaluate the quality of video games on Steam. Users communicate the experiential value of Temporal Priorities such as future investment, reflection, or quality of developer support over time. The themes provide a conceptual framework to categorise user evaluations of digital interaction, identifying Temporal Priorities and reflecting hedonic attributes. For future HCI research and design implications, we identify Temporal Satisfaction as a novel metric to interpret user evaluations relevant to time. We also recommend the generation and use of Temporal Satisfaction profiles to guide iterative design. Both the framework and recommended profiles are situated to benefit design and user experience through a *user-centered* understanding of how time is valued in play. These findings and recommendations build toward an ethical consideration of user time in design, with the potential to benefit game studies, media studies, health, education, and HCI in understanding user experience relative to time.

To summarise, this paper makes three key contributions:

1. **Conceptual:** We contribute a user-centered conceptual framework that defines and applies two new constructs – *Temporal Priorities* and *Temporal Satisfaction* – as user-centered tools for interpreting how players evaluate time in digital play.
2. **Empirical:** Through thematic analysis of over 5,000 time-centric Steam user reviews, we identify six core themes that structure how players articulate temporal value, contributing a framework for analysing time in UX evaluation.
3. **Application:** We introduce *Temporal Satisfaction* profiles as a practical tool to support ethical, user-aligned game and interaction design, offering insight into how users' temporal values can inform ongoing engagement and system refinement.

2 Background

The study of time in digital play offers key insights into user experience and design. In the following sections, we link three relevant areas of interdisciplinary significance: Steam and user reviews, temporal frameworks, and historic presentations of time spent in play. However, while players routinely use time to evaluate games – commenting on time played, developer responsiveness, or the long-term value of updates – HCI research has yet to recognise or model time as a user-driven factor for evaluation. This is why the literature reviewed in the following sections draws from diverse disciplines and publication types, reflecting the interdisciplinary nature of temporality as both a designed and an experiential construct.

2.1 Steam User Reviews: Impact, Temporality, and Evaluation

Launched in 2003 by Valve Corporation, Steam is a platform for purchasing and managing digital games, hosting millions of daily users and over 73,000 games at the time of writing [79]. Steam provides information on games, developers, and users which can be publicly accessed through the Steam Application Programming Interface (API) [24][80][81]. User reviews on Steam, and across digital storefronts, hold value in communicating user experiences and product evaluations [62][103]. More so than on other platforms, user reviews are directly tied to the commercial success and broader audience awareness of games sold on Steam. The visibility and reach of games listed on Steam are "driven by fans" [61] with user engagement shaping algorithmic recommendations. As users purchase and engage with games on Steam, this creates "organic visibility" [82] in which "Steam's algorithms react to player interest quickly and automatically" [61]. To create a review on Steam a user must have a Steam account and have recorded play time with the game [83]. The impact of user reviews on organic visibility remains unclear, prompting developers to study their influence on game visibility [7][37]. Reviews include text comments and thumbs-up/down ratings, aggregated into overall scores (e.g., 'positive,' 'mixed' [see Figure 1]), which affect a game's commercial appeal [7]. While reviews can aid developers in refining design and communication strategies [19][21], they can also harm games through unhelpful comments, jokes, or review bombing [47][87].

While research has been conducted on the significance of reviews on popular gaming media platforms [103], our study builds upon the work of scholars who have examined the relationship between Steam user reviews and time. Eberhard et al. [21] studied 'helpful' user reviews which often came from users with longer, visible play times, and used keywords such as 'minute,' 'hour,' and 'year' [21]. Sifa et al. [75] (behavioural analysis of play time across popular games), and Cheuque et al. [17] (developing recommender systems from user data) focus on the total sum of play time as an indicator of user satisfaction and future behaviour. This reliance on sums and totals of elapsed time to understand user behaviour is a limited approach, and one Cheuque et al. calls a "bold assumption" about user experience [17]. The relationship between play time and

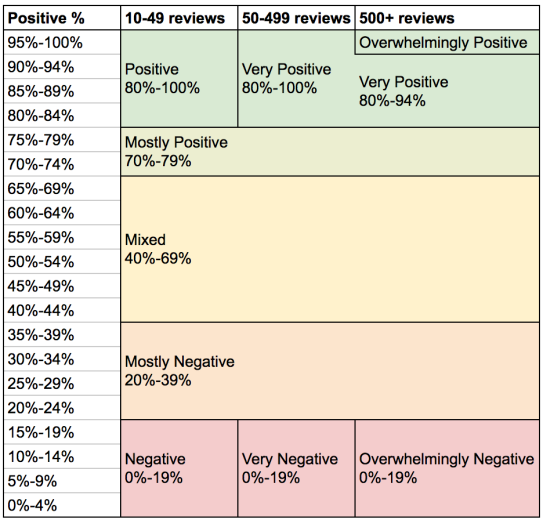


Figure 1: Speculated criteria for how Steam user reviews and ratings determine aggregate labels – used with permission from Rune Johansen [37].

user reviews has also been investigated by Lin et al. [47] who revealed many temporally significant findings, including a correlation between the time played before making a review across 6224 games on Steam. These prior studies establish a quantitative link between user reviews and time but lack a deeper, qualitative exploration of the temporal patterns they uncover. Such a qualitative lens has previously been applied to time-centric marketing language on Steam [11], highlighting how temporal framings shape expectations before play. User reviews are often examined as predictors of future user behaviour, yet their value as standalone evaluative tools remains underexplored. In *Changing Perspectives on Evaluation in HCI*, MacDonald and Atwood [51] advocate for evaluation systems that prioritise user experience, hedonic qualities, and the value of digital interactions over task-based metrics.

2.2 Temporal Frameworks in Play and Interaction

As time and temporality have distinct meanings across different play contexts and research disciplines, this section clarifies the specific focus of our research. We prioritise time as experienced by the user, which in the context of play has two arrangements. The first is *player time*, the time that users manage, relative to the passing of real-world time. Player time is a subjective construct, varying between individuals based on personal priorities, ownership of time, and external influences (this aligns with aspects of Zagal and Mateas' [102] temporal frame, *Real-World Time*). The second is *play time* (also presented as playtime in literature [17][21][30] and event time by Juul [36]) which speaks to the time spent playing a game, measured by the passage of time in the physical world [3][12][36]. This includes both the duration of individual play sessions and the cumulative time a user accrues while playing. Both play and player time intersect with the HCI and IS temporal understanding of clock time, relating to computational cycles and progression [94]. Rapp notes that the complexity of time is often reduced across literature to clock time as it is "quantitative and objective" [65] and is thus limited in capturing the subjective values of users. Where quantitative research succeeds is in correlation and informed behavioral analysis for commercial impact such as how narrative length and extended play time can drive commercial appeal and motivate game purchases [71]. To address this limitation, we propose examining user awareness and evaluations of play and player time to better understand their subjective value. This insight could inform future design that prioritises time management and the quality of user experiences.

While we focus on the user-relevant arrangements of time, we exclude the internal temporal dimensions categorised as *game time*. Game time is the time that passes within the game's world or narrative, often independent of real-world time [36]. Game time elements also include in-game systems such as cooldown timers [43] and day/night or season cycles [3]. Ludo-narrative, cinematic, and recursive aspects of play have also been examined with a temporal focus. Jayemanne's *Chronotypology* [35] offers to identify temporal complexity in video games for literary analysis and Parra Bravo's *Temporal Constraints* [60] outline design variables to regulate player progression. In HCI, Benford and Giannachi [2] examine how in-game temporal trajectories – being the observable future pathing of narrative and play – are significant for user motivation and engagement, contributing to discussions on user retention and sustained interaction. Further novel examination of time and play reveals: that users grasp temporal concepts through time-based mechanics [78], game experiences can alter perceived time flow [59], and digital play upholds habitual patterns [70]. These studies highlight the complex and dynamic impact that time has on both user experience and game design. We note here that time in play is *designed* [3] and where prior research has focused on how users engage with temporal dimensions, there has not been research into how users *evaluate* such. By developing an evaluative framework to hold accountable the mechanisms that impact the Temporal Priorities of users we can better understand design decisions structure time [13][88] and introduce a valuable metric to guide design iteration [19].

Alongside interest in researching time, there are efforts to develop tools to better categorise and understand the relational value of time to users [65][100]. Fine [23], in the foundational *Kitchens: The Culture of Work*, introduced a five-category framework to offer insights into how social life is organised by temporality: duration, tempo, sequence, synchronization, and periodicity. This framework has since been applied to socio-demographic contexts, including gender, age, life course, and education [77]. Relating to video games and play, Zagal and Mateas have been developing a four-category ontological tool of temporal frames (real-world, gameworld, coordination, and fictive time) to better understand and teach the significance of time and temporality in game design [99][100][101][102][104]. While this tool provides a robust framework for students, early-career game developers, and researchers, and describes the relationships between events and time structures in games its terminology and structure can be inaccessible or derivative of video-game specific cultural terminology and understanding (such as play time and game time). Rapp [64][65] meanwhile, demonstrates how game design intentionally shapes

player temporalities (linear, circular, shared) to foster engagement in MMORPGs. However, these frameworks predominantly address how time is structured by game systems or designers, with less emphasis on how players themselves evaluate their time spent. While Rapp's work focuses on how game design creates these temporalities, our study shifts focus towards how players evaluate time spent in play, highlighting user-centric perspectives on time. Granular aspects of time such as frequency and intervals are also significant in the context of digital play. Wei et al. [92] examined how users value the frequency of actions and repeated structures of play over time (such as high frequency but low duration competitive matches in *Overwatch* [116] or *League of Legends* [126]). These existing temporal frameworks provide valuable insight into user experience through societal constructs [23], game systems [102], or specific temporalities of play [65]. However, these frameworks are primarily derived from examining users in relation to in-game systems (e.g., that the systems shape the duration and frequency of play). We argue that the critical gap for HCI lies in centering the users' subjective understanding of time within their engagement as the most significant marker. That users choose to engage with systems because they align with Temporal Priorities such as appropriate cost to play duration, quality intervals of play, or stakeholder support over time. This qualitative understanding can then link user evaluations of time in play to cultural practices of temporal relevance, such as speedrunning [54], marathon live-streams, and modding, which highlight how users actively manipulate play time [31].

2.3 Screen Time to Play Time: Contextualising Temporal Value

Play time is the key metric used to examine problematic play and addiction [7][10][45][55] and is linked to discussions on screen time [1][14][52]. Screen time studies have often been applied in regulatory contexts, informing policies and practices that limit young people's access to digital media and play by caregivers or governments [52][96]. These negatively framed approaches assume excess of time in play is problematic without exploring the contextual and subjective accruement or reflection of those total play times from the users. This is also presented in HCI research which often frames time as a problem to be resolved [15][41][76][105][106][107]. In works that examine screen time and how game addiction is understood by young people, Carter et al. [13] note the "consequence of focusing on time as a metric for categorising 'game addiction"' [13], in contrast to the ways caregivers and children understand the *compulsion* to play. Further, Brus [10] notes that it is not time in play that should be of concern but how play time may interfere with other responsibilities. Where few studies go beyond quantifying time to explore its qualitative significance for user experience, Rasmussen et al. [67] examined whether time spent on smartphones is "well spent." Their study identifies that happiness alone doesn't define product quality and temporal regret (feeling time could be better spent), may also stem from product design – insights relevant to play contexts.

While various studies have examined the relationship between time and user behaviour, motivation models and player typologies are blind to time as a mechanism that influences user experience. From Bartle's typology [5], Hunicke et al.'s MDA framework [32], Quantic Foundry's motivation model [63], and McKechnie-Martin et al.'s '28 Dimensions of Play' [53], time takes a secondary role to other motivations. Time is minimally considered in reaction times [63], time to completion [5], and consistently referred to as something to be passed [5][32][53]. In contrast, *discretionary time* [27] – the time outside of essential tasks such as work and personal care – identifies how certain temporal arrangements are positively valued. This value contests that time should be merely passed, with the scarcity of such valued time being consequential for individuals [39]. Individuals are also motivated to engage in play *despite* time scarcity. This is seen in the behaviour of serious leisure practitioners [84][69], the socio-cultural demands of feminine leisure time [16], and in the integration of play into work, travel, or other activities with temporal demands [6]. Thus, by understanding how users position the play of video games within daily, weekly, or entire life cycles [57] we can gain deeper insights into how Temporal Priorities shape engagement, satisfaction, and evaluations of video games.

2.4 Summary

In the previous sections, we address how historic perspectives toward time in play across interdisciplinary literature, motivation models, and HCI can be furthered by critically engaging with user-centered, qualitative approaches to user evaluations of time in play [74]. Building on calls for experiential evaluation methods [38][44][48][50][66] and insights from work contexts [29], hardware use [38], and social media [106], we identify a need to directly address the Temporal Priorities of users in evaluations of game quality. By examining how users communicate the value of their time spent in digital play through user reviews, our study contributes to a more thorough understanding of user motivations and outlines the value of Temporal Satisfaction.

3 Methodology

Our research adopted an exploratory approach to investigate how time-centric language is used in Steam user reviews to evaluate video game quality and communicate Temporal Priorities. We collected 1,000 of the 'most recent' user reviews for the first 100 games pulled from Steam, ordered by 'relevance'. From this, 99,136 reviews were collected and filtered for time-centric language, resulting in 5,423 relevant reviews which were then thematically analysed. The following sections detail the collection process and justify the selected sample.

3.1 Sample

Steam was selected due to the accessibility of its data and its relevance to broader industry and user studies, as discussed above. A target of 100 games was selected to capture a diverse sample, ensuring a broad representation of video games across different genres, popularity levels, and developer backgrounds (indie and AAA). Filtering the games by 'relevance' (user engagement influencing organic visibility [see Section 2.1]) was selected over 'new releases' or 'top sellers' to ensure a diverse range of games were collected that represented current trends in user experience. This provided a

Table 1: Time-centric keywords used to filter user reviews.

Time Units and Frequencies	Duration and Length	Game-Specific Concepts
second, seconds	short	playtime, play time, player time
minute, minutes	long	lifespan, life span
hour, hours, hourly	length, lengths, lengthy	limited time
day, days, daily	session, sessions	roadmap, road map
week, weeks, weekly		season, seasons, seasonal
month, months, monthly		
quarterly		
year, years, yearly		
annual		

representative view of the varied types of games available on Steam and across other platforms.

The 1000 'most recent' user reviews written in English from these 100 games were chosen to provide balanced data quality and logistical feasibility – avoiding saturation and overload. Selecting the 'most recent' reviews ensured a focus on current evaluations, enabling meaningful, contemporary comparisons between newer titles and older games that remain popular. Reviews from users who had opted out of data collection under Steam's privacy policy [90] were not included in the dataset.

3.2 Data Collection

Existing Python packages were used in Google Colaboratory [28] to access the Steam API and collect data. 'steam-review-scraper 0.10' [108] was used to obtain the Steam ID (unique serial code for each game) of the top 100 games ordered by 'relevance' at the time of collection. 'steam-reviews 0.1.2' [95] was used to collect the 1000 'most recent' user reviews from those games. Data was collected in one attempt on December 6th 2023 from the Steam API through simple GET requests without needing to log in. No cookies or session data were used, preventing any personalisation of the data. *Last Train Home* [110] had fewer reviews (136) but was included for the novelty of data.

3.3 Keyword Filter

To find reviews containing time-centric language a keyword filter was developed to identify time-centric language. Initial terms were deductively selected to include general temporal units such as 'day', 'hour', and 'minute' – this approach aligned with qualitative 'start lists' [56], priori templates [22], and Eberhard et al.'s [21] targeted words of 'minute', 'hour', and 'year'. This filter was then inductively built up with observed language across player forums, social media, and gaming press [68][72] to include temporal terms relevant to video games (such as 'lifespan' and 'session'). Finally, through a cursory search of user reviews on Steam, additional video game-specific terms (such as 'roadmap' and 'season') were inductively added and verified by consensus from all authors. Such hybrid approaches are used to create iterative data sets [4][86] that enhance qualitative research. Many other keywords were explored such as 'boost' or 'skip' but were removed due to lack of relevance. The concept of 'replayabilty' was explored but not included due to a lack of direct relation to play time (the same as 'endless' and 'unlimited play'). This resulted in a filter of 39 keywords (see Table 1) that were used to identify time-centric language within user reviews. The filter was designed to capture a representative collection of time-centric language, acknowledging that it would not capture every occurrence, but providing an appropriate sample for qualitative analysis. We group the keywords below into three categories, to convey the various temporal significances they address.

3.4 Analysis

The finalised filter was applied using NVivo 14's [49] text search function to the 99,136 reviews collected, identifying 12,337 user reviews that contained at least one time-centric keyword (see Table 1), forming the final dataset for this research. The first author then conducted thematic analysis on the user reviews that contained time-centric language. Reflexivity was central to this process, as the first author's familiarity with player forums and gaming press provided valuable context, that was then critically examined to ensure the analysis remained grounded in the data [9]. A manual approach was chosen to process user reviews, as time-centric language is emerging but not yet prevalent enough for automated analysis (see [18][25][26][42][58][68][72]). This allowed for a detailed exploration of relationships with player time, capturing novel or emerging connections that automation might miss.

Thematic analysis was conducted by the first author and followed Braun and Clarke's six-step method [9], beginning with 1) familiarisation through an initial reading of the collected user reviews containing time-centric language to identify relevant instances. Reviews were manually examined with curiosity and without deductive assumptions, rereading earlier reviews as patterns emerged. 2) Initial codes, such as 'legacy,' 'industry,' and 'additional content,' were generated inductively and refined iteratively through rereading – consistent with Fereday and Muir-Cochrane's [22] process of thematic analysis. 3) Themes were sought by considering tone, structure, and context, combining semantic codes for explicit meanings with latent codes to uncover deeper, conceptual insights, ensuring a nuanced and aligned analysis. 4) The first author then led the review of codes into themes, which were subsequently refined with input from the second and third authors throughout the analysis period. 5) This process led to the identification of six themes capturing the core essence of the data: *Momentary* (experiences relative to time), *Historic* (legacy and reflection), *Projected*

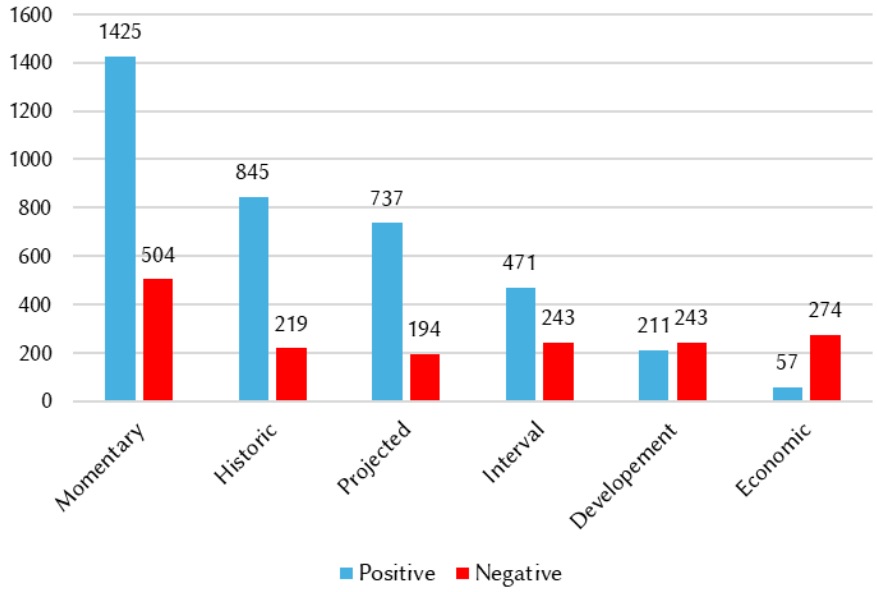


Figure 2: Distribution of positive and negative attitudes across six Temporal Priorities in user reviews.

(future expectations and potential), *Interval* (duration and structure), *Development* (engagement and maintenance), and *Economic* (time in play relative to cost). 6) The final report integrated descriptive statistics with qualitative insights. Descriptive statistics were used to highlight key patterns and relationships in the data, avoiding unnecessary statistical tests [40], to provide context for qualitative analysis.

4 4 User Review Results

Out of the 99,136 'most recent' reviews collected from 100 games ordered by 'relevance' on Steam, 12,337 user reviews contained time-centric language. Among these, 5,423 user reviews (5.4%) presented time-centric language that addressed player time. Time-centric language was present in the user reviews of all 100 games and analysis of language context resulted in six distinct themes that communicate the Temporal Priorities of users. The difference in 6914 reviews was due to the use of time-centric language in a narrative, conversational, or hyperbolic tense.

Time-centric language in user reviews was also coded for positive or negative attitudes toward temporal concepts, independent of the Steam recommendation rating (see Section 2.1). For instance, 'I enjoyed 200 hours before the game broke' would be coded positively despite a 'not recommended' rating, while 'Boring 8-hour tutorial but cool bosses' would be coded negatively, even if 'recommended.' Figure 2 illustrates 3,746 positive and 1,677 negative instances across the six themes. Negative attitudes were more common in *Economic* and *Development* themes, reflecting dissatisfaction with monetisation or developer decisions, while *Momentary* and *Historic* themes were valued positively, highlighting appreciation for quality play. These six themes constitute the core Temporal Priorities expressed by users in their reviews, reflecting the ways they structure and evaluate their experiences of time spent in play.

4.1 Momentary: Experiences Relative to Time

Momentary, the most frequent theme across user reviews (see Figure 3), communicates the embedded, experienced, and ongoing interaction users have with game worlds relative to user time. These reviews were reflexive and communicated distinct, impactful moments used to evaluate the play experience, linked to a quantified amount of time spent in play.

> "About 20 hours in and this is a perfect game you can just pick after a few days of playing and get right back into it. Love the story, lore, game play and action." *Hogwarts Legacy* [111].

Impactful moments were noted to highlight significant events, such as evoked emotion or linked to recommendations on play quality. These reviews often presented a granular presentation of announced play time and an evaluation that that time spent in play was either worthwhile or wasted.

> "[D]espite only playing 31.2 hours, the entire time it felt empty... you spent so much damn time in your menu it is ridiculous. i wasted my money on this shit. honestly... waste of effort." *Starfield* [113].

> "Bro just 1.7 hours and I loved everything, from Aesthetics to the gameplay, the characters..." *Hades* [132].

> "What's the point? I spent almost 4 hours, wandered about, gathered and killed everything I saw and built a little shack that the first big wind storm blew apart the the 3 Little Pigs house of sticks..." *ICARUS* [127].

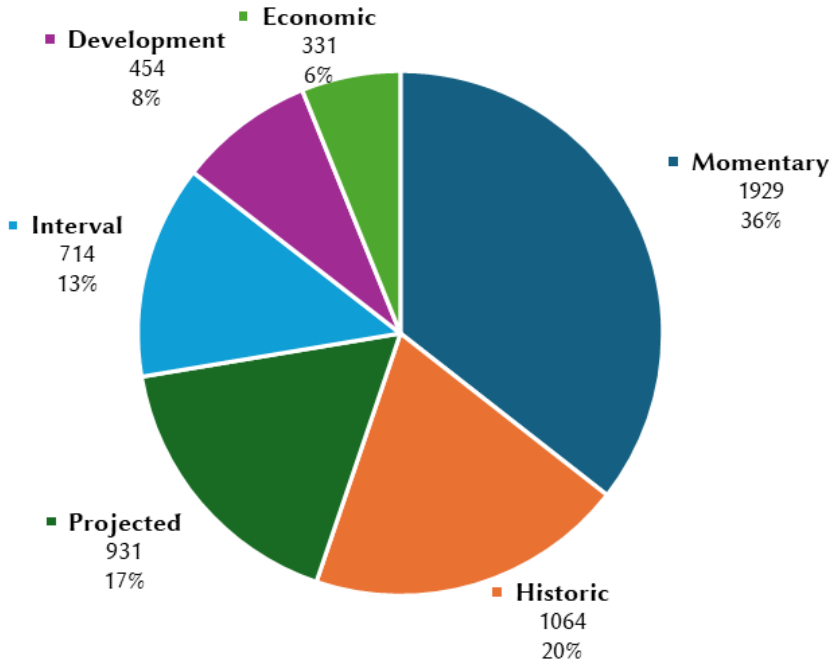


Figure 3: Distribution of themes across user reviews.

By sharing these moments, users evaluate the value of their temporal investment, promoting engagement among other users. These reviews presented a frequent structure of 'played for X-time, had experience-Y', communicating an emotion connected to an experience after a varied temporal investment.

4.2 Historic: Legacy & Reflection

Historic reviews communicated a user's long-term engagement with a game, highlighting their past investment and emotional responses to changes over time. They presented a reflexive awareness of time spent in play, brand loyalty, and strong emotions such as betrayal. This theme focused on user legacy, often structured as 'X hours in, starting to like it' where play time is highlighted early to draw attention to the user's investment.

> "Did i play this game for more than 250 hours? Yes. Would i recommend it? no." *Starfield* [113].

While largely inward-focused and frequently without much additional text, *Historic* reviews allude to cultural capital through temporal investment and often use humour and satire to contextualise their boast of time invested.

> "[A]fter 100 hours, im confident to try it out on REAL gangsters i'll update the review to let you guys know how it went!" *Sifu* [131].

> "»insert game sucks but 10k+ hours played review here« played since 2012 through normal launcher and cant recommend it as an MMO anymore these days, but its an ok singleplayer RPG. New content is basically not happening anymore though." *STAR WARS™: The Old Republic™* [114].

In user reviews for live-service or ongoing games, *Historic* reviews are used in response to changes in the game over time – communicating time spent in play as a verifier for evaluating the current game state.

> "[A]s someone who has put almost 1k hours in this game I do not recommend this game anymore" *Destiny 2* [118].

While often emotionally charged, in Figure 2 we see that *Historic* reviews are overwhelmingly positive (845 counts to 219 negative) indicating that time spent in play – even in excessive amounts – is positively valued.

4.3 Projected: Future Expectations & Potential

Reviews discussing *Projected* temporal values use vague language to communicate future temporal investment available in the game and the potential for future engagement. Users identified sweeping parameters of play such as 'hours of fun' which consistently promoted an earnest desire for others to engage in the digital experience. These reviews are often directed towards other users, aiming to advise them. Unlike reviews on personal experiences, *Projected* reviews focus on future gameplay experiences, advocating for or warning against based on the time users might spend.

> "With all the different stories and challenges from all 3 of the new games in this franchise, there are hours of replay-ability... You can spend hours on any map just trying to explore the entire thing..." *Hitman 3* [123].

> "This is now a $70 game with an in-game cash shop. It has maybe 20 hours of meaningful content with

> hundreds of hours of grind. The size of the game world is the smallest open world game you will ever see..." *Disney Dreamlight Valley* [121].

Projected reviews evaluate and communicate the game's ability to sustain engagement, whether it's silly fun, intense gore, boredom, or fear, emphasising long-term appeal or effect. This approach prioritises overall experience, future potential, and the capacity for time spent in play as a persuasive tool to influence other users. This theme also depicts a reflexive user awareness for preferred play styles – noting that lengthy play sessions or repetitive grinds are of different value to other users.

> "I do not recommend this game to anyone who doesn't have atleast 15 hours a day to play. Anything under than and you will quickly start to fall behind content which eventually leads you to being locked out because of toxicity and frankly, just a pitiful gearscore. Sad truth." *Lost Ark* [130].

> "One of my favorite games and is a must if you're sci-fi fans. You can spend hours creating you're own empires. Drawbacks are that it's time consuming, not to beginner friendly and to much DLC." *Stellaris* [125].

From the above quotes, we see users not only advocating for the experience but also expressing awareness of, and empathy for, concerns about time management and scarcity – even when these are not stated outright.

4.4 Interval: Duration & Structure

Interval reviews, which captured a small portion of the data, communicated and evaluated the explicit length of overall play or specific gameplay loops and their impact on enjoyment. Users communicated how timeframes, from quick 10-minute matches to extended 8-hour sessions, shape their experience. They identified both the value of their time and the structure of the experience, such as shorter rounds, smaller quests, or full narrative sections.

> "[T]ook 20 minutes to find a game confused by spawn system, took 3 minutes to spawn in ran for 20 mins straight die instantly. . ." *Hell Let Loose* [115].

Surprisingly, the *Interval* theme presented a balanced evaluation of experiences rather than merely praising longer play capacity. Shorter experiences, commensurate to game quality, were positively evaluated for fitting into busy schedules, while overly long or repetitive gameplay was criticised for causing boredom or fatigue. This theme captures how different temporal investments, whether brief or extended, can influence overall satisfaction.

> "Not a very long story (4ish hours), but a sweet science fiction story with heart and curiosity. One of the best games I've ever played. An absolutely delightful experience." *Stray* [117].

The *Interval* reviews provide a direct resource for comparison between similar game experiences – such as the below turn-based card games.

> "If you enjoy watching yourself get man-handled for 10 minutes a game and being able to do nothing but watch, then this is the game for you!" *Yu-Gi-Oh! Master Duel* [124].

> "[R]eally fun game and great for a casual experience; matches take less than 5 minutes and are still very engaging and exciting, worth the time." *Marvel SNAP* [129].

Where *Yu-Gi-Oh! Master Duel* was criticised for lengthy inactive periods, *Marvel SNAP* was lauded for its quick gameplay, providing a novel point of comparative data to capitalise on.

4.5 Development: Engagement & Maintenance

Unlike user reviews focused on personal time-centric play experiences, *Development* reviews assess the actions of developers or publishers over the time the user has been invested in the game. This theme addresses how users value the management and maintenance of games by key stakeholders during their period of interest. These reviews communicate user awareness of industry practices, such as updates, patches, monetisation strategies, or changes in game direction. CD Projekt Red, the developers of *Cyberpunk 2077* [120], had users identify and remark upon ongoing efforts and historic moments that improved the game after its troubled 2020 launch [34].

> "After 3 years, you finally get your car as promised, meaning you should be happy and grateful for the product to be delivered to you in full. I'm not grateful. Stop releasing unfinished games! Broken from launch and took over a year to fix properly..." *Cyberpunk 2077* [120].

Similarly, *No Man's Sky* [122] presented a strong rhetorical consistency among the reviews referring to the actions of the developers over time as a 'come back story' or a 'labour of love'.

> "Its a Come Back story that just keeps getting better. I put it down in 2022, after a 120 hour playthrough save. After some updates, came back a week ago, and started a new save. Its almost better starting fresh and discovering content that I might have missed, plus the new updates... The Biggest of Kudos to every dev working on this." *No Man's Sky* [122].

Embedded in these reviews is not only an evaluation of the direct play experience but also the actions of key stakeholders over time in maintaining quality play. However, this maintenance is not always positively received, especially when the changes align with historic attempts at increasing cost or reducing user agency in the game world.

> "12 years after release, Bethesda decides to reintroduce paid mods to get every cent they can from those that still play this game. This slight improvement on 2015 attempt at paid mod workshops, after apparent failure of Creation Club, will destroy the collaborative spirit of modding of newer Bethesd games and is for sure just a test before releasing a similar feature for Starfield." *The Elder Scrolls V: Skyrim Special Edition* [112].

This communication from users to or regarding developers presents a strong sense of ownership over the games they engage with, built through time spent playing. Users express their opinions on how these external events affect their experience, highlighting

support for positive developer engagement or criticism when actions are perceived as neglectful or exploitative.

4.6 Economic: Time in Play Relative to Cost

Finally, *Economic* reviews evaluated payment arrangements and their connection to furthering or limiting play time. Reviews connected user time spent in play to the impact of monetisation methods, like subscriptions, paywalls, and downloadable content (DLC) which impacted access, pacing, and progression. Present within these reviews were articulate breakdowns of payment structures and the future impact on the user through consistent engagement with these systems.

> "This is a $60 game that also contains mobile free-to-play micro-transactions. $5 monthly battle passes (complete with "fear of missing out" prizes), in-game premium currency that can be bought with real money, weird currency packs that are priced with the in-game shop to be just short of or just over buying in game items (subtly encouraging buyers to buy just a little more to not be "wasteful"), a free currency that can only buy some items and is drip fed to only allow a significant purchase once every few months, and lots of limited-time cosmetics for your custom avatar..." *Street Fighter™ 6* [119] .

Evaluations ranged from criticism of restrictive paywalls to praise for models that offered fair or worthwhile engagement for cost.

> "If I can buy a $5 game and get 20-30 hours out of it, then I did pretty good. A good AAA game might cost $50-70 and should give you 30 hours or more. Whoa, I already got 25 hours!! I got my money's worth." *American Truck Simulator* [128].

> "The base game is free, but the majority of the endgame content is locked behind add-on content. Normally, this would be an issue for me, but the base game in guild wars 2 is a great way to learn the game, level up and make some friends. The add-on content is honestly a steal for what they charge for it..." *Guild Wars 2* [109].

> "A new age where the content of progression is time gated by 2 years, or spend $30 a month like a subscription to reduce it down to 17 months." *MapleStory* [133].

The above *MapleStory* review was one of 60 negative evaluations of time relative to cost found in the game's recent reviews. This identified a clear shift in user evaluations after the new subscription model was announced [89], compared to older, more positive reviews. This highlights an opportunity to examine evaluations of Temporal Priorities and satisfaction longitudinally, identifying key moments where design or communication disrupted player expectations. *Economic* reviews depict an ongoing evaluation of user experience that includes paratextual awareness of developer correspondence, gaming press, and a cultural understanding of cost relative to time in play.

5 Discussion

This study explored how users communicate time spent in play to evaluate video game quality through time-centric language in Steam user reviews. The six identified themes, *Momentary*, *Historic*, *Projected*, *Interval*, *Development*, and *Economic* represent the Temporal Priorities of users and present a conceptual framework that complements existing categorisations of temporality and play. These findings respond directly to our research questions:

1. How do Steam user reviews communicate time spent in play to evaluate video game quality?
2. What connects the use of time-centric language across those reviews?

These Temporal Priorities reveal how players actively evaluate video game quality, personal engagement, and developer practices. This contributes a conceptual framework for understanding user-driven temporal evaluation, and proposes Temporal Satisfaction as a practical, user-informed metric to guide system design and enhance user experience.

5.1 Bridging User Evaluation and Temporal Frameworks

Where Zagal & Mateas [102] and Rapp [65] associate temporality and play as relative to games or systems, we provide a *user-centered* framework that situates user evaluation and understanding of time spent in play as the critical lens. We position Temporal Satisfaction as a novel and holistic value to users, and recommend the generation and use of Temporal Satisfaction profiles (detailed further below) as a practical design tool, translating user evaluations into actionable insights to inform iterative design. We note that Fine's [23] original framework to organise social contexts to temporality has aspects that align with our user-centered focus, however the framework adopts an ontological perspective, removed from the user's viewpoint. In contrast, we engage exclusively from the user's perspective, grounding our framework in their evaluations. This can address how systems align with the Temporal Priorities of users and how unmet needs lead to dissatisfaction.

From statistical insights we observe a distribution of positive and negative attitudes in temporal reviews, reflecting their subjective nature and emotional significance to users (see Figure 2). The data suggests that users express dissatisfaction when discussing how time is impacted by external factors like payment models or developer decisions, while they express appreciation for quality play over time. For developers, this highlights the importance of understanding how design choices intersect with the Temporal Priorities of users to better facilitate Temporal Satisfaction through design.

Our empirical analysis identified 5,423 user reviews – over five percent of the total dataset – that contained time-centric language. This finding demonstrates a substantial user engagement with Temporal Priorities, reinforcing the significance of time in user evaluation. This finding demonstrates a consistent user engagement with Temporal Priorities, reinforcing the significance of time in user evaluations. While this is not a large proportion, every game featured at least one temporally relevant review, demonstrating a consistent pattern in the use of time-centric language to evaluate

video games and communicate Temporal Priorities. We acknowledge that this study may not align neatly with the expectation for papers to present positive or statistically significant results. However, we also recognise that the publication bias [20] favouring such outcomes undermines qualitative research into emergent and evolving techno-cultural practices, such as the significance of time in user experience [38].

Beyond a conceptual framework, the Temporal Priorities communicated through the themes reveal two theoretically significant patterns. First, that users reflexively consider time and temporality in evaluations of video games, using these aspects as points of communication with other users. Second, that users are aware of, critique, and hold accountable developer, stakeholder, and industry actions.

5.1.1 User-Focused Priorities. The *Momentary*, *Historic*, and *Projected* themes communicate the significance users place on time in their play experiences, not just for themselves but for other users. Each theme communicates user values on play time and their assumptions about what constitutes meaningful or preferred play time for others. In the *Momentary* theme, users highlight specific, impactful moments during gameplay that have defined their experience, communicating that the value of time is found in the quality of these moments rather than just the quantity of time spent. Additionally, the *Historic* theme communicates the longitudinal relationship between users and their games, focusing on the long-term experiences formed through extended play and framed around the user's temporal legacy. The *Projected* theme extends this by looking forward, using time-centric language to speculate about future play and its potential value. Understanding this potential to play is relevant to HCI examinations of temporal distance [85] as a communicated element to empower user planning. These themes, connected in valuing time in play but distinct in priority, communicate user-driven motivations toward time spent in play – a connection that would serve to be included in existing motivation models and player typologies [5][32][53][63].

5.1.2 Industry Priorities. Through the *Development*, *Economic*, and *Interval* themes we see expectations set from users toward the stakeholders of the games they invest in. These reviews communicate histories of actions, impact on play time, and critique of durations of play with the expectation to be heard and acted upon by stakeholders. The *Development* theme communicates how users recall and understand developer actions over time, impacting the game's quality both in the moment and ongoing. This pairs with the *Economic* theme, which also presents an awareness of how payment structures impact play time. Finally, the *Interval* theme bridges user expectations for satisfying gameplay lengths and how designed durations of play impact enjoyment. We observe through these themes a cultural practice toward holding design mechanisms accountable for negatively impacting the quality of time engaged. Through qualitative analysis, the themes identified contribute to HCI research by exploring not just whether time was spent, but whether it was well spent [67] – examining if users were compelled by, enjoyed, or resisted design choices [13][88][98].

5.2 Design Implications

Building upon existing literature on Steam user reviews [17][21][47][75], we highlight the value of user-generated content beyond standard data metrics. This aligns with MacDonald and Atwood's [51] assertion that "developing an inspection method aimed at assessing hedonic attributes – such as aesthetics, engagement, or enjoyment – would greatly benefit the field." To this end, we recommend the generation and use of Temporal Satisfaction profiles, to interpret time-centric user reviews and contribute a proposed mode for applying the conceptual work of this study to translate user insights into design practice. Future work will focus on automating this process to address the practical challenges of developing these profiles in a timely and cost-effective manner, as well as understanding how developers can best interpret and utilise these profiles.

5.3 Temporal Satisfaction Profiles

Derived from the Temporal Priorities communicated through time-centric reviews, we position Temporal Satisfaction as a new metric to guide system design and improve user experience. To interpret Temporal Satisfaction into actionable insights, we propose generating Temporal Satisfaction profiles derived from the themes identified in this study.

The profiles visually organises user feedback so that developers can better understand the Temporal Priorities of users. These profiles identify areas of strengths and opportunities for improvement such as pacing, progression, and monetisation. We note the gap between research and development to be a barrier but we also recognise the significance data analysis holds for iterative design [19][73][91]. Rather than develop a tool that targets temporal reduction or tracking [15][38][93], Temporal Satisfaction prioritises the qualitative aspects of time spent in play. Temporal Satisfaction profiles can be developed from any collection of user reviews for both internal and competitor analysis. We illustrate the value of Temporal Satisfaction profiles (see Figure 4) through two examples from our analysis: *MapleStory* [133] and *The Elder Scrolls®Online* [134] – chosen for their contrasting profiles.

Figure 4 depicts two Temporal Satisfaction profiles, created by categorising user reviews by theme and corresponding positive and negative attitudes – identifying clear patterns of Temporal Satisfaction. For *MapleStory*, we see users are frustrated with practices that relate time in play to cost (*Economic*). For *The Elder Scrolls®Online*, user evaluations of legacy and reflection (*Historic*) are strongly valued with infrequent negative reviews. These occasional negative reviews may reflect individual subjective experiences rather than broader design issues – requiring no further action. This could establish a baseline for 'acceptable' Temporal Satisfaction, providing a reference point for evaluating and maintaining user experiences.

To translate insights from the profile into actionable outcomes, further research should involve direct analysis of relevant user reviews to identify root issues impacting Temporal Satisfaction (such as *MapleStory*'s announcement regarding payment and progression [89]). While large changes to monetisation models or gameplay mechanics may take time (or be logistically impossible), short-term actions can include improving communication strategies to address user concerns. For *MapleStory*, increased transparency about

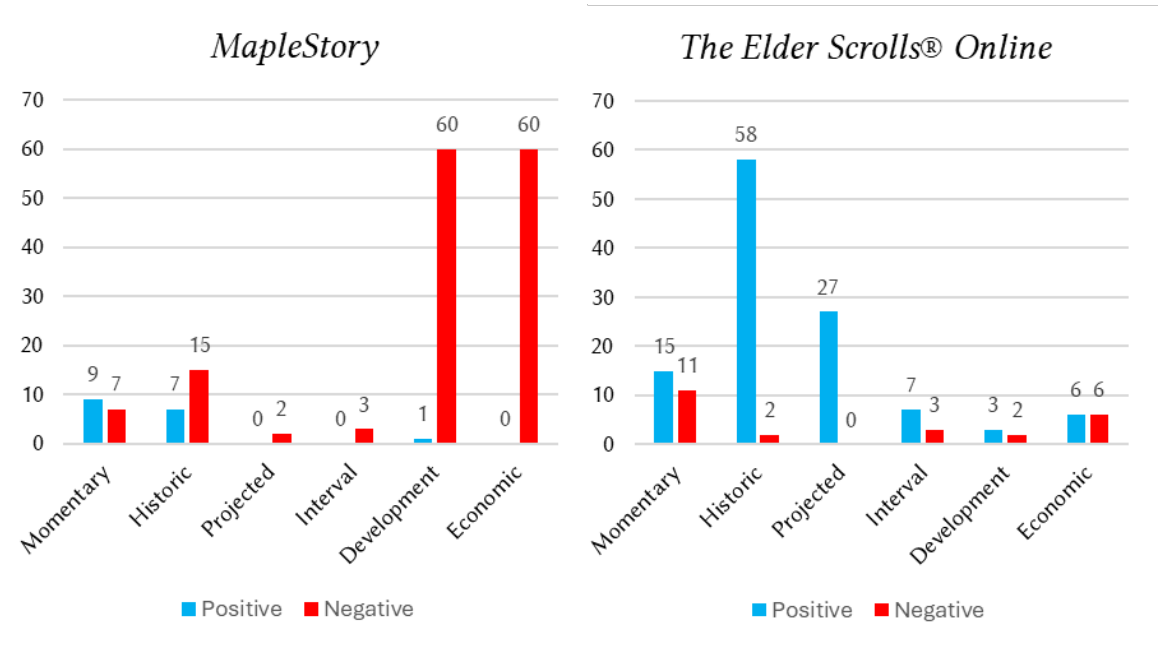


Figure 4: Temporal Satisfaction profiles for *MapleStory* (left) [133] and *The Elder Scrolls®Online* (right) [134].

progression systems could improve player satisfaction. *The Elder Scrolls®Online* may in turn highlight or celebrate certain longitudinal aspects of play. Temporal Satisfaction profiles provide developers an opportunity to design more ethical processes to address the Temporal Priorities of users, in turn improving user experience and encouraging positive evaluations.

5.3.1 Summary. This research responds to a dual call to action outlined in *the Introduction to the special issue on time and HCI* [66]. First, we engage with time to advance the specific HCI needs for experiential, hedonic evaluations of user experience, creating a foundation for further development and critique in HCI research. Second, we address ethical questions regarding the impact of compulsive or persuasive systems that impact Temporal Priorities and Temporal Satisfaction of users. By building on culturally understood perceptions of play and player time, we offer a resource "beyond the instrumental" as Karapanos et al. [38] called for. Our framework aligns with broader scholarly appeals to enhance understanding of time, user engagement, and thoughtful design [44][48][50] for users, developers, and scholars that is both accessible and conceptually rooted in HCI examinations of clock time.

Our study suggests that the temporal data presented in user reviews can be beneficial for iterating design processes and improving user experience. User reviews are known to be of value to developers [21][30][47], and by visualising time-centric evaluations, developers can understand current user expectations and Temporal Priorities. While we are conscious of the ambitious scope to inform game development through Temporal Satisfaction profiles, we situate our boldness in the critical need to address user evaluations of Temporal Satisfaction in digital interactions. This contributes to the design of systems that are respectful of user Temporal Priorities and in turn creates an environment that facilitates positive review generation – thus leading to better visibility on the Steam platform and aggregated ratings elsewhere [7][37][82][83].

5.4 Limitations & Future Work

The qualitative focus of this study offers unique insights but limits its comparability with quantitative research, offering potential for future mixed-methods studies. Themes were subjectively coded, and while collaboratively refined, alternative themes might emerge from other researchers. The keyword filter excludes colloquialisms, misspellings, and non-English languages, reflecting a regional bias. This bias could be addressed by rebuilding the filter to incorporate other languages and contexts. We acknowledge that the Temporal Satisfaction profiles currently engage with only one, evaluative dimension of time identified in this study. Future work will automate the generation of profiles and incorporate additional dimensions of time and temporality, aiming to develop a more comprehensive heuristic or user-centered tool.

This study contributes an exploratory examination of how time is considered in digital play and user evaluations, revealing time as a multifaceted element in user experience that extends beyond simple metrics like hours played. Time, as presented in user reviews, presents Temporal Priorities, satisfaction, and understanding of game design and development processes. Temporal Priorities and Satisfaction could be further examined in terms of a temporal literacy, conceptually relating to an awareness of time-centric design in digital systems. While this study addresses a gap in understanding the value of time in user experiences, it also reveals further areas of interest, including cross-platform examinations and direct engagement with developers on how time-centric systems are designed.

This paper observes time to be a user priority and criteria in evaluating game quality which contrasts with the observable omission of temporal values in current motivation models and player typologies. Existing motivation models do not account for the appeal of play time or time to play [5][32][53][63]. Therefore, further work should be conducted to examine how user-centered perspectives of time are significant to user engagement, motivation, and satisfaction to complement existing models.

6 Conclusion

This study provides a novel examination of time in evaluating the quality of video games, as communicated across six themes identified through time-centric language found in user reviews on Steam. Users consistently evaluate game quality by expressing their Temporal Priorities – captured in the six identified themes: *Momentary*, *Historic*, *Projected*, *Interval*, *Development*, and *Economic*. These themes represent how users prioritise different aspects of time in their play experiences and shape their sense of Temporal Satisfaction. To advance HCI research and design, we contribute a conceptual framework to categorise user evaluations relative to time and offer Temporal Satisfaction (and profiles to interpret such) as a novel metric to guide system design and improve user experience. This approach benefits both developers – who can create ethically designed games that meet commercial demands through positive reception – and players – who benefit from more meaningful, time-valued experiences that enhance engagement and satisfaction. The findings of this study extend beyond video games to social media, entertainment, and interactive systems broadly. Ultimately, this research responds to numerous calls for innovative, user-centered evaluation methods and provides an evaluative framework that connects time in communication with user experience. These findings offer significant applications across game studies, media studies, health, education, and HCI to enhance understanding of product quality and interaction relative to time.

Acknowledgments

This research was funded by the Australian Government Research Training Program (RTP) Scholarship.

References

[1] Pål Aarsand. 2011. Parenting and Digital Games. Journal of Children and Media 5, 3: 318–333. https://doi.org/10.1080/17482798.2011.584382

[2] Steve Benford and Gabriella Giannachi. 2008. Temporal trajectories in shared interactive narratives. Conference on Human Factors in Computing Systems - Proceedings: 73–82. https://doi.org/10.1145/1357054.1357067

[3] Federico Alvarez Igarzábal. 2019. Time and Space in Video Games - A Cognitive-Formalist Approach. Transcript, Bielefeld.

[4] Theophilus Azungah. 2018. Qualitative research: deductive and inductive approaches to data analysis. Qualitative Research Journal 18, 4: 383–400. https://doi.org/10.1108/QRJ-D-18-00035

[5] Richard Bartle. 1996. Hearts, Clubs, Diamonds, Spades: Players Who Suit MUD. Journal of MUD Research. 1, 1.

[6] Joël Billieux, Martial Van Der Linden, Sophia Achab, Yasser Khazaal, Laura Paraskevopoulos, Daniele Zullino, and Gabriel Thorens. 2013. Why do you play World of Warcraft? An in-depth exploration of self-reported motivations to play online and in-game behaviours in the virtual world of Azeroth. Computers in Human Behavior 29, 1: 103–109. https://doi.org/10.1016/J.CHB.2012.07.021

[7] Robby Bisschop. 2023. Is Having 10 Reviews On Steam Really THAT Important? Pirate PR. Retrieved February 18, 2024 from https://piratepr.com/treasure-trove/is-having-10-reviews-on-steam-really-that-important/

[8] Gaëlle Bodi, Célia Maintenant, and Valérie Pennequin. 2023. Videogamers: Who are they? Who plays what? What are the risks? Neuropsychiatrie de l'Enfance et de l'Adolescence 71, 3: 134–142. https://doi.org/10.1016/j.neurenf.2023.01.004

[9] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. Qualitative Research in Psychology 3, 2: 77–101. https://doi.org/10.1191/1478088706QP063OA

[10] Anne Brus. 2013. A young people's perspective on computer game addiction. Addiction Research & Theory 21, 5: 365–375. https://doi.org/10.3109/16066359.2012.733466

[11] Thomas Byers, Martin Gibbs, and Bjorn Nansen. 2025. Selling Time: Time-Centric Language in Video Game Marketing on Steam. In Conference Proceedings of DiGRA 2025: Games at the Crossroads. https://doi.org/10.26503/dl.v2025i2.2434

[12] Thomas Byers, Martin Gibbs, and Bjørn Nansen. 2024. Temporality of Play: Time in Digital Playgrounds. In Abstract Proceedings of DiGRA 2024 Conference: Playgrounds. https://doi.org/10.26503/dl.v2024i2.2375

[13] Marcus Carter, Kyle Moore, Jane Mavoa, luke gaspard, and Heather Horst. 2020. Children's perspectives and attitudes towards Fortnite 'addiction.' Media International Australia 176, 1: 138–151. https://doi.org/10.1177/1329878X20921568

[14] Sitong Chen, Cain C T Clark, and Zhanbing Ren. 2022. Different types of screen-based sedentary time and anxiety in adolescents: Video games may be more important. Frontiers in Public Health 10. https://doi.org/10.3389/fpubh.2022.918234

[15] Yu Chun Chen, Yu Jen Lee, Kuei Chun Kao, Jie Tsai, En Chi Liang, Wei Chen Chiu, Faye Shih, and Yung Ju Chang. 2023. Are You Killing Time? Predicting Smartphone Users' Time-killing Moments via Fusion of Smartphone Sensor Data and Screenshots. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3544548.3580689

[16] Shira Chess. 2018. A time for play: Interstitial time, Invest/Express games, and feminine leisure style. New Media and Society 20, 1: 105–121. https://doi.org/10.1177/1461444816660729

[17] Germán Cheuque, José Guzmán, and Denis Parra. 2019. Recommender systems for online video game platforms: The case of steam. The Web Conference 2019 - Companion of the World Wide Web Conference, WWW 2019: 763–771. https://doi.org/10.1145/3308560.3316457

[18] Pierre Dalati. 2023. Video Games Are A Waste of Time. TikTok. Retrieved September 10, 2024 from https://www.tiktok.com/@pierredalati/video/7299926161369386246?q$=$video%20game%20respect%20your%20time%20&t$=$1724813725807

[19] Anders Drachen. 2015. Behavioral Telemetry in Games User Research. In Game User Experience Evaluation, R Berhaupt (ed.). Springer, Cham, 135–165. https://doi.org/10.1007/978-3-319-15985-0_7

[20] Kerry Dwan, Douglas G. Altman, Juan A. Arnaiz, Jill Bloom, An Wen Chan, Eugenia Cronin, Evelyne Decullier, Philippa J. Easterbrook, Erik Von Elm, Carrol Gamble, Davina Ghersi, John P.A. Ioannidis, John Simes, and Paula R. Williamson. 2008. Systematic Review of the Empirical Evidence of Study Publication Bias and Outcome Reporting Bias. PLOS ONE 3, 8: e3081. https://doi.org/10.1371/JOURNAL.PONE.0003081

[21] Lukas Eberhard, Patrick Kasper, Philipp Koncar, and Christian Gutl. 2018. Investigating Helpfulness of Video Game Reviews on the Steam Platform. 2018 5th International Conference on Social Networks Analysis, Management and Security, SNAMS 2018: 43–50. https://doi.org/10.1109/SNAMS.2018.8554542

[22] Jennifer Fereday and Eimear Muir-Cochrane. 2006. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. International Journal of Qualitative Methods 5, 1: 80–92. Retrieved November 27, 2023 from https://researchnow.flinders.edu.au/en/publications/demonstrating-rigor-using-thematic-analysis-a-hybrid-approach-of-

[23] Gary Alan Fine. 2008. Kitchens: The Culture of Restaurant Work. University of California Press, California.

[24] Sergey Galyonkin. 2023. About - SteamSpy - All the data and stats about Steam games. Retrieved February 9, 2024 from https://steamspy.com/about

[25] gameranx. 2024. 10 Best Single Player Games That Only Take 10 Hours - YouTube. YouTube. Retrieved June 2, 2024 from https://www.youtube.com/watch?v$=$3NUK5DFXrRM

[26] GamerCentral. 2024. Zelda: Tears Of The Kingdom is a chore with no respect for your time – Reader's Feature | Metro News. Metro. Retrieved June 2, 2024 from https://metro.co.uk/2024/04/27/zelda-tears-kingdom-a-chore-no-respect-time-readers-feature-20728139/

[27] Robert E. Goodin, James. Mahmud Rice, Antti. Parpo, and Lina. Eriksson. 2008. Discretionary time: a new measure of freedom. Cambridge University Press.

[28] Google. 2024. Google Colaboratory. Google. Retrieved June 2, 2024 from https://colab.google/

[29] Hayley Guillou, Kevin Chow, Thomas Fritz, and Joanna McGrenere. 2020. Is Your Time Well Spent? Reflecting on Knowledge Work More Holistically. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3313831.3376586

[30] Tibor Guzsvinecz. 2023. The correlation between positive reviews, playtime, design and game mechanics in souls-like role-playing video games. Multimedia Tools and Applications 82, 3: 4641–4670. https://doi.org/10.1007/s11042-022-12308-1

[31] Christopher Hanson. 2018. Game Time: Understanding Temporality in Video Games. Indiana University Press. https://doi.org/10.2307/J.CTV176Q4
[32] Robin Hunicke, M. Leblanc, and Robert Zubek. 2004. MDA: A Formal Approach to Game Design and Game Research.
[33] Alexandre Infanti, Carlos Valls-Serrano, José C Perales, Claus Vögele, and Joël Billieux. 2023. Gaming passion contributes to the definition and identification of problematic gaming. Addictive Behaviors 147. https://doi.org/10.1016/j.addbeh.2023.107805
[34] Mike Isaac and Kellen Browning. 2020. Cyberpunk 2077 Was Supposed to Be the Biggest Video Game of the Year. What Happened? The New York Times. Retrieved September 10, 2024 from https://www.nytimes.com/2020/12/19/style/cyberpunk-2077-video-game-disaster.html
[35] Darshana Jayemanne. 2020. Chronotypology: A Comparative Method for Analyzing Game Time. Games and Culture 15, 7: 809–824. https://doi.org/10.1177/1555412019845593
[36] Jesper Juul. 2004. Introduction to Game Time / Time to play –An examination of game temporality. In First Person: New Media as Story, Performance, and Game. MIT Press, Massachusetts, 131–142. Retrieved November 3, 2023 from https://www.jesperjuul.net/text/timetoplay/
[37] Rune Skovbo Johansen. 2020. "Based on data from @simoncarless's newsletter and the net, and verifying a bit myself, I made this chart of what it appears the criteria of ratings on @Steam are. I don't think I've seen it in infographic form before?" X. Retrieved February 18, 2024 from <ext-link xmlns:xlink="http://www.w3.org/1999/xlink" ext-link-type="twitter" xlink:href="https://twitter.com/runevision/status/1307399794000887810">https://twitter.com/runevision/status/1307399794000887810</ext-link>
[38] Evangelos Karapanos, John Zimmerman, Jodi Forlizzi, and Jean Bernard Martens. 2009. User experience over time: An initial framework. Conference on Human Factors in Computing Systems - Proceedings: 729–738. https://doi.org/10.1145/1518701.1518814
[39] Carol Kaufman-Scarborough and Jay D. Lindquist. 2003. Understanding the Experience of Time Scarcity: Linking consumer time-personality and marketplace behavior. Time and Society 12, 2–3: 349–370. https://doi.org/10.1177/0961463X030122011
[40] Parampreet Kaur, Jill Stoltzfus, and Vikas Yellapu. 2018. Descriptive statistics. International Journal of Academic Medicine 4, 1: 60. https://doi.org/10.4103/IJAM.IJAM_7_18
[41] Saba Kawas, Nicole S. Kuhn, Kyle Sorstokke, Emily E. Bascom, Alexis Hiniker, and Katie Davis. 2021. When screen time isn't screen time tensions and needs between tweens and their parents during nature-based exploration. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3411764.3445142
[42] Kotaku International. 2020. It Sucks When Games Don't Respect Players' Time. Kotaku. Retrieved September 10, 2024 from https://www.kotaku.com.au/2020/11/it-sucks-when-games-dont-respect-players-time/
[43] Nicolas Kraj. 2020. Menus & HUD: the Temporality Perspective. GD Keys. Retrieved April 15, 2024 from https://gdkeys.com/menus-hud-the-temporality-perspective/
[44] Janette Lehmann, Mounia Lalmas, Elad Yom-Tov, and Georges Dupret. 2012. Models of User Engagement. Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 7379 LNCS: 164–175. https://doi.org/10.1007/978-3-642-31454-4_14
[45] Lili Li, Cody Abbey, Huan Wang, Annli Zhu, Terry Shao, Daisy Dai, Songqing Jin, and Scott Rozelle. 2022. The Association between Video Game Time and Adolescent Mental Health: Evidence from Rural China. International Journal of Environmental Research and Public Health 2022, Vol. 19, Page 14815 19, 22: 14815. https://doi.org/10.3390/IJERPH192214815
[46] Xiaozhou Li. 2020. Towards Factor-oriented understanding of video game genres using exploratory factor analysis on steam Game Tags. Proceedings of 2020 IEEE International Conference on Progress in Informatics and Computing, PIC 2020: 207–213. https://doi.org/10.1109/PIC50277.2020.9350753
[47] Dayi Lin, Cor Paul Bezemer, Ying Zou, and Ahmed E. Hassan. 2019. An empirical study of game reviews on the Steam platform. Empirical Software Engineering 24, 1: 170–207. https://doi.org/10.1007/s10664-018-9627-4
[48] Jonas. Löwgren and Erik. Stolterman. 2007. Thoughtful interaction design: a design perspective on information technology. MIT Press. London.
[49] Lumivero. 2023. NVivo 14. Lumivero. Retrieved June 2, 2024 from https://lumivero.com/product/nvivo-14/
[50] Sus Lundgren. 2013. Toying with time: Considering temporal themes in interactive artifacts. Conference on Human Factors in Computing Systems - Proceedings: 1639–1648. https://doi.org/10.1145/2470654.2466217
[51] Craig M. MacDonald and Michael E. Atwood. 2013. Changing Perspectives on Evaluation in HCI: Past, Present, and Future. Conference on Human Factors in Computing Systems - Proceedings 2013-April: 1969–1978. https://doi.org/10.1145/2468356.2468714
[52] Jane Mavoa, Marcus Carter, and Martin Gibbs. 2017. Beyond addiction: Positive and negative parent perceptions of minecraft play. CHI PLAY 2017 - Proceedings of the Annual Symposium on Computer-Human Interaction in Play: 171–181. https://doi.org/10.1145/3116595.3116638
[53] Corey T. McKechnie-Martin, Andrew Cunningham, James Baumeister, and G. Stewart Von Itzstein. 2024. A Meta-Ethnography of Player Motivation in Digital Games: The 28 Dimensions of Play. Games and Culture. https://doi.org/10.1177/15554120241242332
[54] Fraser McKissack and Lawrence May. 2020. Running With the Dead: Speedruns and Generative Rupture in Left 4 Dead 1 and 2. Games and Culture 15, 5: 544–564. https://doi.org/10.1177/1555412018821528
[55] Rune Aune Mentzoni, Geir Scott Brunborg, Helge Molde, Helga Myrseth, Knut Joachim Mår Skouverøe, Jørn Hetland, and Ståle Pallesen. 2011. Problematic video game use: Estimated prevalence and associations with mental and physical health. Cyberpsychology, Behavior, and Social Networking 14, 10: 591–596. https://doi.org/10.1089/cyber.2010.0260
[56] Matthew Miles and Michael Huberman. 1994. Qualitative Data Analysis: An Expanded Sourcebook. Sage Publications, California.
[57] Hovig Ter Minassian and Manuel Boutet. 2015. Les jeux vidéo dans les routines quotidiennes. OpenEdition Journals 2015, 2015/1–2. https://doi.org/10.4000/EPS.5989
[58] Naraiya91. 2021. What games do respect your time and why? Reddit. Retrieved September 10, 2024 from https://www.reddit.com/r/patientgamers/comments/s608zd/what_games_do_respect_your_time_and_why/
[59] Filip M Nuyens, Daria J Kuss, Olatz Lopez-Fernandez, and Mark D Griffiths. 2020. The Potential Interaction Between Time Perception and Gaming: A Narrative Review. International Journal of Mental Health and Addiction 18, 5: 1226–1246. https://doi.org/10.1007/s11469-019-00121-1
[60] Cristian Parra Bravo. 2023. Aesthetics, Engagement, and Narration: Temporal Constraint as an Articulator of Ludo-Narrative Time. Games and Culture. https://doi.org/10.1177/15554120231206429
[61] Erik Peterson. 2023. Presentation Slides From Devcom 2023 and More Resources (Steamworks Documentation). SteamWorks. Retrieved September 10, 2024 from https://partner.steamgames.com/doc/resources/devcom2023?fbclid$=$IwY2xjawFKEjNleHRuA2FlbQIxMAABHXJF5triax2cW0T8dAMgeIryztC_O2_tjucbbI4T_GMQ0PvOOXPpUs9nSA_aem_pbAc310prEfNTnw_d1Gbcg
[62] Cody Phillips, Madison Klarkowski, Julian Frommel, Carl Gutwin, and Regan L. Mandryk. 2021. Identifying Commercial Games with Therapeutic Potential through a Content Analysis of Steam Reviews. Proceedings of the ACM on Human-Computer Interaction 5, CHIPLAY. https://doi.org/10.1145/3474682
[63] Quantic Foundry. 2024. The Science of Gamer Motivation. Quantic Foundry. Retrieved February 18, 2024 from https://quanticfoundry.com/#motivation-model
[64] Amon Rapp. 2020. A gameful organizational assimilation process: Insights from world of warcraft for gamification design. Proceedings of the ACM on Human-Computer Interaction 4, CSCW3. https://doi.org/10.1145/3434172
[65] Amon Rapp. 2022. Time, engagement and video games: How game design elements shape the temporalities of play in massively multiplayer online role-playing games. Information Systems Journal 32, 1: 5–32. https://doi.org/10.1111/ISJ.12328
[66] Amon Rapp, William Odom, Larissa Pschetz, and Daniela Petrelli. 2022. Introduction to the special issue on time and HCI. Human–Computer Interaction 37, 1: 1–14. https://doi.org/10.1080/07370024.2021.1955681
[67] Maria A. Rasmussen, Julie O. Frydendahl, Elisa D. Mekler, and Kasper Hornbæk. 2021. Is Time on Smartphones Well Spent? Interacting with Computers 33, 5: 522–536. https://doi.org/10.1093/IWC/IWAC003
[68] Samuel Roberts. 2017. Do games have enough respect for your spare time? PC Gamer. Retrieved September 10, 2024 from https://www.pcgamer.com/do-games-have-enough-respect-for-your-spare-time/
[69] Melissa J. Rogerson and Martin Gibbs. 2018. Finding Time for Tabletop: Board Game Play and Parenting. Games and Culture 13, 3: 280–300. https://doi.org/10.1177/155541201665632
[70] Martin Roth. 2022. Reclaiming Everydayness and Japanese Cultural Routines in Animal Crossing: New Horizons. Journal of Intercultural Studies 43, 6: 722–739. https://doi.org/10.1080/07256868.2022.2134318
[71] Shuria Saaidin and Zolidah Kasiran. 2021. Playtime - Based vs price-based rating in video games recommender system. ISCAIE 2021 - IEEE 11th Symposium on Computer Applications and Industrial Electronics: 88–93. https://doi.org/10.1109/ISCAIE51753.2021.9431802
[72] Aaron San Filippo. 2023. Cal me crazy, but I think $14.99 for 8 hours of fun isn't a bad deal actually. X. Retrieved September 10, 2024 from https://x.com/AeornFlippout/status/1730312033600450880
[73] Magy Seif El-Nasr, Anders Drachen, and Alessandro Canossa. 2013. Game Analytics Maximizing the Value of Player Data. Springer, New York.
[74] Miguel Sicart. 2017. Play matters. The MIT Press, Massachusetts.
[75] Rafet Sifa, Anders Drachen, and Christian Bauckhage. 2015. Large-Scale Cross-Game Player Behavior Analysis on Steam. Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment 11, 1: 198–204. https://doi.org/10.1609/AIIDE.V11I1.12804

[76] Kiley Sobel, Arpita Bhattacharya, Alexis Hiniker, Jin Ha Lee, Julie A. Kientz, and Jason C. Yip. 2017. "It wasn't really about the Pokémon": Parents' perspectives on a location-based mobile game. Conference on Human Factors in Computing Systems - Proceedings 2017-May: 1483–1496. https://doi.org/10.1145/3025453.3025761

[77] Dale Southerton. 2006. Analysing the temporal organization of daily life: Social constraints, practices and their allocation. Sociology 40, 3: 435–454. https://doi.org/10.1177/0038038506063668

[78] Dušan Stamenković and Milan Jaćević. 2015. Time, space, and motion in Braid: A cognitive semantic approach to a video game. Games and Culture 10, 2: 178–203. https://doi.org/10.1177/1555412014557640

[79] Statista. 2024. Steam gaming platform - Statistics & Facts | Statista. Retrieved February 9, 2024 from https://www.statista.com/topics/4282/steam/#topicOverview

[80] SteamWorks. 2024. Web API Overview (Steamworks Documentation). Retrieved February 9, 2024 from https://partner.steamgames.com/doc/webapi_overview

[81] Steamworks. 2024. Steamworks. Steamworks. Retrieved February 18, 2024 from https://partner.steamgames.com/

[82] Steamworks. 2024. Visibility on Steam (Steamworks Documentation). Steamworks. Retrieved February 18, 2024 from https://partner.steamgames.com/doc/marketing/visibility

[83] Steamworks. 2024. User Reviews (Steamworks Documentation). Steamworks. Retrieved February 18, 2024 from https://partner.steamgames.com/doc/store/reviews

[84] Robert A. Stebbins. 2017. The Idea of Leisure. Routledge. https://doi.org/10.4324/9781315132549

[85] Minhyang Suh and Gary Hsieh. 2016. Designing for future behaviors: Understanding the effect of temporal distance on planned behaviors. Conference on Human Factors in Computing Systems - Proceedings: 1084–1096. https://doi.org/10.1145/2858036.2858591

[86] David R. Thomas. 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. American Journal of Evaluation 27, 2: 237–246. https://doi.org/10.1177/1098214005283748

[87] Venera Tomaselli, Giulio G. Cantone, and Valeria Mazzeo. 2021. The polarising effect of Review Bomb. arXiv.org. https://doi.org/10.48550/arXiv.2104.01140

[88] Jonathan A. Tran, Katherine S. Yang, Katie Davis, and Alexis Hiniker. 2019. Modeling the engagement-disengagement cycle of compulsive phone use. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3290605.3300542

[89] Rebekah Valentine. 2023. Why MapleStory Players Are Dubbing its 'New Age' Update the 'Sewage' Update. IGN. Retrieved September 13, 2024 from https://www.ign.com/articles/why-maplestory-players-are-dubbing-its-new-age-update-the-sewage-update

[90] Valve Developer Community. 2023. Steam Web API. Valve Developer Community. Retrieved February 18, 2024 from https://developer.valvesoftware.com/wiki/Steam_Web_API

[91] Günter Wallner and Michael Lankes. 2023. The Ludic Potentials of Player Data. CHI PLAY 2023 - Companion Proceedings of the Annual Symposium on Computer-Human Interaction in Play: 209–211. https://doi.org/10.1145/3573382.3616043

[92] Huaxin Wei, Jim Bizzocchi, and Tom Calvert. 2010. Time and space in digital game storytelling. International Journal of Computer Games Technology. https://doi.org/10.1155/2010/897217

[93] Steve Whittaker, Vaiva Kalnikaite, Victoria Hollis, and Andrew Guydish. 2016. "Don't waste my time": Use of time information improves focus. Conference on Human Factors in Computing Systems - Proceedings: 1729–1738. https://doi.org/10.1145/2858036.2858193

[94] Mikael Wiberg and Erik Stolterman. 2021. Time and Temporality in HCI Research. Interacting with Computers 33, 3: 250–270. https://doi.org/10.1093/IWC/IWAB025

[95] Haotian Xu. 2021. steam-reviews · PyPI. The Python Package Index. Retrieved February 18, 2024 from https://pypi.org/project/steam-reviews/

[96] Zeyi Yang. 2023. China is escalating its war on kids' screen timw. MIT Technology Review. Retrieved September 10, 2024 from https://www.technologyreview.com/2023/08/09/1077567/china-children-screen-time-regulation/

[97] Hatice Yildiz Durak, Abdulkadir Haktanir, and Mustafa Saritepeci. 2023. Examining the Predictors of Video Game Addiction According to Expertise Levels of the Players: The Role of Time Spent on Video Gaming, Engagement, Positive Gaming Perception, Social Support and Relational Health Indices. International Journal of Mental Health and Addiction: 1–26. https://doi.org/10.1007/s11469-023-01073-3</bib>

[98] Vinciane Zabban. 2011. What Keeps Designers and Players Apart? Thinking How an Online Game World is Shared. Proceedings of DiGRA 2011 Conference: Think Design Play. Retrieved May 30, 2024 from http://dl.digra.org/index.php/dl/article/view/517

[99] José Pablo. Zagal. 2010. Ludoliteracy: defining, understanding, and supporting games education. 147. Retrieved November 26, 2024 from https://books.google.com/books/about/Ludoliteracy.html?id$=$FM-8AgAAQBAJ

[100] Jose Zagal and Michale Mateas. 2007. Temporal Frames: A Unifying Framework for the Analysis of Game Temporality. In DiGRA '07 - Proceedings of the 2007 DiGRA International Conference: Situated Play. Retrieved November 27, 2023 from http://www.digra.org/wp-content/uploads/digital-library/07312.25239.pdf

[101] José P Zagal and Michael Mateas. 2010. Time in video games: A survey and analysis. Simulation and Gaming 41, 6: 844–868. https://doi.org/10.1177/1046878110375594

[102] José Zagal and Michael Mateas. 2015. Analyzing time in videogames. In Games Research Methods. MIT Press, Pittsburgh, 3755. Retrieved November 26, 2024 from https://dl.acm.org/doi/epdf/10.5555/2812774.2812780

[103] José P. Zagal, Amanda Ladd, and Terris Johnson. 2009. Characterizing and understanding game reviews. FDG 2009 - 4th International Conference on the Foundations of Digital Games, Proceedings: 215–222. https://doi.org/10.1145/1536513.1536553

[104] José P. Zagal. 2008. A framework for games literacy and understanding games. ACM Future Play 2008 International Academic Conference on the Future of Game Design and Technology, Future Play: Research, Play, Share: 33–40. https://doi.org/10.1145/1496984.1496991

[105] Fabio Zambetta, William Raffe, Marco Tamassia, Florian Floyd Mueller, Xiaodong Li, Niels Quinten, Rakesh Patibanda, Daniel Dang, and Jon Satterley. 2020. Reducing Perceived Waiting Time in Theme Park Queues via an Augmented Reality Game. ACM Transactions on Computer-Human Interaction (TOCHI) 27, 1. https://doi.org/10.1145/3361524

[106] Mingrui Ray Zhang, Kai Lukoff, Raveena Rao, Amanda Baughan, and Alexis Hiniker. 2022. Monitoring Screen Time or Redesigning It? Two Approaches to Supporting Intentional Social Media Use. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3491102.3517722

[107] Jian Zheng and Ge Gao. 2024. Fragmented Moments, Balanced Choices: How Do People Make Use of Their Waiting Time? Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3613904.3642608

[108] Zhihan Zhu. 2021. steam-review-scraper · PyPI. The Python Package Index. Retrieved February 18, 2024 from https://pypi.org/project/steam-review-scraper/

LUDOGRAPHY

[109] ArenaNet. 2012. *Guild Wars 2*. Game [PC]. (28 August 2012). NCSoft, Seoul.
[110] Ashborne Games. 2023. *Last Train Home*. Game [PC]. (29 November 2023). THQ Nordic. Vienna.
[111] Avalanche Software. 2023. *Hogwarts Legacy*. Game [PC, PlayStation 5, Xbox Series X/S]. (10 February 2023). Warner Bros. Games, Burbank.
[112] Bethesda Game Studios. (2016). *The Elder Scrolls V: Skyrim Special Edition* [Game]. PC, PlayStation 4, Xbox One. (28 October 2016). Bethesda Softworks, Rockville.
[113] Bethesda Game Studios. 2023. *Starfield*. Game [PC, Xbox Series X/S]. (6 September 2023). Bethesda Softworks, Rockville.
[114] BioWare. 2011. *STAR WARS™: The Old Republic™*. Game [PC]. (20 December 2011). Electronic Arts, Austin.
[115] Black Matter. 2021. *Hell Let Loose*. Game [PC, PlayStation 5, Xbox Series X/S]. (27 July 2021). Team17, Sydney.
[116] Blizzard Entertainment. 2016. *Overwatch*. Game [PC, PS4, Xbox One, Switch]. (24 May 2016). Blizzard Entertainment, Irvine.
[117] BlueTwelve Studio. 2022. *Stray*. Game [PC, PlayStation 4, PlayStation 5]. (19 July 2022). Annapurna Interactive, Montpellier.
[118] Bungie. 2017. *Destiny 2*. Game [PC, PS4, Xbox One, Stadia]. (6 September 2017). Bungie, Bellevue.
[119] Capcom. 2023. *Street Fighter™ 6*. Game [PC, PlayStation 4, PlayStation 5, Xbox Series X/S]. (2 June 2023). Capcom, Osaka.
[120] CD Projekt Red. 2020. *Cyberpunk 2077*. Game [PC, PS4, PS5, Xbox One, Xbox Series X/S]. (10 December 2020). CD Projekt, Warsaw.
[121] Gameloft. 2022. *Disney Dreamlight Valley*. Game [PC, PlayStation 4, Xbox One, Nintendo Switch]. (6 September 2022). Gameloft, Paris.
[122] Hello Games. 2016. *No Man's Sky*. Game [PC, PlayStation 4, Xbox One]. (9 August 2016). Hello Games, Guildford.
[123] IO Interactive. 2021. *HITMAN 3*. Game [PC, PlayStation 4, PlayStation 5, Xbox One, Xbox Series X/S]. (20 January 2021). IO Interactive, Copenhagen.
[124] Konami Digital Entertainment. 2022. *Yu-Gi-Oh! Master Duel*. Game [PC, PS4, PS5, Xbox One, Xbox Series X/S, Switch, Mobile]. (19 January 2022). Konami, Tokyo.
[125] Paradox Development Studio. 2016. *Stellaris*. Game [PC]. (9 May 2016). Paradox Interactive, Stockholm.
[126] Riot Games. 2009. *League of Legends*. Game [PC]. (27 October 2009). Riot Games, Los Angeles.
[127] RocketWerkz. 2021. *ICARUS*. Game [PC]. (4 December 2021). RocketWerkz, Auckland.
[128] SCS Software. 2016. *American Truck Simulator*. Game [PC]. (2 February 2016). SCS Software, Prag
[129] Second Dinner. 2022. *Marvel SNAP*. Game [Mobile, PC]. (18 October 2022). Nuverse, Shanghai.
[130] Smilegate RPG. 2019. *Lost Ark*. Game [PC]. (4 December 2019). Smilegate, Seoul.
[131] Sloclap. 2022. *Sifu*. Game [PC, PlayStation 4, PlayStation 5]. (8 February 2022). Sloclap, Paris.
[132] Supergiant Games. 2020. *Hades*. Game [PC, Nintendo Switch, PlayStation 4, Xbox One]. (17 September 2020). Supergiant Games, San Francisco.
[133] Wizet. 2003. *MapleStory*. Game [PC]. (April 29, 2003, in Korea; May 11, 2005, International). Nexon, Tokyo.
[134] ZeniMax Online Studios. (2014). *The Elder Scrolls Online* [Game]. PC, PS4, PS5, Xbox One, Xbox Series X/S. (4 April 2014). Bethesda Softworks, Rockville.