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Prospect-Refuge Theory Dualisms in Role-Playing Game (RPG) Environments: Examining Critical Engagements in a Virtual City

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Abstract

Computer games are largely role-playing games (RPGs) in which a virtual landscape player-environment agency exists. Largely, game research focused on this spatial-behavior interplay, leaving the theoretical underpinnings unaddressed. In this paper, Prospect-Refuge Theory dualistic concepts were used to examine critical player experiences. Using Grand Theft Auto: Vice City (GTA) as a pars pro toto of RPGs, we seek to understand how dualistic elements drivers affect game pacing. Video content analysis (VCA), classification of game engagement drivers, and a game-pacing factoring system were operationalized. The study revealed striking dynamic variation in push-and-pull influence on game pacing within the game environment.

Keywords: prospect; refuge; dualism; games

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1.0 Introduction

Computer games are an interplay of technology, marketing, and culture. A lens through which to view its historical development and retention as an industry is that of expansion. Games are seen to expand in the following five dimensions: 1) the expansion of in-game space; 2) the extended interface between the virtual and real world; 3) the expansion of physical game space; 4) when and where games are played is extended; and 5) Games transcend play. The first dimension is seen as the first-generation "virtual worlds" of arcade games on screens, such as "Pong" in 1972, "Space Invaders" in 1978, and "Pac-Man" in 1980. The second dimension is "platform games," where a game world is expanded into an endless two-dimensional scrolling world, such as the "Super Mario Bros." in 1985. The third dimension is "real-time three-dimensional games," an expanded game space, such as "Wolfenstein 3D" in 1992 and "Doom" in 1993. The fourth dimension is seen as an extension of the third, known as "sandbox games," where players delve into huge game worlds, where game environments depict cities, fantasy worlds, and various landscapes, for exploration and leisure, such as the "Grand Theft Auto (GTA): Vice City" in 2002, "The Elder Scrolls IV: Oblivion" and "Just Cause" in 2006. The last dimension resonates with the presence of "game culture" across generations, which has emerged into multiplayer "online games," such as "World of Warcraft" in 2004. Further, this dimension is described as a vast game offering varied experiences noted as "living in" rather than "playing" (Pargman, 2007) (see Figure 1). This gaming experience has since been embedded in gamers, with game dynamics emerging from player-game interaction. In the study by Vahlo et al. (2017), in contemporary digital games, five game dynamic preferences were discovered: 1) assault, 2) manage, 3) journey, 4) care, and 5) coordinate. This has been noticed to persist in seven player types: 1) the mercenary, 2) the companion, 3) the commander, 4) the adventurer, 5) the explorer, 6) the daredevil, and 7) the patterner. Among the adult survey

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participants (n=1717), the first player type, which has the highest percentage of respondents (n=335), has been identified as having the highest preference for assault and low preference for care. Additionally, their game dynamics include sneaking, shooting enemies, killing, and executing battle tactics. These findings are consistent with Wang's (2023) study, which identified GTA 5 as the most profitable stand-alone game in the world and found that it was on sale for nearly a decade, from 2021 to 2023 alone, during which the game dynamics preferences were possible. As we discuss the history, game culture, and game dynamics, we need to be aware of what constitutes a game to better understand how it is an "experience" in itself. According to Bakkerud (2023), games are a layered structure of the game spatiality ontology. Virtual environments are composed using four elements: 1) material, 2) mechanical, 3) representational, and 4) the player. In the vertical structure of the ontology, "material" represents an environment that is "mechanically" designed to be organized, with the player's position in three-dimensional planes specified, within which the player can move. Further, the "representational" layer is the duality of semiotics and game mechanics. Lastly, the "player" is at the top of the structure, where it may observe visual cues in the game world that suggest a direction for game progress. Overall, these are understood interchangeably as "environments" and "virtual worlds," which are digitally mediated, dynamic representations of artificial worlds (Arseth, 2001b).

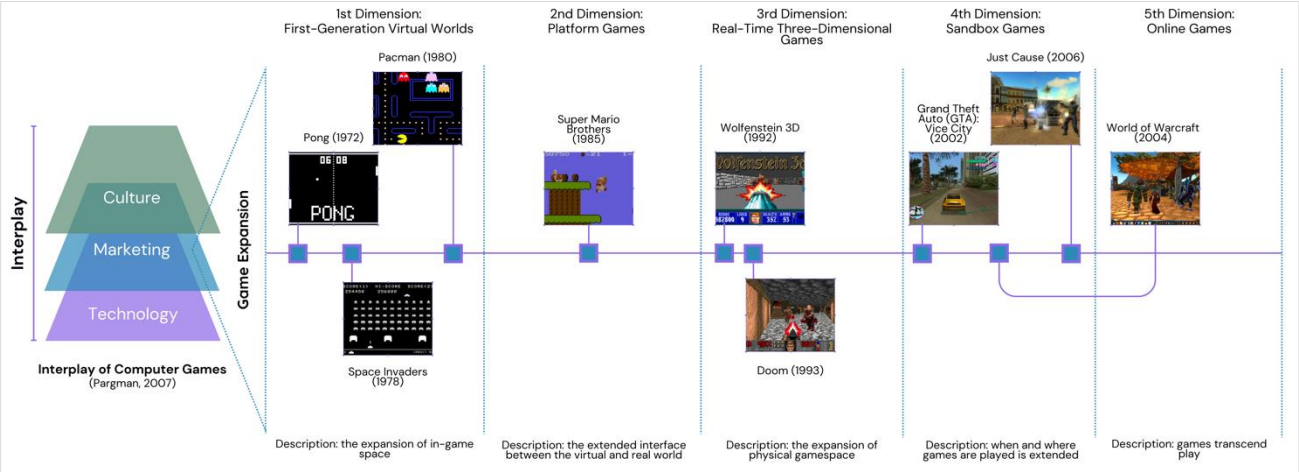

Fig. 1: The five dimensions of the computer game expansion, as illustrated by the authors, according to Pargman (2007).
(Source: Google Images. Pargman, D. (2007). Five Perspectives on Computer Game History. Microsoft Research)

Having determined the game's ontological structure, the question arises: why are computer games repeatedly "played"? A phenomenon that has become a norm in game culture? The term 'gameplay experience' is ambiguously understood across contexts. It may vary across a gamer's personality (Potard et al., 2020; Li et al., 2024; Lopez-Fernandez et al., 2024), preferences (Shliakhovchuk et al., 2021; Rathakrishnan et al., 2023; Garcia-Cabrera et al., 2025), and motivation (McKechnie-Martin, 2024; Kepka & Strzelecki, 2024; Richard et al., 2025). The application of theory is underutilized, as evidenced by the work of Bonner (2015) and Li (2024).

The seminal study by Bonner (2015) examines an ambiguous play pattern in an urban game environment, observed in multi-stable cityscapes that oscillate between freedom and constraint using Assassin's Creed Unity as a pars pro toto for urban open-world games. Using the concepts of smooth space and striated space (Deleuze & Guattari, 2006), pedestrian rhetoric (de Certeau, 1980), rythmanalysis (Lefebvre, 2014), and functions and signs (Eco, 2006), the gameplay experience has been determined to be polyrhythmic and has a modular system that encodes players' movement, perception, and agency- constantly reconfiguring the player's cognitive mapping skills and movement strategies. The analysis of the spatial framework revealed that the player experience is increasingly structured by networks of architectural components, in which prospect and refuge elements (Appleton, 1975) recur in landmarks, streetscapes, building interiors, and repetitive architectural modules, strategically employed for surveillance and improvisational navigation, leading to paroxysmal experience. Subsequently, the study shows that virtual environments function as architectural notions of gameplay experience where affordances, cognitive mapping, and spatial appropriations are oscillated and embedded within the virtual city- a central ludic and epistemic urban landscape agent. Contrary to Bonner (2015), Li's (2024) study is grounded in applying theory to the design of a game experience and draws on prospect-refuge theory (Appleton, 1975). By creating a digital spatial composition that functions as a primary mechanism for modulating level pacing in a digital game, the gameplay experience is perceived by player-participants as an experiential rhythm of alternating virtual spatial openness and enclosure. Informational control, occlusion, compression, and visibility affordances induce visual sightlines, viewpoints, and clarity, in polarity to caution, tension, and decelerated gameplay. The player's legibility, mechanical movement, and narrative stimuli are key factors in shaping player tempo within the designed spatial typologies, as conceptualized in the theory. Ultimately, this demonstrates sequencing and contrast between prospect and refuge elements, yielding effective pacing in non-uniform spatial conditions. To contribute to strengthening these concepts, this paper proposes a novel method for engaging with seminal research on analyzing RPG environments by critically examining the ambiguity of the virtual realm, which requires knowledge of the various narratives concerning how prospect and refuge spaces were understood.

According to Li (2024), prospect spaces are assumed to be "enclosed" or "unenclosed." For example, the "boss room" in the Legend of Zelda series is an enclosed prospect space where each dungeon often culminates in an epic boss fight. Additionally, most games

feature more unenclosed prospect spaces, such as Grand Theft Auto: Vice City, which presents a ludic interpretation of Miami, with streetscapes, cityscapes, and estates as prospect spaces. In contrast, refuge spaces are the exact opposite of the former, offering shelter to players across a wide range of landscapes and open areas. Compared with prospect spaces, the definition of the latter is more flexible and may be either enclosed or half-enclosed. These concepts are described as allegedly universal to humans and animals, psychologically interpreting landscape preference, anchored in human behavior, survival, and psychological needs, and applied to games to resonate with a virtual world, creating human-player-game dynamics. 'To see without being seen'- is the zoological and ethological notion noticeable in the traits of predator-prey relationship, where the prospect-refuge theory is subscribed, where predators such as lions take refuge in the shade of a tree with a prospect of the savannah with the existence of prey and vice versa. In humans, we often seek refuge for comfort, safety, and security while immersing ourselves in landscape appreciation from specific standpoints, viewpoints, and viewpoints. (Lorenz, 1964; Appleton, 1975). Spatially, prospect and refuge elements can be interpreted using the 'Law of Closure' and 'Law of Figure and Ground' (Wertheimer, 1923). Refuge spaces can be depicted with the main figure as the main figure, with a prospect in the background. Further, in computer games, both refuge and prospect spaces can evoke a sense of closure. However, it is more noticeable in refuge spaces than in prospect spaces.

In this study, we seek to determine the ideal game pacing by examining an RPG environment using four elements: 1) movement impetus, 2) threat, 3) tension, and 4) tension, and this is related to the prospect and refuge elements as drivers of the game pacing. Furthermore, we established a more profound gameplay experience definition for both elements, being prospect elements as drivers of pleasurable experiences and refuge elements as drivers of monotonous experiences- a dualism concept that is noticeable in all game environments. Among the variables established, the former is an increasing driver of pacing, whereas the latter is a decreasing driver. To provide the visual analysis and narrative for the refuge elements, we have identified the former's dualistic equivalence through the antonyms of the prospect elements and provided program-specific definitions. The following were derived concepts from the technique employed: 1) movement disincentive, 2) protection, 3) comfort, and 4) resolution. By establishing this assumption, we have determined how these elements behave in the peaks and pits of the case study's game rhythm.

2.0 Problem Setting

To form a systematic analysis of the RPG environment, the following variables were established:
Main problem: How do the elements of the prospect and refuge in a role-playing game (RPG) environment affect game pacing?
Subproblems:

1. How can we interpret the essence of prospect and refuge in a role-playing game (RPG) environment?
2. How can we categorize the elements of prospect and refuge in a role-playing game (RPG) environment?
3. How can we measure the prospect and refuge in a role-playing game (RPG) environment in terms of game pacing?

Research goal: The goal of this research is to investigate how prospect and refuge elements in role-playing game (RPG) environments affect game pacing.
Research objectives:

1. To understand a role-playing game's (RPGs) mechanics.
2. To classify prospect and refuge elements in an RPG environment.
3. To develop a factoring system for measuring game pacing based on the determined prospect and refuge elements.

Hypothesis: Refuge space slows down pacing and prospect space increases pacing. However, these spaces are experienced as both pleasurable and monotonous experiences; hence, game pacing is influenced by pull and push factors in maintaining the ideal pacing curve.

3.0 Methods

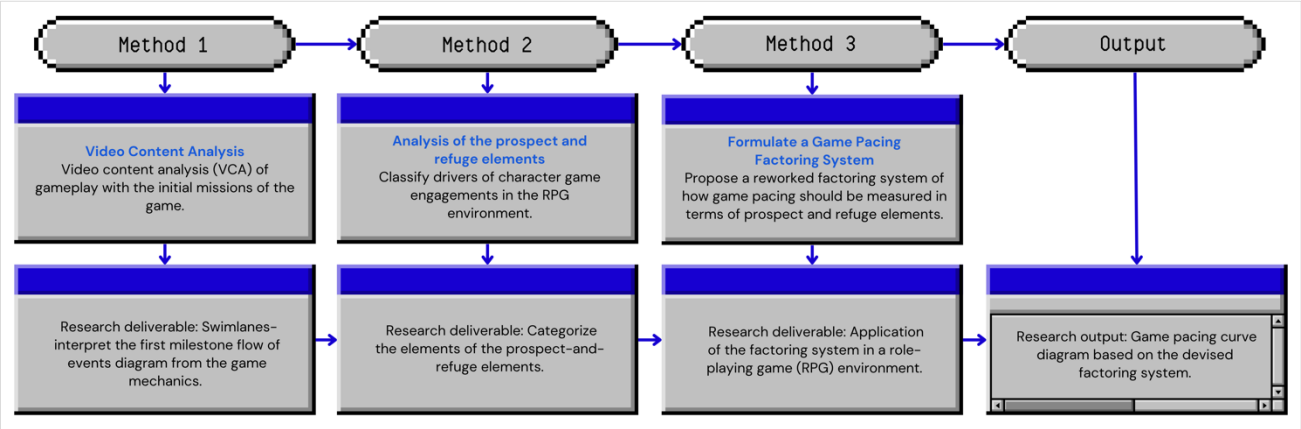

Fig. 2: The methodological framework.
(Source: Author)

The methods used in this paper are based on the refined seminal works of Bonner (2015) and Li (2024). These consist of the following: 1) video content analysis (VCA) of gameplay with the initial missions of the game, 2) analysis of the prospect and refuge elements by classifying drivers of character game engagements in the RPG environment, and 3) formulating a game pacing factoring system by proposing a reworked model of the seminal works on how game pacing should be measured in terms of prospect and refuge elements. Chronologically, the research deliverables are the following: 1) swimlanes that interpret the first milestone flow of the events diagram from the game mechanics, 2) categorized elements of prospect and refuge elements, and 3) application of the factoring system in an RPG environment. Ultimately, the output for this research is a game pacing curve diagram based on the devised factoring system (see Figure 2).

3.1 Video Content Analysis (VCA)

The study by Bonner (2015) examines player-game dynamics from various authors' perspectives, whereas Li (2024) builds on the former, incorporating spatial concepts to determine ideal game pacing across diverse gameplay experiences. In this paper, we adapted the linear process of Li (2024) to eliminate ambiguity in spatial translation, thereby delimiting gameplay experience narratives to a specific storyline and determining part of the game rhythm within the whole experience in the first milestone. However, mission attempts can result in either success or failure. In order to facilitate our attempt to measure the whole storyline without these factors, we implemented a video content analysis of a gameplay experience where the following parameters were achieved: 1) the video game content must feature the GTA- Vice City, a pars pro toto of RPG environments given its global impact 2) the video game content must successfully complete all the missions for the game, an indicator that the player type is the 'mercenary,' 3) the video game content must feature a full game walkthrough in 4K, 4) the video game content must have the highest views in the video content site, and 5) the video content profile must have a verified check account. Using these parameters, the video posted on the GTA Series Videos channel on January 22, 2021, which has more than 10 million views, was used as the case study for the VCA. Ultimately, by operating the VCA in the case study, a swimlane was created featuring 22 game missions in the first milestone of the event flow (see Figure 3).

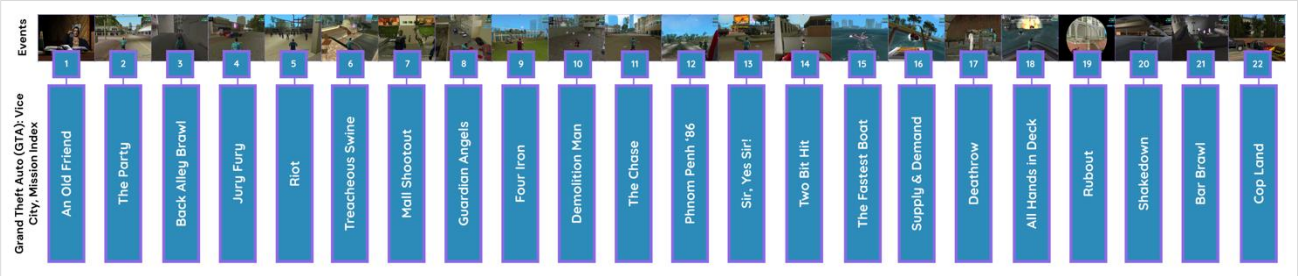

Fig. 3: The created swimlanes based on the game case study's first milestone VCA.
(Source: Author)

3.2 Analysis of the Prospect and Refuge Elements

Table 1 presents the established conditions for prospect and refuge elements in the study, to further guide RPG environment analysis using element-specific indicators of the theory's concepts.

Table 1. Conditions and descriptions of the prospect elements and refuge elements in the RPG environment.

Condition	Descriptions
1	Prospect elements are drivers of pleasurable experiences and contribute to high game pace; hence, their presence is expressed as a positive one-point (+) in gameplay pacing.
2	Refuge elements are drivers of monotonous experiences and contribute to low game pace; hence, the presence of the element is expressed as a negative one point (-) of gameplay in terms of pacing.
3	Prospect elements are any materials in the game environment, which can be enclosed, semi-enclosed, or unclosed.(such as streetscapes, bayview, estate yards,mall interior).
4	Refuge elements are any materials in the game environment, which offers partial or full safety, with or without an enemy, that can be moving or still. (Such as cars, motorbikes, softscapes, buildings)
5	Prospect elements and refuge elements must be identified as coexisting in the game environment while actual gameplay is being conducted. Determining the elements must exclude story stitches.

(Source: Author)

Table 2 presents the refined elements of game pacing, in which the parameters of movement impetus, threat, tension, and tempo/action are expanded into dualistic concepts of prospect elements as drivers of pleasurable experiences and refuge elements as drivers of monotonous experiences, experienced simultaneously in the digital space, where both exist in the same dimension and degree. A more player-specific behavior was specified in the table, guiding researchers in analyzing players' gameplay interactions and limiting unnecessary variations and interpretations of the gameplay narrative. This is wherein the positive and negative point pacing is given more detailed descriptive dependencies on the drivers of the theory's dualism.

Table 1. Refined Elements of Game Pacing

Parameters	Prospect Elements (Pleasurable Experiences)
Movement Impetus (+MI)	The player's desire/willingness to move through a level.
Threat (+TH)	The actual danger the player sees in a level, for example, an enemy in the distance.
Tension (+TE)	The atmosphere or perceived danger in a level. The player's own sense of anxiety in a space even if there is no actual threat
Action (+A)	The intensity of player action. For example, how many times the player clicks a mouse button within a certain instance.
Parameters	Refuge Elements (Monotonous Experiences)
Movement Disincentive (-MD)	The player's state of stillness is impeded by a potential enemy. It can also be an avatar's physical characteristic or an asset's improvement.
Protection (-P)	The player seeks protection in the form of sneaking, hiding, or performing battle tactics related to self-defense.
Comfort (-C)	The player may either be in a mission or have a personal preference for an avatar makeover, asset improvement, or a similar nature of activity.
Resolution (-R)	The player experiences an intended or unintended resolution of the former conflict from the protagonist vs. antagonist storyline.

(Source: Author)

Figure 4 presents a sample dataset of prospect and refuge elements, their pacing factors, and the image of the city elements as observed during mission no. 5, the 'Riot.'

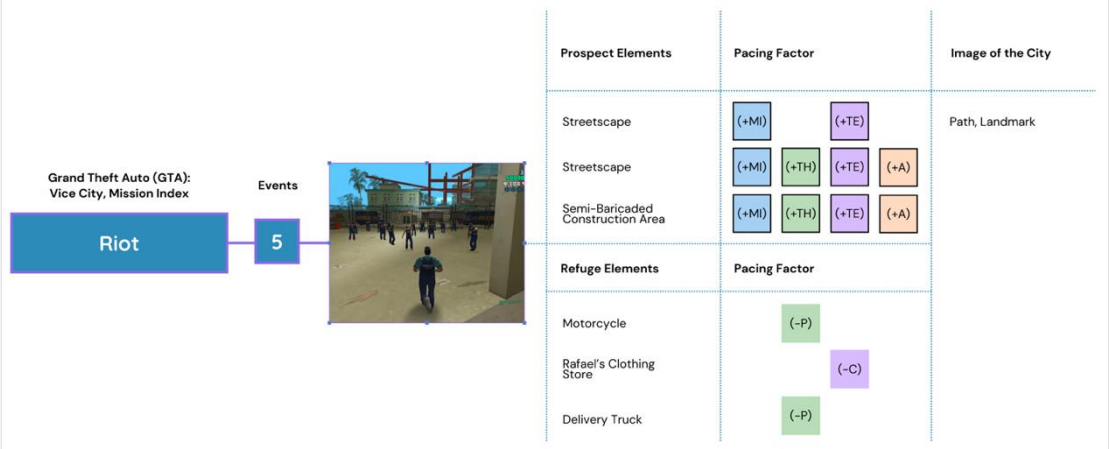

Fig. 4: The methodological framework.
(Source: Author)

3.3 Formulating a Game Pacing Factoring System

In formulating the game pacing factoring system, we adapted the method from Li (2024). Rather than confining the theory to the first four factors, we have introduced dualistic elements to determine the 'push' and 'pull' factors, with a base-zero experience. We accounted for separate pacing-factor logs from the previous two methods for each mission in the first milestone mission index. The image of the city elements by Lynch (1960), the path, edge, district, node, and landmark, supplements the pacing factor narratives to further emphasize how these visual cues exist in the digital landscape, specifically for a 'lucid city.' The following formula was used to determine the sum of gameplay experience for each mission:

GPex = (+MI) + (+TH) + (+TE) + (+A) + (-MD) + (-P) + (-C) + (-R)

Whereas 'GPex' represents the sum of the gameplay experience, by getting the sum of movement impetus (+M), threat (+TH), tension (+TE), action (+A), movement disincentive (-MD), protections (-P), comfort (-C), and resolution (-R).

PPFT = (+MI) + (+TH) + (+TE) + (+A)

Whereas 'PPFT' represents the sum of the prospect pacing factor total, by getting the sum of movement impetus (+M), threat (+TH), tension (+TE), and action (+A).

RPFT = (+MI) + (+TH) + (+TE) + (+A)

Whereas 'RPFT' represents the sum of the refuge pacing factor total, by getting the sum of the movement disincentive (-MD), protections (-P), comfort (-C), and resolution (-R).

Figure 5 shows GPex for each mission in the first milestone of the mission index, presented as a line graph. The line graph with a circular node represents the sum of the gameplay experience per mission. Additionally, a line graph with a square node represents the prospect pacing factor total (PPFT) while a line graph with a triangle node represents the refuge facing factor total (RPFT). The figures below the graph are visual guides for the 22 missions, as determined by the mission index in the VCA method.

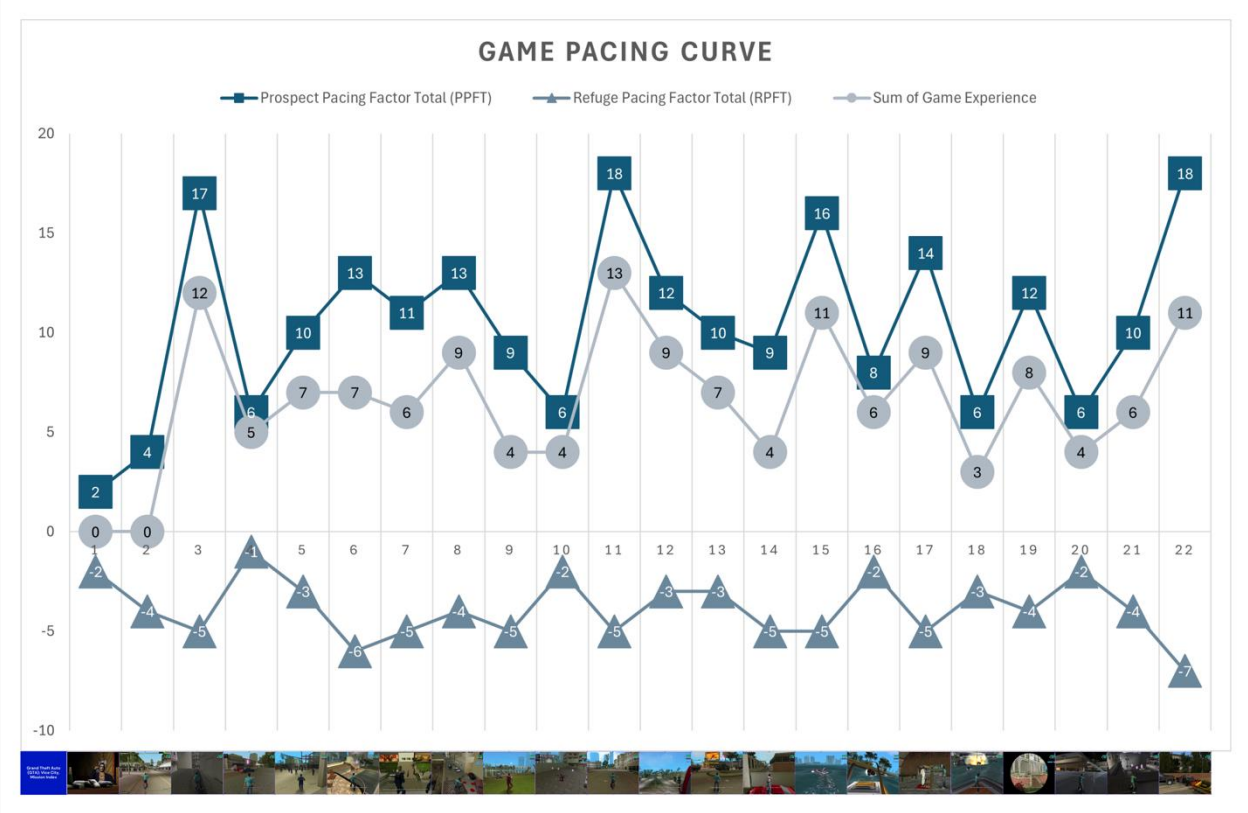

Fig. 5: The game pacing curve.
(Source: Author)

4.0 Analysis

4.1 Game Pacing Curve

As observed, prospect peaks coincide with the sum of game experience, suggesting that the game experience intensifies (pleasurable experience) while prospect increases. On the contrary, the refuge elements act as a counterbalance, showing narrower peaks and pits, suggesting brief downtime for game pacing, unstable behavior, and frequent fluctuations. Further, the plateau of experience occurs in missions 5-6 and 9-10; the sum of game experience suggests a predictable game rhythm from the earlier missions, even though the prospect and refuge elements change. Ultimately, the overall gameplay experience across all missions is noticeable in the degrees of pleasurable experience (+MI, +TH, +TE, +A). This aligns with the game's theme, which falls under 'Assault' game dynamics (Vahlo et al., 2017). Collectively, gameplay experience in the study is understood as the dualistic concepts of prospect-refuge theory- the pleasurable and monotonous experiences.

4.2 Material and Representation of the Prospect-Refuge Theory Dualism Concepts

Movement Impetus (+MI) and Movement Discentive (-MD). +MI is observed in the path, edge, and district of the game environment, such as streetscapes, bayview, and building skylines. -MD material is predominantly landmark buildings for -C, such as a clothing store and a car paint shop. Some serve as vantage points for firing.

Threat (+TH) and Protection (-P). +TH are mostly in the form of paths; a few are in edges and districts, such as streetscapes, water canals, boat docks, and seascapes with a view of the city. -P material is predominantly moving vehicles such as a car, delivery truck, military tank, jet ski, and helicopter. It is also found on building plinths, exterior, and interior elements, softscapes, chimneys, dumpsters, and other rooftop and street elements.

Tension (+TE) and Protection (-C). +TE is mostly the same as +TH in terms of materiality. They are observed to complement each other. Moreover, there is +TE in every +MI where they are always exposed to open views, such as driving along a street. -C material is landmarks such as a clothing store and a car paint shop.

Tempo/ Action (+A) and Resolution (-R). +A is mostly observed on paths, landmarks, and districts, such as alleys, canals, estate yards,

and seaports with city views. -R is less and is only observed on landmarks such as buildings.

4.0 Discussion

The dynamic gameplay experience observed in the case study's prospect and refuge elements reflects the environmental-psychological principles of the theory grounding. This is evident in the game environment's spatial features, such as openness and concealment, which regulate behavioral engagement (Appleton, 1975). In the digital artifacts analyzed, elements that generate movement impetus, threat, tension, and action heightened the pleasurable experience, seen as the prospect peaks, in exposed environments such as streetscapes, canals, and seascapes. It is noticeable to the player's increased spatial visibility and in tactical movements and operations in response to the game mechanics and mission index. This finding aligns with contemporary game studies that emphasize the role of open, visually legible environments in intensifying immersion, player agency, and affective engagement through the continuous assessment of risk, orientation, and opportunity that arise during gameplay (Politou & Sayed, 2016; Vahlo et al., 2017). In contrast, refuge elements such as various motor vehicles, water transportation, building rooftops and interiors, urban furniture, and other architectural components act as pacing moderators. They temporarily reduce overstimulation in the prospect, providing either a brief recovery period before the player reengages with another prospect, such as in movement disincentives, comfort, or resolution activities, or serve mainly as protection while within a prospect. In real environments, similar behavior occurs, with individuals demonstrating preferences for spatial configurations that balance exposure and enclosure, supporting both environmental awareness and psychological comfort (Coburn et al., 2017). However, unlike real-life experiences, in which prolonged exposure to threat-related scenarios can cause emotional and psychological distress, game environments tend to exaggerate the prospect elements. Increasing such experiences helps maintain mostly pleasurable, less monotonous experiences, which encourages continuous player-game engagement. Moreover, the emergence of the plateau of experience during later missions suggests that cognitive adaptation arises in response to recurring prospect-refuge rhythms, transforming uncertainty into predictable pacing structures. Prospect-refuge dualism in game environments functions not merely as a spatial characteristic but as an environmental-psychological pacing mechanism that regulates cycles of stimulation and recovery, maintaining a long-term player engagement. The further implication of these findings is that pleasure and monotonous experiences are redefined distinctly in game vis-à-vis real environments, using the dualistic elements presented. This is useful for game designers to strategically manipulate various conditions to regulate pacing, emotional intensity, and player immersion. In virtual spatial design, balancing an open, navigable realm with protected, enclosed spaces may enhance perceived environmental legibility and long-term engagement across interactive digital platforms. Additionally, this study supports game studies that view game experiences as pleasurable media that foster mental strength, combining adaptability, resilience, and emotional control in response to environmental pressures.

5.0 Conclusion

By spatially examining the RPG environment using the three methods proposed, we have observed the following relationship of prospect and refuge elements dualism: 1) there is +MI in every -MD; +MI is likely done for -MD, such as finding a vantage point for firing; 2) there is +TH for most -P; -P is done because of +TH, such as the character hiding in the building plinth during an estate fire commotion; 3) +TE and -C are observed to complement each other, such as escaping from a police chase in a car and seeking refuge at a car paint shop to change the car's identity; 4) -R may exist with or without +A and is observed to be transitioning as part of the cutscene, such as a mission to save a character, 5) there is +MI in every -P; +MI is likely done for -P, such as driving a car, which acts as protection for external hazards, 6) there is +TE in every +MI, such as driving a car along the street, 7) There is always -P in every +TE, such as driving a car along the street; 8) +A is found to coexist simultaneously with +MI, +TH, & +TE+A does not exist without the three.

These findings from digital landscape research suggest that gameplay experience is influenced by the dynamic interplay among the elements of prospect-refuge theory, which are understood to coexist, complement, and be independent of one another. The existence of such creates the gameplay rhythm, in which the player-game experience corresponds to the player type's game preference and the game type. Evidence from this paper is essential to understanding the RPG environment's virtual realm in developing virtual spatial design systems. We argue that this pilot study, which aims to determine the ideal game pacing, should be extended to a broader context that accounts for multiple perspectives on the same player type, thereby developing a more precise model of ideal game pacing for RPGs.

6.0 Recommendations

The researchers recommend applying the proposed three methods to the full mission index of the game case study to determine whether the research findings are consistent or whether there are variations in how game pacing should be understood across a complete game series. Furthermore, the inter-rater reliability of the devised metrics must be strengthened by establishing specific rater criteria, as the study relied solely on the authors' assessment. Additionally, future researchers may record mission assets and resources, identify vantage points and hazard types, and the game's timeframe to expound on and elucidate diverse factors and drivers, thereby critically narrating the design of RPG environments. This should also be conducted in a participatory manner, limited to the 'mercenary' player type, similar to the study of Li (2024), to determine the mean ideal game pacing. Nevertheless, the proposed methods can be adapted to support virtual spatial analysis in other RPGs that cater to different player types, as observed by Vahlo (2017).

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