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# Architecting virtual storefronts: how in-game shops are designed to encourage consumption

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## ABSTRACT

As a multi-billion-dollar global industry, commercial games are designed to profit off players, keep them engaged, and have them return for more. This article examines the design of the in-game shop as a specific context of monetization. Through an immersive netnography of seven commercial games, the findings reveal three architectural shop elements that collectively encourage continuous engagement and spending. Shop entanglement refers to the strategic placement and contents of in-game shops, commercial concealment highlights the integration of shop promotions within the gameplay to mask their commercial intent, and transactional fluidity details the conflation of virtual and real currencies to obscure actual prices in the shop. Together, these elements create a cohesive shop system that seamlessly incorporates spending into the core gameplay. This paper contributes to the broader discourse on gaming monetization and virtual economies, emphasizing the need for ethical considerations to ensure consumer protection and foster a fair gaming environment.

## ARTICLE HISTORY

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## KEYWORDS

In-game shop; game design; consumption; monetization; choice architecture

## Introduction

Video games represent a flourishing cultural, creative, and – importantly – profitable industry. As this industry continues its rapid economic growth, it is important to understand specific monetization elements of games and their influence on consumption (Perks 2020). When players operate in gaming markets, they become consumers. The video game industry in general, and mobile games in particular, are highly successful in engaging, maintaining, and monetizing consumers (Nieborg 2015a). As a result, gaming has grown to be a multi-billion-dollar industry worldwide since its inception in the 1970s. Global revenue in 2021 is estimated at 180 billion USD across consoles, mobile devices, hardware and software products, and virtual in-game products (Statista 2022). Selling in-game products is one of the most profitable monetization models in the gaming industry (Balakrishnan and Griffiths 2018).

The monetization shift in gaming towards freemium dominance has influenced how games are designed, as developers increasingly focus on encouraging in-game purchases (Hamari et al. 2017). Commercial video games are built upon the reinforcement of behavior through design that keeps consumers engaged and coming back for more (Chen 2013; Morford et al. 2014). While research on game monetization and why consumers purchase virtual goods is extensive, there is a gap in understanding the specific context in which monetization and in-game purchases take place – namely the design and features of in-game shops. This article aims to address this gap through the following objective: How are in-game shops designed to encourage consumption in commercial games?

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The empirical foundation is based on an immersive netnography (Kozinets 2023) of seven commercial games, analyzing in-game shops as environments of choice architecture. The results give a better understanding of the in-game shop as a monetization tool and provide a foundation for future research on how in-game shop features might influence consumer behavior within the wider virtual economy. Understanding the in-game market that players enter is a crucial step on the road to consumer empowerment in gaming.

## The evolving dynamics of gaming monetization

Monetization refers to the strategies and mechanisms used by game developers to generate revenue. These include a broad range of strategies such as in-app purchases, virtual currencies, pay-to-enter aspects, sales and offers, added content, daily rewards, and social activities (Johnson and Brock 2020; Lee and Seo 2024). For example, Nieborg (2015b) divides mobile monetization into premium, freemium, subscription, advertising, and microtransactions. They can be used alone or in combination and encompass multiple subordinate strategies. Microtransactions, for instance, may include downloadable content, virtual currencies, and time-limited content (Uddin 2021). Another categorization is offered by Kimppa, Heimo, and Harviainen (2016), dividing monetization into three main groups: traditional models, pay while playing, and content and access. Moreover, Grimes (2015) specifically discusses three main models within traditional massively multiplayer online games children play: monthly subscriptions, microtransactions, and third-party advertisements. Regardless, a common denominator for any monetization model is that game time equals market revenue (Karlsen 2019).

Monetization models are highly dynamic and have gradually transitioned from premium and subscription-based designs to freemium and microtransaction models. Premium, or “blockbuster”, monetization involves making a one-time payment to access the game (Perks 2020), while subscription models require recurring payments for continuous access. The freemium, or free-to-play, model offers the game for free download but includes optional in-game purchases and is effective in recruiting and retaining consumers (Hamari et al. 2017; Kimppa, Heimo, and Harviainen 2016; Woods 2024). This shift in gaming monetization has sparked criticism for potentially fostering addictive behaviors, creating disparities based on financial means, and exploiting consumers, particularly children and youth (Copenhaver and Griffin 2021; Grimes 2015; Perks 2020). That is, freemium models commodify consumers (Kimppa, Heimo, and Harviainen 2016), with revenue also being generated from in-game advertising or fully ad-supported games (Grimes 2015; Lewis and Porter 2010). Microtransactions allow for the sale of virtual items like skins, avatars, currencies, or weapons (Jankowski, Bródka, and Hamari 2016), which can be purely cosmetic or provide strategic advantages (Lin and Sun 2011), presenting vast revenue potential (Nieborg 2015b).

Game monetization is embedded in broader online ecosystems. In competition with markets like social media, game developers are compelled to align monetization models with constantly renewable content creation. Thorhauge and Nielsen (2021) highlight how in-game transactions add to the broader virtual economy, with virtual items serving as commodities and currencies that transcend beyond individual games, as gaming and intertwining economies overlap. This overlap challenges traditional notions of currency, which is further complicated by the advent of cryptocurrencies and non-fungible tokens (Jaferian, Ramezani, and Wagner 2024; Lehdonvirta 2012; Thorhauge and Nielsen 2021). Such recent developments in gaming have given rise to new monetization models, notably in blockchain games. These games tend to be based on a “play-to-earn” model, rewarding players with virtual items during gameplay that can be traded or converted into other currencies (Jaferian, Ramezani, and Wagner 2024), marking the evolving revenue developments in gaming.

The platformization of gaming has led to the dominance of a few major game companies with confined economies (Helmond 2015; Karlsen 2022). This concentration drives small-scale companies to adopt potentially exploitative monetization strategies, legitimizing financial gain as a primary objective (King and Delfabbro 2018, 2020). Problematic microtransactions that manipulate players into spending, such as paywalls, are prevalent in top-grossing games (Petrovskaya,

Deterding, and Zendle 2022). As a result, previous research has debated the fairness and ethical implications of certain models. Particularly contentious is monetizing through gambling elements, such as loot boxes, pay-to-win, and skin-betting (Johnson and Brock 2020; King and Delfabbro 2018, 2019, 2020; Thorhauge and Nielsen 2021). These practices, critiqued for potentially fostering addiction and the onset of problematic gaming (King and Delfabbro 2018; Macey and Hamari 2024; Zendle et al., 2019), also raise concerns over social inequality between paying and non-paying players (Kimppa, Heimo, and Harviainen 2016; Lin and Sun 2011). This strand of literature has encouraged policies and regulatory action that promote fairness, transparency, and accountability in gaming monetization (e.g. King and Delfabbro 2019).

## Monetizing in-game shopping

The previous sections have outlined that monetization models are closely tied to in-game purchases, branching into two domains: play-related and shopping-related strategies. Play-related monetization includes how advertisements are integrated into the gaming experience (Lewis and Porter 2010), and how social interactions contribute to game revenue, such as multiplayer features, collaborative activities, or social networks (Lee and Seo 2024; Nieborg 2015a). Shopping-related monetization involves in-game purchases (including the design and pricing of virtual items), randomized virtual items (such as loot boxes), and independent currency systems and conversion rates (Hamari and Lehdonvirta 2010; King and Delfabbro 2019). This branching underscores the interplay between shopping and play in contemporary gaming monetization.

Research on in-game purchases has focused on virtual economies, including the concept of virtual items and their perceived value (e.g. Hamari and Keronen 2017; Mäntymäki and Salo 2015), and underlying motivations and factors that influence purchase behavior, such as social elements, hedonic aspects, in-game offers, and the presentation of virtual items (e.g. Hamari et al. 2017; Lehdonvirta 2009). The commercialization of games through in-game purchases has sparked discussions on balancing value for players without undermining their gaming experience (Hamari and Keronen 2017; Lin and Sun 2011). Academic debates have also addressed the role of game design, focusing on how it shapes the presentation of virtual items, pricing information, and the overall shopping experience. For example, Hamari and Lehdonvirta (2010) suggest that virtual items are categorized to appeal to different consumer segments, thereby crafting products that cater to different consumers at specific junctures in the game (e.g. upon reaching new levels). They point out specific game design features that stimulate demand and recurring spending, such as occasion-based products, item degradation, and artificial scarcity (Hamari and Lehdonvirta 2010).

While insight into the design and features of in-game shops is limited, comparative analyses have been made between physical retail stores and online retail web pages. Early on, Lohse and Spiller (1999) drew several parallels between the two across merchandise, service, promotions, and navigation, such as likening the hierarchy of tabs in an online store to the number of floors in a physical store. They also pointed out notable distinctions, such as the difficulty in identifying online store atmosphere (Lohse and Spiller 1999). Furthering this comparison, Wu et al. (2013) argue that the store atmosphere in online shopping sites includes the layout and visual design of the store and is a highly significant factor in consumer behavior. Examples such as the curated layouts of Epic (Thorhauge and Nielsen 2021) and the App Store (Nieborg 2015a) may be viewed as digital versions of a shopfront, illustrating how digital platforms emulate traditional retail facades to attract consumers. However, gamified interfaces in online shopping add a playful element that engages consumers beyond physical shopping approaches (Poncin et al. 2017).

## In-game shops as virtual storefronts of choice architecture

Game economies are increasingly mirroring traditional economic systems by employing unique currencies that are used to purchase virtual products from an in-game shop. This forms a distinct

*virtual economy* (Lehdonvirta 2009; Wohn 2014) that is characterized by its own rules of supply and demand, (artificial) scarcity of virtual items, virtual currency systems, price fluctuation, and the presentation of in-game offers (Castronova et al. 2009; Hamari and Lehdonvirta 2010; Lehdonvirta 2012; Lehdonvirta and Castronova 2014). Dubuisson-Quellier (2022) argues that market mechanisms, such as product labeling and advertising, are designed in line with business models with the intent to influence consumption preferences for variety, novelty, and availability. Product diversity creates variety preferences, while availability preferences are shaped through ubiquitous shopping markets where consumers can purchase anytime and anywhere. Novelty preferences are devised by design, constant updates, and seasonal – and limited products, that urge consumers to want change and renew purchases. This leads to an understanding where in-game shops contribute to the virtual economy of games by shaping consumption preferences through their design, product selection, currency implementation, and promotional approaches. That is, the in-game shop is an integral economic element in commercial games with the purpose of encouraging consumption. This article aims to understand how the shop is designed to achieve its purpose.

As the previous sections have illustrated, virtual shops share many similarities and characteristics with traditional physical shops. Hence, the choice architecture that is prevalent in physical stores (Dulrud and Jacobsen 2009), can be transferred to the study of in-game shops. Digital choice architecture is a broad concept that refers to the design and framing of digital elements to influence consumer's choices and spending behavior (Weinmann, Schneider, and Brocke 2016). It shares similarities with related concepts such as *nudges* and *sludges* (Sunstein 2022), *persuasive*, *deceptive*, or *manipulative* game design (Mathur, Kshirsagar, and Mayer 2021), *dark game design patterns* (King and Delfabbro 2018), and *dark commercial patterns* (OECD 2022). Collectively, these concepts describe various interfaces or design features that aim to influence consumer decision-making, but they differ in their ethical intent.

Choice architecture, including the subordinate concept of nudging, primarily intends to guide choices in ways that benefit consumers and society (Thaler and Sunstein 2008). This includes principles like product placement and visibility, shelf organization and product grouping, pricing strategies, default choices, social cues, and store layout (Sunstein 2017). However, dark patterns refer to a variety of design elements that alter the choice architecture to manipulate consumers to make decisions that are not always in their best interest, but rather in the interest of underlying monetization models (Mathur, Kshirsagar, and Mayer 2021). Architecting games through dark patterns to prioritize monetization can create addictive loops that encourage repeated engagement and spending (Heaven 2014; OECD 2022), through elements like concealing prices, urgency messages, or shaming certain choices (Luguri and Strahilevitz 2021). As monetization and game design are increasingly integrated, marketing strategies may be understood as the equivalent of game design patterns (Hamari and Lehdonvirta 2010).

Distinguishing dark patterns from ethical use of choice architecture involves considerations of transparency, consent, autonomy, informed choices, and intent (Brenncke 2024). The aim of this article is not to draw the line between *engagement* and *manipulation* in game design, but rather to examine dark patterns and related design strategies as specific approaches to digital choice architecture. Through this theoretical lens, the article examines the interplay of game design, psychology, and economics that encourage consumption within in-game shops, which offers insight into how games can be designed in ways that respect player agency and informed choice.

## Method

Both Aarseth (2003) and Davidson (2011) argue that the best way to study games is by playing them. This approach has been applied in previous studies of gamified smartphone apps, mobile games, and console games (e.g. Fuentes and Sörum 2019; Grimes 2015; Joseph 2021; Kozinets

and Kedzior 2009; Ross and Nieborg 2021). For this study, seven commercial games were played and analyzed using *immersive netnography* (Kozinets 2023), which is tailored to the study of virtual worlds and consequently provides a unique opportunity for immersion in the lived experience of in-game shops. It involves active interaction with the study context and researcher introspection (Kozinets and Gretzel 2024), enabling insight into in-game shop dynamics through firsthand experience. As the approach involved actively playing games and spending time within their shops, the collected material included screenshots, recorded videos of game sessions, and field notes (or immersion journals) for each game (Kozinets 2023). The following sections will present the criteria for game selection, procedure, and data analysis in more detail.

### **Selection and sample of games**





Table 1 lists the seven games that were selected for analysis. The sample includes both computer and mobile games. Mobile games were included as they are rapidly increasing in both revenue and popularity (Newzoo 2021) and tend to be closer to payment methods compared to computer games. There are currently no established lists, statistics, or variables that officially indicate the popularity of games. However, as critical and commercial success are salient and widely accepted measures of the popularity of games (Becker 2011), the games were chosen partly on this information. Recognizing the limitations of merely relying on sales data (as it would exclude freemium games), player count was included as an indicator of popularity. The selection of games was further refined based on their possibility for in-game purchases (i.e. monetization model), aligning with the focus of the study. An apparent method to identify the monetization models of games is to check their price at download (Thorhauge 2024). *Minecraft* stands out for combining a premium model with subscriptions and microtransactions, while the other six games adopt freemium models. All games employ microtransaction monetization, giving players the option to buy added content or virtual products in-game. Notably, *Genshin Impact* employs a “gacha” system, which is a form of microtransaction that resembles gambling where players can spend in-game currency to obtain random virtual products (Woods 2024). Collectively, the games have achieved commercial success and widespread player engagement and allow for in-game purchases across game consoles.

### **Procedure and material**

Three researchers spent between 3–8 weeks per game between December 2021 and April 2023. *Minecraft*, *League of Legends*, *Fortnite Battle Royale*, and *Roblox: Adopt Me* were played on a computer, while *Genshin Impact*, *Pokémon Go*, and *Hay Day* were played on a smartphone. Following immersive netnography, the data collection was not confined to a fixed timeframe or predetermined play session (Kozinets 2023), recognizing that some games tend to gradually introduce new game elements and expansive gameplay (Karlsen 2019). Thus, the games were played as long as new elements emerged and stopped when the gameplay had seemingly stabilized into a predictable pattern (i.e. data saturation; Strauss and Corbin 1997). Play sessions were time-logged to keep track of the total number of hours spent playing each game (see Table 2).

The immersive netnography was inspired by Consalvo and Dutton’s (2006) *object inventory and interface study*. The object inventory aimed to gain knowledge into the significance of objects in the game by creating a catalog of all known items that players can find, purchase, steal, or create, including the properties of each object. The interface study focused on any on-screen information (i.e. interface) that enables players to control and manipulate gameplay elements. In line with the purpose of this article, data collection was concentrated on items available for purchase in the main in-game shop(s) of each game, and on interfaces that involved some form of consumption (e.g. shop advertisements, transactions). The data from the object inventory was plotted into a matrix in Excel

**Table 1.** Overview of the sample of games. Screenshots by author.

Game title and producer	Platform(s)	Annual revenue in 2020/21	Number of users in 2020/21	Monetization models	Description of gameplay	Illustration of gameplay
<i>Genshin Impact</i> by miHoYo	PC, Mobile, PlayStation	1,3 billion USD	50 million	Freemium, microtransactions	An action-adventure role-playing game. Players explore an anime-style open-world environment through an action-based combat system with character switching.	
<i>Pokémon Go</i> by Niantic	Mobile	904 million USD	166 million	Freemium, microtransactions, advertising	A location-based augmented reality game that uses players' geographic position when they locate, capture, train, and battle Pokémon.	
<i>Minecraft</i> by Mojang Studios	PC, Mobile, PlayStation, Nintendo Switch, Xbox	415 million USD	600 million	Premium, microtransactions, subscription	A sandbox game with near-infinite, open-ended gameplay where players can explore, extract, craft, build, and create across worlds, terrains, and game modes.	
<i>League of Legends</i> by Riot Games	PC	1,7 billion USD	150 million	Freemium, microtransactions	A strategic multiplayer online battle arena game. Two teams of five players battle in player-versus-player combat.	

<p><i>Fortnite Battle Royale</i> by Epic Games</p>	<p>PC, Mobile, PlayStation, Nintendo Switch, Xbox</p>	<p>5.8 billion USD</p>	<p>390 million</p>	<p>Freemium, microtransactions</p>	<p>A survivalist battle-royale game where up to 100 players battle each other to be the last one standing. Players can play solo, in duos, or in squads.</p>	
<p><i>Roblox: Adopt Me</i> by Uplift Games</p>	<p>PC, Mobile, Xbox</p>	<p>60 million USD</p>	<p>1,9 million</p>	<p>Freemium, microtransactions, subscription</p>	<p>A massively multiplayer online role-playing game that centers around adopting and looking after various pets hatching from eggs.</p>	
<p><i>Hay Day</i> by Supercell</p>	<p>Mobile</p>	<p>800 million USD</p>	<p>10 million</p>	<p>Freemium, microtransactions, advertising</p>	<p>A strategic simulation farming game that revolves around producing and selling crops and products, to buy buildings, animals, and farm decorations.</p>	



**Table 2.** Overview of the data material.

	Genshin Impact	Pokémon Go	Minecraft	League of Legends	Hay Day	Fortnite Battle Royale	Roblox: Adopt Me
Playtime in hours	44	41	32	47	39	25	25
Number of video recordings	4	3	5	6	3	5	4
Pages of notes	18	12	17	18	16	20	13
Number of screenshots	82	108	94	135	106	147	159
Datapoints in matrix	128	267	320	630	710	689	1268

for each game.<sup>1</sup> The final data material consisted of an average of 118 pictures, 16 pages of field notes, 573 data points in Excel-matrix, and 4 video recordings per game (see Table 2 for an overview of the data material across each game).

### Data analysis

The data analysis followed grounded theory (Strauss and Corbin 1997). The main analytical questions that guided the data collection were “What products can be purchased in the shops?”; “How can they be purchased?”; “What are the prices of objects?”; “When are objects available for purchase?”; and “How are they presented and marketed?”. These questions turned into the various data materials summarized in Table 2 and served as the foundation for the subsequent analysis.

Following recommendations to use investigator triangulation when interpreting textual or visual material (Turner and Turner 2009), four researchers took part in the data analysis to ensure reliability. This involved both individual and collective analyses through workshops. During the analyses, the material was grouped into two parts: (1) the object inventory-data in Excel and (2) the pictures, notes, and video recordings. The object inventory data was subjected to a quantitative content analysis to count instances of items for purchase and compare the total amount of items and price range of items across games. The textual and visual data were qualitatively analyzed to see how game language, shops, interfaces, and layout were used in context and to identify potential patterns across games. The analysis progressed through iterative cycles, informed by reviewing previous literature and grounded in inductive reasoning. The emergent coding structure, detailed in Table 3, initially categorized observations into first-level codes, such as dark patterns, playful marketing, payment, and product categories. These initial insights were subsequently grouped into 6 s-level codes: product variety, shop architecture, shopping as play, advertising as play, relationship between virtual and actual currency, and architecting in-game currency. During a final analytical workshop, the second-level codes were theoretically abstracted into three analytical categories of shop architecture: shop entanglement, commercial concealment, and transactional fluidity.

### Results

The in-game shop is described through three approaches of choice architecture that characterize different aspects of the shop. First, shop entanglement refers to the way the shop is designed as easily accessible with temporarily unavailable components, a large product variety, frequent updates, and urgency indicators. Second, commercial concealment refers to the promotional aspect of the in-game shop, and how shop advertisements are concealed as activities resembling discovery

<sup>1</sup>The matrix consisted of 8 sheets corresponding to each analyzed game. Each sheet contained five columns entitled “name of purchasable object”, “type of currency”, “price of object”, “function of object”, and “other properties/notes”. The last column also included any eventual information about whether objects required unlocking, or whether the price of the object changed at any time during data collection. Both individual products and entire product categories were logged. Each row corresponded to either one unique object (e.g., “1 moon gazebo” in *Hay Day*) or multiple units of similar objects within a product category (e.g., “132 common pet wear objects” in *Roblox: Adopt Me*).

**Table 3.** Coding structure table with data examples.

Analytical category	Second-level coding	First-level coding	Data examples
Shop entanglement	Product variety	Product categories Dark patterns (e.g. Countdown-mechanisms)	- Video of shop navigation and structure - Data entries on the price of products - Pictures of urgency indicators on items - Field notes about the similarities and differences between product categories
	Shop architecture	Dressing room Shop structure Visual layout of shop	
	Shopping as play	Product presentation Shopping rewards Shop advertising Payment method	
Commercial concealment	Advertising as play	Monetization models	- Pictures of pop-ups and shop offers
		Commercial gameplay	- Videos of playful marketing messages
		Visual layout of commercial content	- Field notes about how advertisements are embedded in the gameplay
		Playful marketing Out-of-game advertising Dark patterns (e.g. taste samples) Advertising in dressing room	
Transactional fluidity	Relationship between virtual and actual currency	Dark patterns (e.g. transaction language)	- Pictures of currency bundles in shops - Data entries about conversion rates
	Architecting in-game currency	Virtual currency system	- Field notes on the process of conducting a purchase
		Visual layout of in-game currencies	

and treasure hunting. Lastly, transactional fluidity refers to the transactional aspect of the in-game shop, specifically how the lines between transactions and barter become blurred. Together, the three categories offer an understanding of shop architecture in commercial games that encourage players to pay and play.

### **Shop entanglement**

This section covers the framing and contents of the in-game shop, and how it is entangled through (un)availability, variety, novelty, and urgency. First, the shop in each game is highly accessible as it has no fixed geographical location in the game making it constantly *available* through the start interface, which is also found in other game analyses (Denoo et al. 2023). However, the shop is also characterized by *unavailability*, as some products and entire shops are made unavailable until players reach a certain level or fulfill specific criteria. For instance, all games feature temporarily unavailable items that players can see in the shop but not yet purchase, as they can only be unlocked by leveling up or completing certain challenges. This way of architecting artificial exclusivity encourages players to invest time and potentially money to unlock these items. The shop in *Genshin Impact* further illustrates this concept. It is made available only after players reach level 5, prompting a full-screen interface with the message: “*Shop unlocked. Let the Stardust and Starglitter you’ve collected take new shape and grant you power*”. This arguably frames the shop as an achievement, by implying that in-game shopping is a coveted award for reaching a milestone.

Second, the shop is characterized by its large product *variety*, including cosmetic clothes, weapons, abilities, music, social events, and in-game currency. Table 4 shows the number of items available in the in-game shop, their price range, and the number of in-game currencies across all seven games. The variety is reflected through the in-game shop selection across the games that includes hundreds to thousands of individual products priced between 1–188 USD that cater to a wide range of preferences. For instance, *Fortnite* offers variety in terms of music to listen to while waiting in the lobby, decorative “back bling”, and vibrant skydiving trails that are displayed when jumping off the

**Table 4.** Overview of the number of items in the object inventories, price range of objects, and number of currencies for each game.

	Genshin Impact	Pokémon Go	Minecraft	League of Legends	Hay Day	Fortnite Battle Royale	Roblox: Adopt Me
Object inventory	97 items	328 items	989 items	4553 items	697 items	8550 items	11 470 items
Price range of objects	1–96 EUR	1–96 EUR	1,9–49 EUR	2,5–100 EUR	1–114 EUR	3,5–88 EUR	4,9–188 EUR
In-game currency	41 currencies	1 currency	1 currency	5 currencies	11 currencies	2 currencies	2 currencies

plane in the *Battle Royale* mode. Entangling the shop through a vast variety, while potentially enriching and customizing, can also lead to decision fatigue as it might be challenging for players to compare prices and evaluate options in the shop. Product variety can further be illustrated by how pets in *Roblox: Adopt Me* range from “common” to “legendary”, and skins in *Fortnite Battle Royale* are placed across a hierarchy based on different colors. Categorizing items into tiers creates artificial scarcity and exclusivity as players are encouraged to purchase the more exclusive items.

Third, the shop in all seven games is expansive and offers *novelty*. This evolving nature of the shop ensures that it remains a central feature of the game through regular updates, where new items are added as the game develops, as players level up, or when seasons change (in line with Hamari and Lehdonvirta 2010; Lehdonvirta 2009). In the *Fortnite Item Shop*, players can use the “shop refresh” feature to see all new items since their last login, creating a sense of exploration and discovery. Similarly, the *Riot Shop* in *League of Legends* has over 4500 items (at the time of data collection) to choose from with ongoing additions. Such novelty encourages frequent visits to the shop by urging players to explore the daily updated selection of shop items, making the shopping experience an integral part of the game.

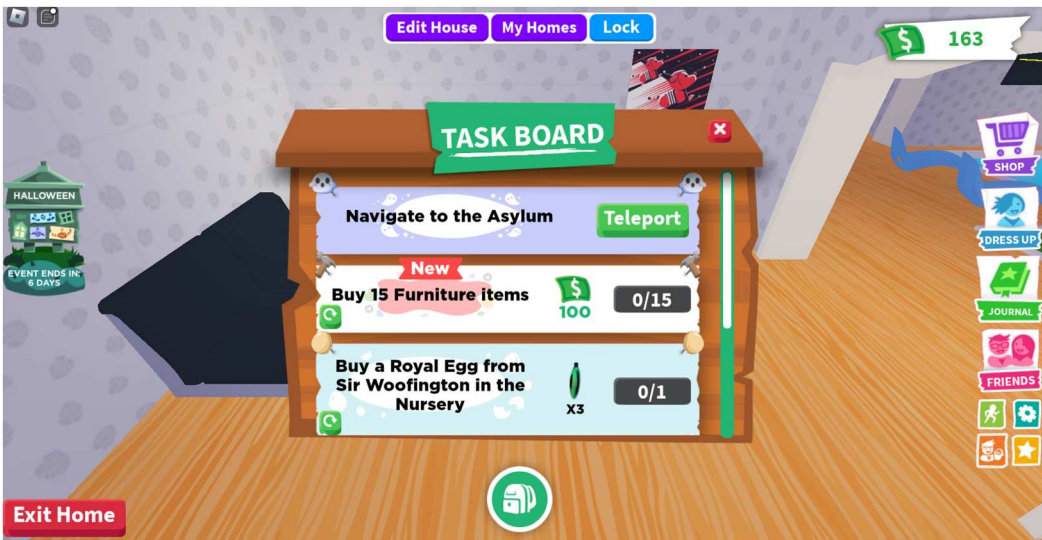
Lastly, the shops in all seven games include products that create a sense of *urgency*, which is recognized as a dark commercial pattern (OECD 2022), and has been identified within gambling games (Denoo et al. 2023). Urgency is for instance manifested through countdown mechanisms on in-game products to indicate the number of hours or days left to purchase the limited-time offer. This reduces deliberation time and promotes quick decision-making, which might lead to impulse purchases. A specific example of urgency is the daily login reward that players can claim in the shop. For example, if notifications are allowed in *Pokémon Go*, players will receive daily reminders to visit the store to claim the login rewards or purchase limited offers. During the sale of tickets to the *Pokémon Go Safari Zone Event*, players are prompted to “swing by the in-game shop to pick one up”. Such reminders and rewards encourage daily interaction with the game and, importantly, the in-game shop.

The sense of urgency is further exemplified by the *Game Pass*, which tends to be a monthly subscription that allows players to earn various achievements and rewards within a timeframe. The Game Pass effectively ties the value received to the time invested, where the more time spent in the game (within the given timeframe), the more players get their money’s worth. The use of urgency is not unique to the gaming industry but mirrors strategies used in broader digital markets. For instance, smartphone applications (Fuentes and Sörum 2019) and online shopping sites (Frig and Jaakkola 2024) tend to appeal to consumers with slogans that encourage immediate action.

To summarize, the in-game shop is entangled by its easy access, yet unavailable components and its expansive nature featuring a large variety with regular updates and urgency indicators on products. By boasting an extensive array of products, the shop caters to diverse consumer preferences but might overwhelm and compromise product and price comparisons. The strategy of making the shop both omnipresent and selectively accessible embeds the shop into the core gameplay and progression system, making shop visits a natural part of the gaming experience.

### **Commercial concealment**

This section explores the promotional element of the in-game shop through various ways that shop advertisements are concealed in the gameplay. Such commercial content takes different forms, but



**Figure 1.** Task board encouraging players to visit the in-game shop in Roblox: Adopt Me. Screenshot by author.

all redirect players' attention to the in-game shop. Shop marketing is often embedded as part of players' character building or framed as gameplay activities that mimic discovery and treasure hunting. For example, *Minecraft's* "dressing room" interface showcases advertising for "featured" and "recommended" items that redirect players directly to the in-game shop upon interaction. In *Roblox: Adopt Me*, shop visits are framed as tasks like "find rainforest shop" or "buy 15 furniture items" (see Figure 1), which involve the player actively scavenging the game to find the shop, making purchases, and discovering shop offers and advertising. This type of choice architecture encourages players to actively engage with the shop as part of the narrative in the game, which fits in line with the idea that digital devices are designed to have consumers experience shopping as a chance discovery (Vayre, Larnaudie, and Dufresne 2017).

Moreover, advertisements are sometimes directly embedded within the shop. For example, in the shop interface in *Hay Day*, players can watch advertisements in return for in-game items. This feature becomes available after players receive their daily reward in the shop, crafting a choice architecture that nudges players to visit the shop to receive one free daily gift and subsequent gifts in exchange for watching advertisements. As advertising is one of *Hay Day's* monetization models, its revenue income is effectively integrated as a playful element. This type of commercial integration creates an immersive shopping experience about discovery and exploration, rather than mere consumption and overt marketing. Essentially, shop marketing is gamified and visually presented as fun, free, and surprising.

Another way that shop marketing is concealed as a playful activity is through free "taste" samples of shop products that can later be purchased, such as the free Starter Egg in *Roblox: Adopt Me*. This strategy might make players more likely to purchase the products after presumably having developed a taste for them. Offering taste samples is similar to traditional slot machines, where the first try is free with the intention of increasing further interest (Frahn, Delfabbro, and King 2015). This finding connects to literature on the intersection of games and gambling (Albarran-Torres 2018; Denoo et al. 2023) highlighting gambling elements as "disarming" that entice players to continue playing (Zauch and Agur 2023). Taste samples resemble dark patterns as they conceal the commercial aspect and may not clearly communicate that further purchases will be required to continue product consumption. While such choice architecture might increase player engagement and reduce commercial disruption of the gameplay, it may come at the expense of player awareness

and informed decision-making. The principle behind offering taste samples might foster a sense of obligation that makes players feel more indebted to the game and more likely to reciprocate by spending money.

The preceding sections have outlined how shop advertising is sophisticatedly concealed as playful quests of discovery, rather than commercial activities. As Schneider, Systems, and Cornwell (2005) note, blatant in-game advertising can disrupt gameplay, and Karels and de la Hera (2022) point out that a playful display of in-game marketing encourages player interaction and is an effective way for advertisers to capture much-coveted consumer attention. In short, this conceptual category sheds light on how choice architecture is used to frame the promotional aspect of the shop. By concealing shop advertisements as exploration and gameplay, visits to the shop appear less commercial and more intriguing.

### **Transactional fluidity**

This section examines the transactional element of the in-game shop. The conflation of virtual and actual currency is recognized as a problematic element of game monetization (e.g. King and Del-fabbro 2019; Macey and Hamari 2024). The following text will provide more insight into how such conflation is architected within in-game shops, focusing on the framing of in-game currency.

The language used to describe in-game purchases in the shop reframes economic transactions as mere bartering. To illustrate, in *Genshin Impact* and *Pokémon Go*, buying in-game currency is described as “exchanging” and “transferring”, instead of “buying” and “purchasing”. This contributes to transactional fluidity, obscuring the line between exchanges of virtual currency and transactions of actual currency. In-game currency and real currency further blend through multiple currency systems. Five out of seven games have more than one virtual currency, and three have multiple layers of currency (see Table 4). According to Wohn (2014), multiple-currency systems encourage players to both spend time (to earn currency) and money (to spend the currency). For instance, *League of Legends* regularly introduces new currencies (e.g. seasonal, event-based), such as *Event tokens* that have an expiry date. By architecting urgency and time constraints, players may feel compelled to spend all their event currency before it expires and is lost – an idea also shared by previous studies (Hamari and Lehdonvirta 2010).

Generally, in-game currencies are hard to earn, win, or find during gameplay, but easy to buy with real-life money in the shop. It is typically very easy to purchase in-game currency in a few clicks, especially in the mobile games. If players, for instance, click to purchase a new posture for their avatar in *Pokémon Go* but lack the necessary amount of *Pokecoins*, a pop-up interface will appear offering to take them directly to checkout to buy the required amount. This type of choice architecture makes it more convenient to buy in-game currency from the shop, instead of earning it through laborious gameplay.

In all seven games, players have the option to buy different bundles of in-game currency in the shop, where certain choices are framed positively through visual presentation. As the bundles increase in price, the visual layout of each bundle is adorned with increasingly vibrant colors, sparkling effects, and decorative accessories. That is, the pricier the bundle, the more aesthetically pleasing it looks. Lehdonvirta (2009) argues that the visual appearance of virtual products in games can shape consumption by providing players with hedonistic gratification. Moreover, each first-time purchase of a bundle typically yields a bonus, which encourages multiple purchases to ensure all first-time bonuses. For example, the first purchase of the bundle with 300 *Genesis crystals* in *Genshin Impact*, comes with 300 bonus crystals. However, in *League of Legends*, the two smallest bundles do not offer any bonus (see Figure 2). This framing effect directs attention away from the cheapest options, and towards the pricier bundles with the bonus. Such unbalanced choice architecture might be seen as a type of dark pattern that steers players towards the more expensive purchase. The bonuses of the currency bundles also interfere with the conversion rates between virtual and actual currency, as each bundle has its own exchange rate. This lack of transparency is further



**Figure 2.** Packages of in-game currency available for purchase in League of Legends. Screenshot by author.

complicated through multiple currency systems, where costs are further hidden through layered currencies.

In sum, virtual and actual currency is characterized by fluid transitions in the shop, through layered currency systems, using language to frame transactions as barter, and visual layouts that obscure exchange rates. While in-game currency can help create an immersive shopping experience, it can also contribute to hiding actual prices in the shop. Such fluidity between virtual and actual currencies underscores the need for greater transparency and consumer awareness within digital gaming economies.

## Discussion

This article advances the understanding of how in-game shops are designed to encourage consumption. The results outline three aspects of shop architecture. Shop entanglement describes the embedding of the shop's presence in the gameplay, featuring unavailable products, a wide product variety, frequent updates, and urgency indicators, which collectively encourage frequent shop visits. Making the shop a central and ubiquitous element in the game fosters continuous engagement through consistent reminders of products to access, collect, and purchase. Commercial concealment refers to how shop promotions are integrated into gameplay activities resembling treasure-hunting, thereby framing advertisements as discovery rather than commercial messages. This approach makes commercial shop elements less disruptive to the gameplay, and more like a continuation of game immersion. Transactional fluidity represents the blending of virtual and actual currency within the shop through language elements and multiple currency systems, creating distance from the real prices of products. Providing insight into how virtual and real currency are conflated within the shop, enriches current understandings of the complex economic models emerging within games.

Collectively, these three elements of shop architecture form a cohesive shop system that encourages continuous engagement with the in-game shop, where spending turns into playing and becomes a natural part of the experience. Shop entanglement draws players into the shop,

commercial concealment ensures continuous shop immersion, and transactional fluidity facilitates shop transactions. Together, they ensure that players are constantly drawn into the shop's sphere, as it is kept at the forefront of the gameplay and embedded within the game narrative. In short, this shop system leverages psychological principles to encourage spending, making the shop a powerful monetization tool within games. It is important to note that this article does not dismiss the in-game shop as an exploitative commercial gameplay element. Some, or even most, in-game shopping likely provides some form of social, economic, or symbolic value that results in positive experiences for players. However, the identified shop architecture is potentially problematic from a consumer perspective and necessitates critical inquiry. The following sections outline how these results can provide insight into policy developments, game design practices, and the concept of consumer agency within gaming environments.

The monetization of games has become a matter of widespread political interest, especially across European countries, with concerns over transparency and the potential exploitation of vulnerable consumers. Recent sanctions, such as the 520 million USD fine imposed on the producer of *Fortnite* for violating children's privacy rights and tricking players into making purchases, demonstrate the issue. Results from this study outline critical areas for policy development by having identified in-game shop architecture that encourages consumption through design elements that intend to complicate, hide, and distance. Some of the shop elements that have been identified in this paper (i.e. urgency indicators, concealed advertising, limited offers, digital currency, unbalanced choices) are linked to dark commercial patterns (OECD 2022). The in-game shop and its integration into the gameplay enhance player immersion and provide possibilities, personalization, and creativity, but blur the lines between playing and shopping. While effective for monetization, it raises ethical concerns regarding consumer protection. Policy developments ought to focus on how in-game shops can be regulated in ways that promote positive consumer agency and autonomy, especially among vulnerable consumers. Specifically, regulatory efforts should focus on ensuring that in-game shops are safe and transparent commercial elements where consumers can make well-informed and active decisions. This might be achieved through mechanisms such as transparency in pricing and disclosure of commercial content. Future research should explore the effectiveness of such potential mechanisms that can safeguard vulnerable consumers while maintaining the immersive quality of the game.

The current findings point out how seamlessly commercial elements (i.e. the shop) are woven into the fabric of gameplay. This blurring of lines between playing and paying is indicative of how games are monetized and consumed, encapsulating the expression; "if the product is free (to play), then you might be the product". The immersive netnographic approach taken in this study can be restrictive in terms of sample size and researcher subjectiveness (Kozinets 2023) and gives no insight into the (un)conscious decisions behind the shop design. However, previous studies have involved game developers to understand their intentions and ethical considerations in general, albeit without focusing on the specific context of in-game shops. For example, Karlsen (2022) finds that game designers from freemium companies tend to devalue ethical considerations, and Arditi (2021) argues that developers are heavily focused on designing games for *consumers*, rather than for *players*. Trading effective navigation and intuitive design for biased layout and user-passivity can be described as "behavioral market failures" that can be circumvented through the ethical use of choice architecture (Loewenstein and Chater 2017). The results in this study are compatible with such an approach as shop architecture ought to inspire players to engage in reflective participation and informed decision-making, rather than stimulating decision fatigue and impulse spending. The current findings ought to be expanded by comparing how shop architectures vary across different game genres and platforms. Such comparisons might reveal platform- or genre-specific strategies that can help in identifying industry standards that promote fairness and consumer empowerment without stifling innovation. That is, shop architecture requires a balance between engaging players while ensuring that their engagement does not veer into exploitation.

The transactional aspect of the in-game shop necessitates a reevaluation of how value and transactions are communicated and understood in virtual economies. However, the shop architecture tends to neglect the agency of consumers, thus failing to recognize their creative and resourceful

nature. It is important to acknowledge players as active agents, rather than passive and easy prey for profit-maximizing game designs. Players are not necessarily as susceptible as the shop design assumes. As Fuentes and Sörum (2019) point out, digital devices have the power to shape consumption, but not to determine it. This emphasizes the need to engage with players to understand their player (and consumer) agency and how they navigate the shop architecture to potentially avoid its influence. In fact, in his interviews with players, Woods (2022) finds strong player agency in finding ways to avoid exploitation and manipulation in free-to-play games. Similarly, Airoldi and Rokka (2022) provide examples where consumers use social media algorithms to *their* advantage instead of the other way around. Future research should focus on the concept of player agency within in-game shops, investigating how shop architecture influences players' sense of control over their decisions and exploring ways to enhance player autonomy.

## Conclusion

As the gaming industry continues to evolve, understanding the nuances of in-game monetization is paramount in promoting a gaming environment that values both commercial success and consumer welfare. By unpacking the architecture of in-game shops, this paper sheds light on the shop as a mechanism through which games engage and monetize players. Shop entanglement, commercial concealment, and transactional fluidity collectively create an immersive, engaging, and compelling shopping experience, while potentially at the compromise of informed decision-making and awareness of commercial intent and actual costs. The in-game shop is architected as a powerful monetization tool that leverages psychological principles to encourage consumption. However, when designed ethically, in-game shops have the potential to extend their commercial intent to enrich the gameplay without undermining fairness or transparency. This involves rethinking the design of in-game shops to avoid exploitative mechanisms and ensure that commercial games remain spaces for creative exploration and enjoyment.

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