

Pay to Win or Pay to Cheat: How Players of Competitive Online Games Perceive Fairness of In-Game Purchases

GUO FREEMAN, Clemson University, USA

KAREN WU, New Jersey Institute of Technology, USA

NICHOLAS NOWER, The College of New Jersey, USA

DONGHEE YVETTE WOHN, New Jersey Institute of Technology, USA

The advent of various in-game purchasing systems has led to several ethical concerns in contemporary gaming ecosystems, including the monetary dark patterns in game design and the potential harms on gamer welling by introducing cheating, gambling, and addictive mechanisms. These concerns have resulted in the rise of tensions regarding the impacts of in-game purchases on players who pay versus those who do not pay, such as their perceptions of "fairness" in highly competitive gaming contexts when spending is involved. Using 2,685 Reddit posts from five subreddits of popular online sports and card games that focus on player-to-player competition, we investigate how players of these games perceive fairness of their in-game purchases. This research expands our existing knowledge on ethical concerns and fairness in gaming by highlighting consumers' (players') diverse ethical judgments regarding the increasingly popular monetization mechanisms in modern gaming. It also highlights ethical dilemmas surrounding competition, spending, and enjoyment in online gaming and informs the design of future digital consumption systems for fairer, healthier, and more ethical gaming dynamics.

CCS Concepts: • **Applied computing** → **Computer games**.

Additional Key Words and Phrases: in-game purchases, competitive online games, sports games, card games, microtransactions, fairness, ethics

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1 INTRODUCTION

In the past decade, the *free-to-play* business model (i.e., publishing a game for free and then making revenue from selling in-game items for real-life money) has become popular in the gaming industry. This switch of business models (e.g., from "pay to play" to "free to play") has led to the advent of various in-game purchasing systems, including microtransactions, pay-to-win, season passes, data-driven/data-for-access revenue models, in-game video advertisements, and in-game advertisement and product placement [28, 42]. As players realize that they can attain certain benefits from their in-game purchases, they start spending more money [38]. Prior research has especially highlighted three common types of in-game purchases in online gaming: cosmetic in-game purchases, functional

Authors' addresses: Guo Freeman, guof@clemson.edu, Clemson University, Clemson, South Carolina, USA, 29634; Karen Wu, New Jersey Institute of Technology, New Jersey, USA, kaw37@njit.edu; Nicholas Nower, The College of New Jersey, New Jersey, USA, Nowern1@tcnj.edu; Donghee Yvette Wahn, New Jersey Institute of Technology, New Jersey, USA, wohn@njit.edu.

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in-game purchases, and out-game purchases [9, 25, 31]. Cosmetic in-game purchases allow players to buy modifications or accessories for the aesthetics of their game characters with no impact on their character's skillset or their performance in the game (e.g., "skin" in the online survival game Fortnite), whereas functional in-game purchases can improve the player's performance and progress in the game (e.g., weapons) [31, 46]. Out-game purchases refer to buying accessories or other products related to a certain game (e.g., poster, collectibles, accessories, and toys). Many game publishers have focused on microtransactions that involve solely aesthetic or cosmetic changes, such as character skins and banners. In contrast, some others offer purchasable functional in-game items that can significantly provide players with in-game advantages over those who do not purchase.

As a result, this emerging gaming economy is significantly changing modern gameplay experiences regarding self-presentation, aesthetic experiences, and community engagement among others [9, 10, 16, 31, 41]. However, this business model also leads to new ethical concerns about in-game purchases and their negative impacts on player experiences. Examples include how the monetary dark patterns in game design can be questionable or unethical [48] and how in-game purchases may be against a player's best interests by introducing gambling simulation, wasted time by design, hidden costs, designed frustration to encourage spending, and social manipulation [42]. Yet, still little is known regarding the interplay between in-game purchases and fairness of gameplay in competitive online games and how players actually perceive and make their ethical judgments of such an interplay.

We believe that an in-depth empirical investigation of how players of competitive online games perceive fairness of in-game purchases is critical. Such an investigation will provide much needed knowledge on the impacts of in-game purchases on players who pay versus those who do not pay. One particularly valuable insight would be about their own perceptions and ethical judgments regarding "fairness" of their gameplay in highly competitive gaming contexts where in-game purchases can enhance players' performance [30]. Spending behaviors in gaming bring in unique opportunities for digital consumption that are particular to the affordances of the gaming technology. Therefore, to what degree this emerging gaming economy may affect how modern digital games are played, perceived, and experienced can inform the design and development of future gaming ecosystems. This understudied area thus motivates us to explore the following two research questions in this paper:

RQ1: How do players of various competitive online games perceive fairness of their in-game purchases?

RQ2: How, if at all, do their perceptions of fairness of their in-game purchases vary across different games?

We focus on players' perceptions of fairness of in-game purchases in the context of five popular online sports and card games, including NHL, FIFA, Madden NFL, Hearthstone, and Magic: The Gathering Area (MTG Arena). Among them, NHL, FIFA, and Madden NFL are sports games series that feature purchasable in-game "icons" (characters), which directly influence players' performance in matched play, such as how easily they can hit scores with the ball. MTG Arena and Hearthstone feature purchasable card packs that offer various possibilities for intricate and more powerful cards to be used in matched play. We chose these games as our research context for two reasons: (1) sports games and card games can provide unique insights on fairness of competitive gameplay. They often tend to implement pre-existing rules and code of conduct based on their offline counterparts. Yet, they have not been widely studied in the existing scholarship on in-game purchases; (2) these games are also more controversial compared to many other games that only provide cosmetic in-game purchases. For example, in-game purchases in many popular competitive online games such as Fortnite and Overwatch are strictly for avatar customization. In contrast, sports games and

card games are often embedded with functional in-game purchases, which can significantly affect player performance and the outcome of their gameplay. In this sense, these games seem to violate fair and skill-based competition through implementing functional in-game purchases, which raise tensions and complexities regarding how a fair competition can be achieved.

Specifically, we conducted a content analysis of 2,685 online posts ranging from September 2018 to September 2020 on various subreddits (e.g., r/NHLHUT, r/FIFA, r/MagicArena, and r/hearthstone) of the five popular sports and card games mentioned above. Our content analysis also involved both qualitative and quantitative analytical procedures. In summary, we contribute to expanding the current knowledge on ethical concerns and fairness in gaming in two ways. First, how to design and achieve a fair and ethical gameplay has been a key concern in game design and gaming studies. Our focus on the intersection of competitive online gaming and in-game purchases expands our understanding of consumer ethics in gaming by highlighting consumers' (players') diverse ethical judgments regarding the increasingly popular monetization mechanisms in modern gaming. We also contribute towards better defining and approaching "fairness" in competitive online gaming by providing new perspectives of fairness in the context of in-game purchases. Second, we highlight ethical dilemmas surrounding competition, spending, and enjoyment in online gaming. These insights also help design digital consumption systems for fairer, healthier, and more ethical gaming dynamics in the future.

2 RELATED WORK

Our investigation is built upon three strands of literature in gaming: consumer ethics and gaming, ethical concerns about in-game purchases in modern competitive gaming, and potential tensions between fair gameplay and in-game purchases.

2.1 Consumer Ethics and Gaming

Consumers are considered an essential participant in the business process. Therefore, consumer ethics has been a central research agenda in business and marketing studies to generate a comprehensive understanding of ethical issues faced in the business world [44]. In fact, almost all aspects of consumer behavior, including the acquisition, use, and disposition of goods, have certain integral ethical implications [43]. Such ethical implications include consumers' willingness to purchase and benefit from questionable products, consumers' perceptions of company ethics and their products, consumers' motivations to purchase socially acceptable and/or ethical products, and so forth [7]. In particular, prior research has highlighted several factors that may impact why consumers perceive certain business or products as ethical or unethical, including "whether or not the buyer or the seller is at fault, whether or not the activity is perceived as illegal, whether or not there is direct harm to the seller, whether or not the consumer has a negative attitude toward business, and whether or not the consumer equates unethical with illegal" [44]. These ethical judgments are also directly tied to consumers' general attitudes toward the business - e.g., people who show a more positive attitude toward business are less likely to engage in questionable, or unethical, consumer practices [43, 44].

In the gaming world, ethical dilemmas and concerns regarding both consumers (e.g., players) and business (e.g., game designers, developers, and companies) are not new. Sicart defined ethics in computer games as "a system or set of moral values, and the tools for analyzing these values" [40]. He also highlighted two main ethical issues in gaming: the ethical implications of unethical gaming content, and the ethical impacts of games on their players - for example, how violent games may pose ethical challenges due to the actions they simulate and what players have to do to accomplish in these games [40]. Targeting both ethical issues, researchers have discussed controversies regarding dark game design patterns, including temporal dark patterns (e.g., players being "cheated" out of their time), monetary dark patterns (e.g., players being deceived into spending more money than

they expected), and social capital-based dark patterns (e.g., players' social statuses and relations being at risk) [48]. All these dark design patterns can lead to negative play experiences and can be perceived as unethical and against a player's best interests [48].

2.2 Ethical Concerns about In-Game Purchases in Modern Competitive Gaming

In particular, the above-mentioned monetary dark patterns have led to growing ethical concerns about the modern gaming ecosystem. Van Rooij et al. summarized five common monetization models in gaming, including pay to play, retail/box revenue, subscription (games as a service), free to play, and out-of-game revenue (e.g. streaming) [42]. In the past, players could buy a game upfront as an one-time purchase and get access to all content in the game. More recently, a growing number of games have been published as "free" (i.e., no upfront cost for the players) but with embedded purchasable in-game items and microtransactions to earn revenue [19, 22]. This "free-to-play" model thus introduces several new monetization mechanisms, such as microtransactions, pay-to-win, season passes, data-driven/data-for-access revenue models, in-game video advertisements, and in-game advertisement and product placement [42]. In this model, players often need to make purchases along the gameplay process to progress to the next level or achieve higher ranks through downloadable content (DLC), specific items, and loot boxes [15, 22, 25]. These purchasable items are usually designed to unlock special features or offer special abilities, characters, or content. Some items also have functional values for more sophisticated gameplay, including earning more playing time in a session, upgrading a certain skill, and so forth [45].

Although each modern game tends to provide its unique pricing and purchasing structure, there seem to be two main categories of in-game purchases: hedonic and functional [30]. Hedonic and ornamental in-game purchases are aesthetic and serve to create social distinctions [30]. In contrast, functional in-game purchases offer opportunities to enhance a player's gameplay performance by improving their effectiveness (statistical advantages) and/or introducing new in-game functionalities [30]. For example, all purchasable items in the popular online survival game *Fortnite* (except for the *Fortnite* Battle Pass) focus on avatar customization such as changing the clothes of one's avatar [9, 31]. These cosmetic items do not provide players with any in-game advantages over other players who do not purchase. In contrast, in some other games, players can purchase performance enhancing items to help them gain better endurance, accuracy, and speed among others compared to their opponents. Such items thus provide them with a winning advantage over players who do not pay [19, 28].

Prior work has also highlighted the various motivations and reasons behind players' different in-game purchasing behaviors. It has been reported that one's decision to make in-game purchases is affected by players' attitudes, consumption values, the desire for self-presentation and social interaction, and intentional game design patterns [5, 18, 20, 31, 35, 42]. Players also perform in-game purchases to ease the burden and time required for better gameplay [15]. In addition, spending behaviors seem to be grounded in certain economic rationales (e.g., reasonable pricing and special offer) [42] and associated with different types of purchasable in-game items. For instance, high spenders typically buy cosmetic items while low spenders tend to purchase items that would enhance their performance, which could be necessary for them to sustain their gameplay [46].

In summary, existing literature has highlighted the increasingly important role of in-game purchases in both achieving a richer gameplay experience and an enhanced gameplay performance in modern online gaming. However, some in-game purchases systems may also be considered questionable or unethical [48]. For example, "pay-to-skip" makes players to pay to make progress in the game, which reduces a player's ability to play effectively; "pre-delivered content" forces players to pay additional money to unlock features that are already included in the purchased game; "monetized rivalries", or "pay to win", exploits player competitiveness and encourages

players to spend money to achieve certain in-game status [48]. In this sense, pure monetization dominated game design may be perceived as unethical because such a design manipulates players to spend money and time that they otherwise should not have, which can harm gamer wellbeing by introducing gambling simulation, wasted time by design, hidden costs, designed frustration to encourage spending, and social manipulation [42]. In this paper, we especially focus on players' own ethical judgments regarding *fairness* of their in-game purchases in competitive online games, which we discuss in the next section.

2.3 Potential Tensions between Fair Gameplay and In-Game Purchases

We understand that game business models have significant impacts on gaming behaviors - for example, the shift in business model (e.g., from "pay to play" to "free to play") may lead to the increase of problematic gaming [42]. Therefore, we focus on the impacts of in-game purchases on players who pay versus those who do not pay, especially on how they perceive "fairness" of their gameplay in highly competitive gaming contexts when spending is involved. Prior studies pertaining to the fairness of in-game purchases have explored the ethical implications of such purchases for a player's gameplay in terms of cheating [4, 23, 26, 28, 37, 39], gambling [5, 6, 23, 27, 33], and mental health [47]. In contrast, we believe that our focus on players' own perceptions of fairness of their in-game purchases in games that emphasize intense competition among players (e.g., matched play) will provide novel insights on players' ethical judgments of monetary patterns in modern gaming.

The sense of *fairness* in gameplay is strongly connected with rules and order [32]. However, fairness is also a subjective concept and can be defined in various ways by different players across different games. For example, a game may be perceived as fair if every player can compete in it; it may be viewed as fair if all players can succeed, even when their skills or time investments differ; it may also be viewed as fair if it promises equal outcomes according to players' time investments [24]. In modern digital games where players can use real-world money to buy virtual in-game products, how fairness can be defined and pursued in gameplay becomes even more complicated [32]. Several studies have noted the interplay between gameplay and in-game purchases in competitive online gaming. They highlight that cosmetic in-game purchases can be considered relatively fair as they do not affect the player's performance in-game [5, 17, 23]. Some popular online games (e.g., Fortnite and Overwatch) follow this model and only allow players to enhance the appearance of their avatars. In contrast, how functional in-game purchases can affect fairness of gameplay varies from game to game, depending on whether players who do not pay can also access the purchasable items and to what degree players can refrain from paying to progress in the game. For instance, certain online games are designed in a way that players must spend money or conceivably spend more gameplay time to overcome artificial obstacles [15, 28]. Some other games use time-limited releases of highly sought out items and highly anticipated characters to encourage players to spend more money [38].

Additionally, in-game purchases in many online games are volatile (i.e., players can use the items for a certain amount of time or lose them for not completing certain tasks). Or, the purchasable items tend to be randomized so players in fact do not know what items they would obtain after spending money (e.g., lootboxes) [28]. This volatile and randomized nature of functional in-game purchases, along with the tremendous amount of both monetary and non-monetary investments players inject in these games, has led to several ethical concerns. One such concern is how competitive gameplay can be perceived as *fair*, especially when some players can spend money to gain advantages that they otherwise would not have in matched gameplay. To explore this question, in this paper we use popular sports and card games to investigate players' perceptions of fairness of their in-game purchases in competitive online gaming (RQ1) and how their perceptions may differ across various games (RQ2).

3 RESEARCH CONTEXT

We use five popular online sports and card games as our research context due to their competitive nature, immense popularity, and the focus on winning and victories in gaming experiences. Specifically, we chose NHL, FIFA, Madden NFL, Hearthstone, and Magic: The Gathering Area (MTG Arena). All five games have attracted millions of players and generate millions of dollars in global annual revenue. Table 1 summarizes each game's publisher, initial release year, main gameplay mechanics, and in-game purchase systems. All authors are familiar with the five games both as players and as researchers, which helps them understand the specific gaming contexts, mechanics, and terminologies.

Table 1. Summary of Five Popular Online Sports and Card Games

Game	Publisher	Initial Release	Gameplay Mechanics	In-game Purchases
NHL	• EA Sports	• 1991	• Two opposing teams try to score the puck into their opponent's goal as they defend their own goal from being scored in.	• Points and randomized packs for forming a winning team consisting with highly skilled in-game icons ("player characters")
FIFA	• EA Sports	• 1993	• Mirror the rules and objectives of real-life soccer	• Points and randomized packs for attaining icons/characters with strong, well-rounded statistics
Madden NFL	• EA Sports	• 1988	• Mirror the rules and objectives of real-life American football	• Points and randomized packs for attaining icons/characters with better statistics
Hearthstone	• Blizzard Entertainment	• 2014	• Turn based using decks of four different kinds of cards with unique abilities or effects	• Packs that allow players to progress faster; new cards making their debut
Magic: The Gathering Arena	• Wizards of the Coast	• 2018	• Use cards that contain different spells or summonable creatures to fight the opponent	• Packs and new cards

NHL. NHL is a long-running video game series published by EA Sports based on the sport of hockey. Its first edition, NHL 91, was published in 1991 for the Sega Genesis [36]. As of 2022, its most recent edition, NHL 22, was published worldwide on October 15th, 2021 for Xbox and Playstation.

The hockey player characters in the game are usually referred to as "icons," which is a term used both this game and others based on real life sports. The in-game currencies include coins, which can be earned through game progression. Points, on the other hand, can only be attained through purchases with real money [11]. Players can build their idealized teams based on individual icon statistics. Since these statistics can affect in-game mechanics, such as how successfully the icons pass the puck or the success rate of their attempted goals, players may feel strongly encouraged to spend real life money in-game to progress faster. Players also have chances of attaining icons with

better statistics by purchasing randomized packs. In this sense, NHL players who purchase points and packs with real life money have better chance to form a winning team consisting with highly skilled in-game icons.

FIFA. FIFA is a soccer video game series published by EA Sports. As of 2022, its most recent edition, FIFA 22, was published worldwide on October 1st, 2021 for Xbox, Playstation, PC, and Stadia. This series also has annual releases of new editions. FIFA 22 averaged 51,000 players on the PC after release in 2021, highlighting the game's popularity [34].

FIFA's gameplay mirrors the rules and objectives of real-life soccer. In the in-game store, players can attain card packs of different icons through FIFA coins and FIFA points. Coins can be earned through game progression; however, points can only be attained through purchases with real money [21]. Similar to NHL, FIFA layers build their idealized teams based on individual icon statistics. These statistics can affect in-game mechanics, such as how successfully the icons pass the puck or the success rate of their attempted goals. Players also have chances of attaining icons with better statistics by purchasing randomized packs. In addition to this, team rating is a significant aspect of this game, which is based on the game's calculation of how well selected icons play with each other. This further motivates players to attain icons with strong, well-rounded statistics.

Madden NFL. Madden NFL 22, published by EA Sports for the Xbox, Playstation, PC, and Stadia, is a video game based on American football. The Madden NFL series has annual releases of new editions - as of 2022, Madden NFL 22 is its most recent game.

The gamplay is similar to American Football in real life. Card packs of different icons can be bought in the in-game store through points, coins, and credits. While coins can be earned through game progression, points can only be attained through purchases with real money, and credits can be used to purchase cosmetics. In this sense, while spending real money in-game is not necessary to succeed, players may feel tempted to resort to this to have better chances of getting the icons they want. Players build their idealized teams based on individual icon statistics, which can affect in-game mechanics, such as how successfully the icons pass the ball or the success rate of their attempts to reach a touchdown. This game offers randomized packs that give players chances of attaining icons with better statistics - if a player wants to progress faster, they may feel enticed to purchase these packs with real life money.

Hearthstone. Hearthstone is an online fantasy card game as a part of the Warcraft game series, created by Blizzard Entertainment. According to playhearthstone.com, there were 23,539,539 active players worldwide in 2020 [14]. It can be played between two players or as a single player game. This game is turn based using decks of four different kinds of cards, including minions, spells, weapons, and hero cards. All cards have unique abilities or effects, which can be used to win in-game currency for new cards or other items.

Hearthstone is a free-to-play game, meaning that players are able to successfully play without having to pay anything. However, this game does allow players to buy packs with real money, which allows them to progress faster than players who pay nothing. An example is the "starter packs" for new players, which give them extra cards as they start playing for the first time. Using these cards, it is easier for new players to win. Other examples of in-game purchases include new cards making their debut that players may feel tempted to buy in order to play them.

Magic: The Gathering Arena. Magic: The Gathering Arena (MGA), published by Wizards of the Coast LLC, is an online fantasy card game that is an adaptation of the tabletop game Magic: The Gathering. In 2019, there were nearly 3 million active MGA players [12]. In this game, players utilize different cards such as "land cards" that power up everything else the player uses. From there, they can use cards that contain spells or summonable creatures to fight their opponent.

While this game is playable without the need for spending real money, players do gain an early advantage if they are willing to pay money for new cards, as shown in the "welcome bundle" for

new players. The two types of currency in this game, Gold and Gems, can also be bought in bulk with real money, which could relieve some players from having to grind for those currencies.

4 METHODS

Data Collection. The goal of this paper is to investigate the perceptions players have about fairness of their in-game purchases. In doing so, we collected online threads, including posts and comments, regarding players' experiences and discussions of in-game purchases in the above mentioned five sports and card games from Reddit. We chose Reddit, rather than other gaming specific online forums, as our data source because Reddit is a popular International and public English-based online forum. All five games' subreddits (i.e., sub-forums on Reddit) are highly active with a notably large number of followers. For example, the NHL subreddit has 52 thousand followers [2]. The FIFA subreddit has 575 thousand followers [1]. The Madden NFL subreddit has 104 thousand followers [3]. Considering the popularity of using Reddit among these players, we believe that studying posts and threads on these subreddits can well reflect diverse players' perceptions and experiences of fairness of their purchases in these games.

To collect data on Reddit, we developed a python script that utilized Pushshift API to automatically gather publicly accessible threads, including both posts and comments. This script also allowed us to scrape data from specific subreddits containing certain keywords within various date ranges. To collect the most relevant data from the involved gaming communities, we retrieved threads from the most engaging and popular subreddits for each sports or card game, such as r/MUT for Madden Ultimate Team and r/MagicArena for Magic: The Gathering Arena, using keywords search such as "pay to win," "ethic," "in game purchase," and "fair." Our API search query operated as a regular expression search, which allowed us to search variants using various symbols (e.g., using *ethic** would return results matching *ethics* and *ethical*). We ran the python script to collect at least 500 posts and comments in a reverse chronological order, starting with the latest, for each of the five games in the past two years (i.e., from September 2018 to September 2020). We chose the latest 500 comments in the past two years to collect players' most recent and updated views. We also believe that including approximately 500 posts per game is sufficient for providing both quantitative and qualitative insights to compare trends across the five games.

As a result, we retrieved 3,119 posts and comments as well as their metadata such as timestamp, upvote, author, and subreddit source, which were stored in privately shared spreadsheets. We then went through the raw data to remove posts with irrelevant contents, such as those mentioning "to be fair" but without explaining their perceptions of in-game purchases. The final dataset used for further analysis includes 2,685 posts and comments. Despite using public Reddit data, we removed any possibly identifiable information from the dataset (e.g., usernames) to protect Reddit users' privacy.

Data Analysis. We used Content Analysis [29], a classical, well-defined research method to systematically analyze textual data to understand players' perceptions of fairness of in-game purchases and how their perceptions may vary across various games. Content Analysis involves both qualitative and quantitative analytical procedures and often includes the following steps: 1) researchers closely read through the collected data and create a codebook with categories and values, which allows for qualitative analysis or testing hypotheses; 2) researchers code the data independently and adjusted the codebook iteratively if necessary; 3) researchers collaborate to discuss the coded data and apply appropriate statistical test(s). The core of conducting content analysis is to create a codebook in an iterative process. In doing so, we analyzed the first 50 posts for each game and used them as a basis to collaboratively develop a codebook. The initial codebook included 102 codes regarding players' views of in-game purchases and the contexts of such views. We then focused on consolidating codes and eliminating irrelevant and overlapping

codes, resulting in a final set of 25 codes in the codebook. These 25 codes include *distrust*, *coerced to pay*, *absence of fair value*, *expectation of higher value items*, *gambling*, *resistance*, *resilience*, *either grind out or pay*, *balanced*, *monetization alternatives*, *minimum effort to win*, *skills are more important*, *skill disparity*, *self-control*, *unbalanced*, *encourages pay to win*, *icon players*, *handicap*, *expensive*, *overpowered purchases*, *getting beaten by pay-to-win players*, *discourages casual gamers*, and so forth. For example, if a post explained that they had trust in the developers of their game to provide balanced gameplay, we would label this post using the code “*trust*.” Likewise, if a post complained that the game they played provided difficult gameplay that would only be made easier by paying real life money to make in-game purchases, it would be labeled with the code “*either grind out or pay*.” In the codebook, each code was specifically defined to better orient the data analysis procedures. We also took precaution when creating the codebook to not be biased towards players who either overwhelmingly thought that all in-game purchases were unfair, or those who were more receptive or impartial to the effects of in-game purchases on gameplay.

The actual data analysis procedures using the codebook included the following steps. First, two researchers followed the codebook to independently code 10 Reddit posts about each game (50 posts in total). They then compared their codes and iteratively resolved disagreements. They reached an interrater reliability agreement rate of 87% after three rounds of initial coding. Second, after reaching this agreement rate, the two researchers read all posts line by line and coded the rest of the collected posts following the codebook. In this process, they also collaborated to discuss, combine, and refine themes emerging from the content analysis. Third, all authors collaborated together to generate a synthesized description to answer the research questions. For example, the research team met every week during this research to collaboratively refine broader themes based similar codes and identify important quotes to explicate each code/theme. A one-way ANOVA was also performed on the coded data to compare how players’ perceptions of fairness of their in-game purchases may vary across different games.

5 FINDINGS

In this section, we report players’ diverse perceptions of fairness of their functional in-game purchases in competitive online games, such as popular sports and card games (RQ1). We also explain potential reasons why their perceptions may vary across different games (RQ2).

5.1 Diverse Perceptions of Fairness of In-game Purchases

Our findings show that 29.47% of the collected posts highlight that players consider that their gameplay is fair or balanced even when functional in-game are involved. Almost the same amount of the collected posts (29.98%) show players’ dissatisfaction with the fairness of gameplay when in-game purchases are involved. And 35.14% of the collected posts describe the perceived obstacles to achieve fairness in gameplay with in-game purchases.

5.1.1 Functional In-Game Purchases can Still be Fair. As we mentioned at the beginning of this paper, functional in-game purchases in competitive online games have the potential to significantly affect the gameplay dynamic, players’ performance, and the outcome of their competition. However, players may still consider their gameplay and competition as *fair*, as shown in 29.47% of the collected posts (N=478) in this study. Reddit posters especially highlight three reasons why their gameplay and competition can still be fair even with the impact of functional in-game purchases.

Fairness lies in balanced gameplay. 16.26% of the collected posts explain that a game is fair as long as the gameplay is balanced. This means that no player, either pay-to-win (P2W) or free-to-play (F2P), will have a significant advantage over the other in their competitive gameplay. Naturally, pay-to-win players, or players who spend money constantly to gain paid advantages, are likely

to win more than free-to-play players, or players who spend money minimally [22]. For example, in Hearthstone, the more powerful and advanced cards (Epic and Legendary cards) are mainly available through in-game purchases. Such cards introduce more advanced game mechanics than the standard ones. However, a Hearthstone player wrote,

"Hearthstone is pretty good at not being pay-to-win, as card games go. If you search 'budget decks' on this subreddit, you'll get many results that are competitively viable and have no Epic or Legendary cards, making them easy to craft with little to no real money."

This Hearthstone player thus believes that winning does not require expensive, powerful, and advanced cards; there are cheaper, more widely available ones that bring similar results. In doing so, fairness of the game is balanced between pay-to-win and free-to-play players.

Fairness is achieved through the trust between players and developers. 5.06% of the collected posts highlight that a game is fair when players trust the game developers and designers to make the gameplay fair, regardless of whether players make significant in-game purchases. For example, a MTG Arena player recounted how they did not need to make significant in-game purchases to achieve progress in the game:

"I've paid \$5. I can build all the meta-decks with my current resources. I do not feel oppressed. One of the top meta decks right now is 5 non-land rares. Zero Planeswalkers. Zero non-land Mythics. There's a tier 2 deck with ONE non-land Rare."

This player expresses satisfaction and trust in the game because they believe that the game is carefully designed in a way where they can achieve in-game victories without significant in-game purchases, making the game fair for everyone.

Fairness requires resilience and skills. Although some players may find the game design unfair, they may still achieve fairness of gameplay through resilience – finding strategies to win despite the seemingly unfair dynamics of others' paid advantages. These players may also emphasize the importance of skills in gameplay, which makes the competition fair regardless of paying or not. 8.15% of the collected posts show this perspective. For example, in response to a NHL Hockey player who complained that the game was unfair to free-to-play players, another player wrote,

"I haven't spent a single real dollar, started playing in mid March, and my top three lines are all 95+ with four 99's. It's not pay-to-win if you have the patience to build gold icons and work the market."

As this quote shows, this free-to-play player relies on certain strategies to bypass NHL Hockey's pay-to-win dynamic and achieve in-game success.

Despite the potential winning advantages of in-game purchases, players might still believe that skills are the most important factor in success within a game, which makes the competition fair regardless of paying or not. These players believe that with sufficient effort and skills to progress in the game, they can beat any other type of player, including pay-to-win players. For example, in response to a NHL Hockey player accusing the game of catering to pay-to-win players, another NHL Hockey player wrote,

"It's not for pay-to-win players. You can get a stacked squad just by playing, completing objectives, and earning coins. You don't even have to work the market as much as in the previous years."

For players like this poster, with enough effort, skilled players can still overcome the seemingly unfair dynamics of paid advantages.

5.1.2 In-game Purchases Conflict with Fair Gameplay. In contrast, almost the same amount of the collected posts (29.98%, N=802) in this study express an opposite opinion. For them, in-game purchases are perceived as damaging to fair gameplay in a variety of ways.

In-game purchases lead to imbalanced gameplay. Compared to the 16.26% of the collected posts who consider their gameplay is balanced even with in-game purchases, 12.29% of the collected

posts describe that a game with in-game purchases can be imbalanced and thus unfair. They feel that a certain type of player, pay-to-win or free-to-play, has a significant advantage over the other, typically pay-to-win. For example, a Madden NFL player states that pay-to-win players, or players who make significant in-game purchases to gain advantages, have an inherent power advantage over free-to-play players, or players who spend money minimally in-game:

“The game is completely pay-to-win. If you’re no-money-spent, you have to grind hours and hours on end, basically days, to get a competitive team.”

This player is clearly dissatisfied with fairness of the game because free-to-play players struggle significantly more to achieve a competitive team than pay-to-win players. According to this poster, this particular game is supposed to be competitive in a fair way but is actually unbalanced to favor pay-to-win players.

Overpowered purchases lead to common loss to pay-to-win players. Another reason why players feel their competitive gameplay is unfair lies in how overpowered purchases make them easily lose to pay-to-win players (4.63%). This refers to when players feel that paid advantages guarantee victory over opponents. For example, a FIFA player, who lost against opponents with expensive icon players, wrote,

“Almost impossible to score against drop back Varane-Gomez when you see your opponent not even controlling his defenders and blocking every single shot. Dribbling past them doesn’t even work. You can’t pass around either. Then you get countered by some 400k Man who, even though you slide tackle with your defender who has 99 sliding tackle, doesn’t even fall and scores on the counter.”

This player implies that, during their match, their opponent’s expensive icon players, which were likely bought with in-game purchases, were overpowering anyone else who did not pay. Despite this player’s skills and efforts, there was no opportunity for them to defeat their opponent’s expensive, paid advantages.

Therefore, some players believed that they lost in the game only because their opponent’s resources were notably more valuable and expensive than theirs, which made the competition unfair. For example, this Madden NFL player recounted:

“Would be nice if they actually matched you based on OVR team value. Me and my friend have played nothing but God Squads since Friday. His offense is an 86 OVR and my defense 82. Defense definitely needs more work but every team we have faced has had several 90+ players. Nothing we can do but bend over and take it. EA needs to matchmaking similar OVR teams together so the match up is similar and not heavily favored towards one team.”

In this quote, this player believes that because the game’s matchmaking does not acknowledge the natural team power disparities between pay-to-win and free-to-play players, the game inherently favors the expensive team over the inexpensive, cheaper team. This thus introduces an unfair competitive gaming dynamic where free-to-play players often get beaten by pay-to-win players. As a result, casual or free-to-play player are often discouraged or driven away from such games, which may foster a unhealthy, unsupportive, and possible toxic gaming culture.

Unfairness due to the coerced in-game purchases that lack fair value. 8.95% of the posts highlight that their gameplay is unfair because they are forced into making in-game purchases that lack fair value. Some players perceive that the game they play forces them to pay to achieve in-game success. To be able to keep up with advancements in the game, they feel pressured to have to spend money or run the risk of being left behind by other players and opponents. A Hearthstone player stated that EA does this by *“making the game evolve by ditching the old and making new powerful stuff that is directly better, forcing people to keep buying into the new stuff to stay relevant.”* This constant state of evolution taking place within the game causes them to have a constant feeling of uncertainty about their status and ability, thus rendering their perception of unfair gameplay.

Players also feel that even if they make the in-game purchases under such pressure, there is a lack of fair value with what they received versus what they paid for. For example, players who have made in-game purchases feel that they are paying more for the game than what it is actually worth, while players who are unwilling to spend money to win feel that it takes too much of a time commitment to enjoy the game. Therefore, both types of players tend to perceive their gameplay as unfair. A Madden Ultimate player stated, *“Playing this game feels like a job. I can’t compete and build a team unless I grind like crazy or pay.”*

Gameplay becomes gambling, thus unfair. At last, many players attribute the unfairness of the gameplay to how in-game purchases may make games less like games but more like gambling (4.11%). This happens when players believe that the game is mechanized in order for players to pay without the assurance of achieving or receiving anything substantial, which makes players pay even more. Players have denoted such mechanisms across different games to make them repeatedly purchase in-game items. For example, a FIFA player stated:

“Because the way packs are, there are no guarantees. They’re lottery tickets, buying more of them does increase your chances, but it’s no guarantee you’ll win. You could put £1000 into packs, and you’ll end up with a lot of cards at the bare minimum, but it’s very possible that someone who drops nothing on the game could pack something that will get them more coins in one sale than if you sold absolutely every card you got. It’s, more accurately, pay for the chance of winning.”

According to this player, when buying card packs in FIFA, there is no guarantee of what items one would obtain or whether they would get a better value than what they initially paid or otherwise. Further, one could put in a large amount of money but end up with a low value item that they would have to trade at a better rate when a sale comes up. For players like this poster, these aspects are lose-lose strategies since they neither provide players who pay with any winning advantages nor making the competition fair and enjoyable.

5.1.3 Perceived Obstacles for Achieving Fairness with In-game Purchases. As the previous two sections show, there seems to be no consensus on whether in-game purchases can be fair or not for their gameplay. In addition to this debate, players also engage in extensive discussion on potential obstacles for achieving fairness with in-game purchases, as shown in 35.14% of the posts (N=551).

Game design that encourages pay to win with expensive items. Players often feel that the game companies design their games to be more difficult when players do not spend real money in-game, making the games work in favor of paying players over minimally paying players (21.03%). This dynamic tempts players to spend more real money in-game and makes it hard to achieve an actual fair competition if in-game purchases are involved. A FIFA player wrote:

“The game is pay to win insofar as if you are equally skilled you’re very unlikely to beat someone who has spent (somewhat intelligently) significantly more than you- that’s a pretty objective point. This is the only competitive game I’ve played where I lose and my brain wants to pull out my credit card to avoid another loss- it’s backwards as fuck.”

This instance in FIFA shows that in a fair match (where opponents are similarly skilled), the one who paid more real money would most likely win. When in-game success is based more on the value of players’ paid resources instead of players’ skill and gameplay, players spend more real money to gain in-game success over others and to be competitive.

In addition, players also feel that they have to dedicate significant portions of their in-game resources (paid or earned) to achieve in-game success. A MTG player stated,

“The parameter of ‘a pack costs 200 gems’ is not a good one. I know it’s the store price, however, I would never pay 200 gems on a pack.”

Here, this poster feels the prices of packs in the store are too expensive given how difficult it may be to acquire their resources. In this sense, while those resources may be earned without paying, it could be troublesome and tedious for players to get them at a regular rate.

In-game purchases as addiction and exploitation. Other players highlight another difficulty to achieve fair gameplay through in-game purchases is that such spending behaviors are closely related to addiction (9.85%). A Magic Arena player stated,

*"Gamblers don't *have* to gamble. Alcoholics don't *have* to drink. Smokers don't *have* to smoke. These game companies use behavioral psychology to develop mechanics that have the sole purpose of creating addictions in players, from mild to severe, in order to then be able to exploit those addictions. It says a lot about the ethics of these companies that keep forcing predatory and exploitative practices into their games and constantly trying to find ways to make them more and more effective at their intended purpose - addiction."*

This player considers the practices of implementing in-game purchases as unethical. In this poster's opinion, gaming companies create an addiction through the in-game purchases system and then go on exploiting player's addictions for profit. To them, such practices fundamentally oppose the philosophy of fair gameplay and competition, making them *"predatory and exploitative."*

Skill disparities always exist. Some players notice that there are differences in how players play and how there are varying skill disparities between opponents in a match, sometimes too vast (4.26%). As skill disparities always exist in competitive games, the role of in-game purchases in achieving fair gameplay becomes complicated. A FIFA player shared,

"I get matched fairly fast within 50-60 rating. It just doesn't seem very fair if the rating is several hundreds apart."

This player implies that matches are unfair when better players are easily matched with average to worse players. Such a difference thus makes casual or free to play players often believe that they must put more efforts into gameplay to succeed more compared to paying player. Such players state that they are willing to put in the extra work to succeed without having to pay, but do acknowledge the existence of these systems that are present in their game, such as:

"There's a spectrum between time and money when it comes to MTG Arena, you can either pay a lot to get what you want now, or pay nothing and get what you want through good old grinding spaced out every day, or you can pay some, maybe \$100 to get your gem count started and grind the rest of the way through drafts / CE."

"That's fair. I can't blame you for that. I am a psychopath who will test my limits so I grinded out 25 and will probably grind out 40 for the coins/trophies. Definitely not for everyone."

In the first quote, this MTA player acknowledges that there is a choice to not pay, but that non-paying players will have to grind more and that it will be more time consuming to succeed. In the second quote, the player who plays Madden Ultimate Team realizes that the style of gameplay for non-paying players like them may not be enjoyed by everyone.

5.2 Differences in Players' Perceptions of Fairness Across Games

In answering RQ2, we performed a one-way ANOVA to compare how players' perceptions of fairness of their gameplay when in-game purchases are involved may vary across different games. In doing so, we compared the volume of texts in which a certain perception was mentioned, thus capturing the prevalence or degree to which people discussed the given topic. Results show a statistically significant difference in the number of codes between at least two groups ($F(4, 2602) = 135.444, p < 0.001$). Tukey's HSD Test for multiple comparisons revealed that the number of mentions of fairness-related topics, which included codes that indicated lack of fairness, such as absence of fair value and overpowered purchases, as well as codes where people thought it was fair. These codes

were described in the previous section. When looking specifically at each of the games, perception of fairness was significantly different between Hockey and FIFA ($p < 0.01$, 95% C.I. = [-36.53, -26.15]); Hockey and Madden ($p = 0.016$, 95% C.I. = [.91, 13.61]); Hockey and Magic Arena ($p = 0.008$, 95% C.I. = [1.4, 14.52]); Hockey and Hearthstone ($p < 0.001$, 95 C.I. = [-19.73, -9.12]); FIFA and Madden ($p < 0.001$, 95% C.I. = [32.64, 44.57]); FIFA and Magic Arena ($p < 0.001$, 95% C.I. = [33.11, 45.49]); FIFA and Hearthstone ($p < 0.001$, 95% C.I. = [12.08, 21.76]); Madden and Hearthstone ($p < 0.001$, 95% C.I. = [-27.75, -15.61]); and Magic Arena and Hearthstone ($p < 0.001$, 95% C.I. = [-28.67, -16.10]). There was no statistically significant difference in mean values of the perception of fairness between Madden and Magic Arena ($p = .999$). To interpret these differences, we further analyzed the distributions of codes that showed stark differences across the five games and investigated potential reasons leading to such differences through qualitative analysis.

5.2.1 Why FIFA and Madden NFL are Perceived as Less Fair than Others. Across all five games, FIFA and Madden NFL seem to be perceived as less fair than others regarding in-game purchases. We identify two potential reasons for such a perception: significant power imbalances under the in-game purchases systems and unfair matchmaking.

Significant power imbalances under the in-game purchases systems. In general, FIFA and Madden NFL players believe that their gameplay is unfair because they cannot access advantageous, powerful game components without in-game purchases.

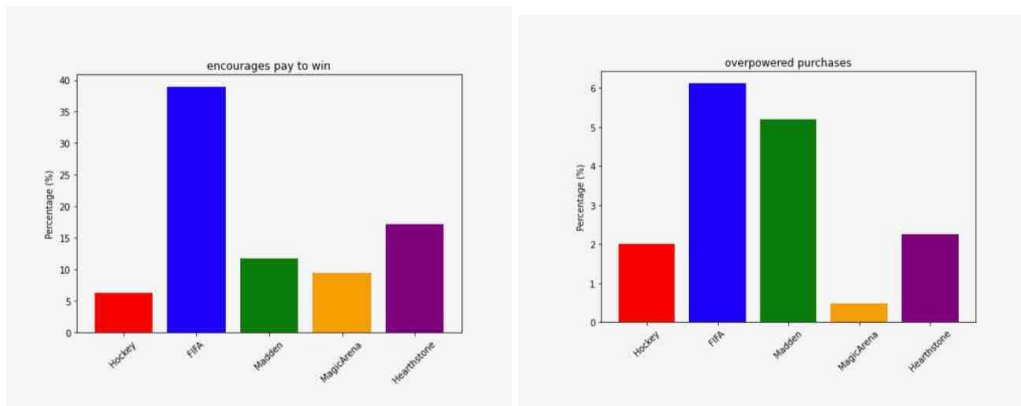


Fig. 1. Percent of posts per each game's subreddit dataset that include "encourages pay to win" code Fig. 2. Percent of posts per each game's subreddit dataset that include "overpowered purchases" code

For example, our code "encourages pay-to-win" encapsulates moments when game companies design their games to be harder for free-to-play players but easier and more satisfying when players do make microtransactions. In Figure 1, the FIFA subreddit dataset has 38.97% of the dataset posts which include "encourages pay-to-win." Such high occurrences of "encourages pay-to-win" in the FIFA subreddit dataset, compared to the other games, complement FIFA players' beliefs that the limited access to extremely strong player items forcibly influences players to spend real money for FIFA points, which can buy access to these items (this is easier than manually saving FIFA points through game progression). As a FIFA player writes, the game developers, EA, "does not want to balance the game. Their goal is to manipulate gamers to buy FIFA points. It's not that players like Varane, Ben Yedder, or Ronaldo are unintentionally overpowered. It's done to facilitate the pay-to-win aspect. So the people finding broken players isn't the problem, as EA is striving for that. That is the

problem." In this quote, this player believes that FIFA includes overpowered icons to render the game more difficult for players who lack these icons, ultimately tempting them to make microtransactions. Another FIFA player also believes this: *"I can't win versus Ronaldo and icons. Insane saves, insane defense, every shot is a goal."*

Similarly, our code "overpowered purchases", captures moments when players feel that paid advantages guarantee victory over opponents. In Figure 2, the FIFA subreddit dataset has 6.13% of the dataset posts coded as "overpowered purchases", and the Madden NFL subreddit dataset has 5.19% of the dataset posts with this code. The high occurrences of "overpowered purchases" in the FIFA and Madden NFL subreddit datasets, compared to the other games, support FIFA and Madden NFL players' common beliefs that in-game purchases heavily determine in-game success and victories and overwhelm players' skills and gameplay. A Madden player wrote,

"Now, we have to get the ability. Otherwise, a lower overall player with abilities will win. It's garbage and sad that not many players see that. Yes some abilities are good but you shouldn't have to pay to add them on. Should just be there when a player reaches a certain overall. It's just annoying. Feels like players have super powers now."

In this example, the Madden NFL player complains that in order to gain abilities that seem vital to in-game success, players need to purchase them with real money; otherwise, achieving in-game success seems unjustifiably difficult. This quote thus shows the pay-to-win dynamic where in-game purchases, instead of players' skill and gameplay, heavily determine in-game success. This dynamic is also shown by what a FIFA player wrote:

"Once you use the expensive defenders, it's no longer manual. Defenders auto block everything, intercept everything, and react faster than your attackers. It's no more manual at that point. It's so pay-to-win, and it's so wrong. The game is just a boring, infuriating mess."

According to this player, expensive resources will cause in-game success and victory in an automatic, effortless fashion. This dynamic is infuriating for players who spend money minimally because regardless of their effort, skill, and gameplay, they will find achieving significant in-game success to be unjustifiably difficult without valuable and expensive in-game components. This dynamic is explained by another FIFA player:

"Almost impossible to score against drop back Varane-Gomez when you see your opponent is not even controlling his defenders and blocking every single shot. Dribbling past them doesn't even work. You can't pass around either. Then you get countered by some 400k Man who, even though you slide tackle with your defender who has 99 sliding tackle, doesn't even fall and scores on the counter. They need to nerf AI defending."

In summary, in FIFA and Madden NFL, the quality and value of players' in-game resources influence the AI gaming systems, which make the matches easier or more difficult for certain players. The gaming systems seem to work heavily in favor of players with expensive and valuable resources and against players without.

Unfair matchmaking. Another reason for the perceived unfairness of FIFA and Madden lies in the observation that the games' matchmaking processes do not acknowledge the disparities (regarding value of resources and skill) between opponents, thus creating unfair matches. In this case, players believe that games lack competitive integrity when the games' matchmaking processes do not acknowledge the inherent power disparities between pay-to-win and free-to-play players.

For example, our code "gets beaten by pay-to-win players", represents moments when players feel that they lost a game because their opponent's resources were notably more valuable and expensive than theirs. In Figure 3, the Madden NFL subreddit dataset has 3.46% of the dataset posts including this code. The high occurrences of this code in the Madden NFL subreddit dataset,

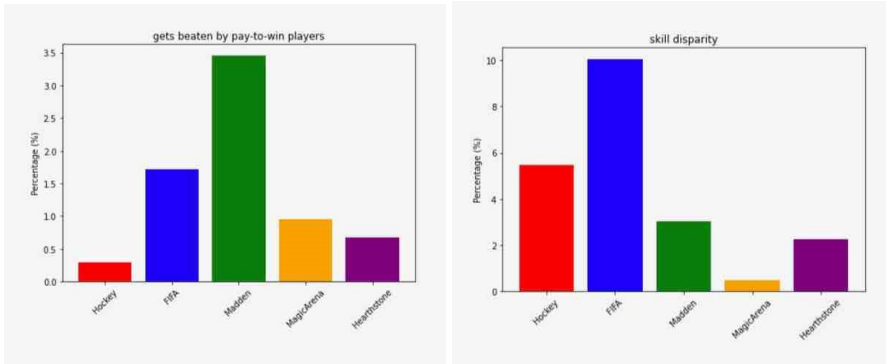


Fig. 3. Percent of posts per each game's sub- reddit dataset that include "gets beaten by reddit dataset that include "skill disparity" pay-to-win players" code

compared to the other games, complement Madden players' perceptions of unfair gameplay in this game. A Madden NFL player wrote,

"Would be nice if they actually matched you based on OVR team value. Me and my friend have played nothing but God Squads since Friday. His offense is an 86 OVR and my defense 82. Defense definitely needs more work but every team we have faced has had several 90+ players. Nothing we can do but bend over and take it. EA needs to matchmake similar OVR teams together so the match up is similar and not heavily favored towards one team."

According to this poster, Madden NFL's matchmaking process does not ensure that players are playing against teams of similar strength, and there are many instances where players with access to only low-level teams are being matched with players with access to high-level teams (with these high-level teams occurring through high levels of investment, time-wise and/or money-wise). Therefore, many find Madden NFL's matchmaking process to be generally unfair towards free-to-play players because free-to-play are more likely to have weaker teams when matched against others. This happens because they do not pay for direct access to stronger team components and need to manually save in-game currency through game progression to afford stronger team components, which is more difficult and time-consuming [22]. However, regardless of minimally paying players' efforts, they struggle to remain competitive with other players.

The problems associated with this in-game matchmaking dynamic are also amplified by the high occurrences of the "skill disparity" code in the FIFA subreddit dataset, compared to the other games. In Figure 4, the FIFA subreddit dataset has 10.07% of the dataset posts including this code. Two FIFA players talked about how their ranking was vastly different from their opponents':

"I only managed to get gold 3, while I normally average around gold 1/elite 3. I messaged some of my opponents as I felt the matchmaking was not right and guess what. I was matching 18-1 opponents when I was 13-11. How is that even fair?"

"If I play people of similar skill but have a worse set of players then obviously 9/10 I'd lose. Especially when those players are worth millions of coins compared to my cheap team. As you progress in [Weekend League] you play players of similar skill level and that's where the players come into play. The issue is when you're similar skill level, then team plays a massive factor unless you have evenly matched squads. So yes UT is pay to win, that's why pros pump thousands in so they get the very best players early on."

These examples thus show that when opponents of similar skill are matched, the value and quality of one's resources (team, in this case) determines who wins the match, instead of the nuances in player skill. Players are generally dissatisfied with this dynamic because it seems unfair to them - in a match with similarly skilled opponents, players' resources determine in-game victory, instead of their skill and gameplay.

5.2.2 Why Hearthstone is Perceived as Relatively Fair Compared to Others. Across all five games, Hearthstone seems to be perceived as relatively fair regarding in-game purchases compared to others, especially for two reasons. First, in-game purchases do not overwhelm players' skills; and second, strategies exist for casual, free-to-play players to reach competitive success.

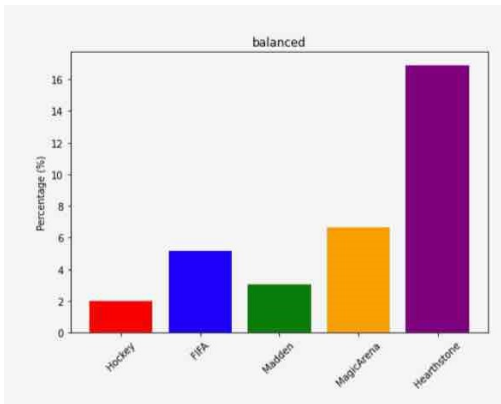


Fig. 5. Percent of posts per each game's subreddit dataset that include "balanced" code

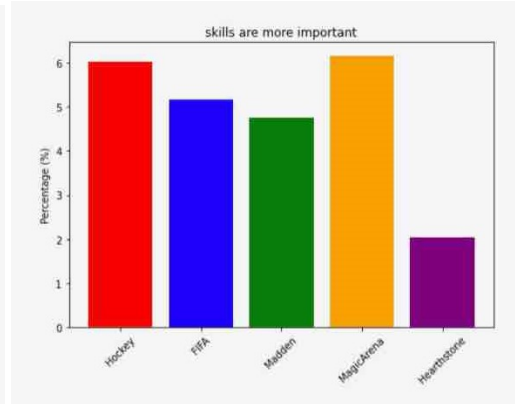


Fig. 6. Percent of posts per each game's subreddit dataset that include "skills are more important" code

In-game purchases do not overwhelm players' skills. In general, Hearthstone players perceive their gameplay as fair because their skills may equally influence their in-game success as the advantages of in-game purchases.

For example, our code "balanced" encompasses the notion that players feel that no type of player, pay-to-win or free-to-play, has a significant advantage over the other. In Figure 5, the Hearthstone subreddit dataset has 16.89% of the posts including this code. Such high occurrences of "balanced" in the Hearthstone subreddit dataset, compared to the other games, complement Hearthstone players' beliefs that winning in Hearthstone is influenced by the value of one's cards and resources (which can be increased through using micropayments); but equally, winning can be influenced by skill. Many Hearthstone players believe that, in Hearthstone, the advantages of micropayments (more advanced cards) do not overwhelm players' skill. A Hearthstone player wrote,

"Cards are not the gameplay of the game. The gameplay of the game is based around ranking and leveling. If cards are the way that YOU view the gameplay of the game, then that's your own decision but that's not the model of how the game is built. WINNING is how the game is made to be 'played'/'won'. You say pay-to-win but Hearthstone is not pay-to-WIN, it's pay to OWN THE FULL COLLECTION."

This player argues that Hearthstone players make microtransactions mainly for impressive, expensive cards for card collection purposes. This player also implies that players' high quality and valuable cards do not overwhelm their opponents' skill and do not significantly increase players' chances of winning over their opponent. Two Hearthstone players added:

"Hearthstone is pretty good at not being pay-to-win, as card games go. If you search 'budget decks' on this subreddit, you'll get many results that are competitively viable and have no Epic or Legendary cards, making them easy to craft with little to no real money."

"Several people have shown you can make a new account and get to legend in less than a day. Of course, that requires a very large amount of play experience and game knowledge that a real new player wouldn't have but proves that it is obviously not pay-to-win."

These quotes highlight that a Hearthstone player can still achieve competitive success without impressive, expensive cards ("Epic or Legendary cards"). Despite the inherent advantages of impressive, expensive card collections, there are knowledge that helps players win and be competitive against any other player while spending "little to no" amounts of real money.

In addition, though Hearthstone shows high occurrences of the "balanced" code, it has low occurrences of the "skills are more important" code. This refers to instances when players feel that their skill is the driving force behind in-game success, regardless of external factors such as paid advantages. In Figure 6, the Hearthstone subreddit dataset only has 2.03% of the dataset posts including this code. In this sense, Hearthstone players seem to believe that while there are inherent advantages to in-game purchases, no group of players (pay-to-win players or free-to-play players) have a significant advantage over the other. A Hearthstone player wrote:

"If you're a bad player, paying money isn't going to make you good. If you're a good player, paying money isn't going to make you better. All you need to win is a tier 1 aggro deck. Or any tier 1 deck. The rest is down to the player. Is grinding one deck for months fun? Probably not for most people but this is about winning not fun."

As this poster shows, achieving a competitively viable deck is more time-consuming for free-to-play players (compared to pay-to-win players); but after free-to-play players have achieved this competitively viable deck, they can be equally competitive as other players. In Hearthstone, after reaching a certain point in game progression, the quality and quantity of one's card collection does not overwhelm the significance of skill.

Therefore, the low occurrences of "skills are more important" code and high occurrences of "balanced" code in the Hearthstone subreddit dataset mirror the notion that there are inherent in-game advantages to in-game purchases in this game. However, players who do not make these purchases still have a chance to achieve in-game success equal to any other type of player, thus deeming Hearthstone as a fair game.

Strategies for casual, free-to-play players to reach competitive success. Another reason that Hearthstone players perceive their gameplay as fair is because the game offers opportunities and strategies for casual, free-to-play players to achieve competitive success, equal to any other type of player.

As we have shown in Figure 1, the Hearthstone dataset has significantly lower distributions of the "encourages pay to win" code than FIFA. A Hearthstone player recounted how they did not want to spend a lot of money on Hearthstone, writing,

"You think BGs are way more fun and would rather play that exclusively BECAUSE it is free to play, and standard is pay-to-win. I stopped playing standard for a year, came back, and realized I was going to have to spend upwards of \$100 to get packs to build a couple meta decks. Plus, going into casual with an absolute shit deck and still being able to win is some of the most fun I've had in HS."

In this example, the player defends Hearthstone's fairness by noting that Hearthstone has a game mode that is friendly to free-to-play and other minimally paying players.

Another Hearthstone player discussed how they found satisfaction in Hearthstone without making any purchases:

"I took the rope approach. I've had two people give up because the game took very long. I would love to play normally but sadly, the HS community and Blizzard hate shaman. I'm OBLIGATED to use the roping strategy and basically hold people hostage and bore them so I can get a win. Playing normally is unwinnable, whatever the deck. And yes, I'll keep roping. Instead of winning 3 games, I'll hold people hostage so they win only one."

As this quote shows, this free-to-play player continues to play Hearthstone despite noting the inherent advantages that regularly paying players have. They have found a "roping strategy" that allows them to progress in the game and enjoy in-game success.

6 DISCUSSION

Table 2 summarizes our main findings. Grounded in these findings, in this section we discuss the implications of this study for extending our understanding of consumer ethics and *fairness* in competitive online games. We also further explicate the emerging ethical dilemmas surrounding competition, spending, and enjoyment in modern digital gaming, which may inform future opportunities for designing digital consumption for fairer, healthier, and more ethical gaming dynamics.

Table 2. Summary of Key Findings

Findings	Highlights	Themes
Diverse Perceptions (RQ1)	<ul style="list-style-type: none"> • Functional in-game purchases can still be fair 	<ul style="list-style-type: none"> • Fairness lies in balanced gameplay • Fairness is achieved through the trust between players and developers • Fairness requires resilience and skills
	<ul style="list-style-type: none"> • In-game purchases conflict with fair gameplay 	<ul style="list-style-type: none"> • In-game purchases lead to imbalanced gameplay • Overpowered purchases lead to common loss to pay-to-win players • Unfairness due to the coerced in-game purchases that lack fair value • Gameplay becomes gambling, thus unfair
	<ul style="list-style-type: none"> • Perceived obstacles for achieving fairness with in-game purchases 	<ul style="list-style-type: none"> • Game design that encourages pay to win with expensive items • In-game purchases as addiction and exploitation • Skill disparities always exist
Differences across Games (RQ2)	<ul style="list-style-type: none"> • FIFA and Madden NFL are perceived as less fair than others 	<ul style="list-style-type: none"> • Significant power imbalances under the in-game purchases systems • Unfair matchmaking
	<ul style="list-style-type: none"> • Hearthstone is perceived as relatively fair compared to others 	<ul style="list-style-type: none"> • In-game purchases do not overwhelm players' skills • Strategies for casual, free-to-play players to reach competitive success

6.1 New Perspectives of Fairness in Online Gaming through the Lens of In-game Purchases

Our findings highlight consumers' (players') diverse ethical judgments regarding the increasingly popular monetization mechanisms in modern gaming. Some posts report functional in-game purchases as unfair and questionable, which reflects the unethical nature of monetary dark patterns in game design [42, 48]. In contrast, almost the same amount of posts still consider functional in-game purchases acceptable and fair, citing various factors. Some of these factors echo prior scholarship on consumer ethics. For example, building trust between players and developers (e.g., forming a positive attitude towards the business) seems to motivate players to perceive their in-game purchases as fair, thus ethical [43, 44]. Some other factors appear to be unique to the gaming context. For instance, whether or not the competition is balanced, whether or not alternative strategies to win exist, and whether or not player skills are still the most important in gameplay are crucial for players to make ethical judgments about their in-game purchases. These considerations qualitatively differ from common factors such as the role of buyer/seller, the possibility of direct harm, and the legal implications as reported in prior research in consumer ethics [43, 44]. Our findings also highlight the importance of *equal access* when understanding fairness in gameplay [24, 32]. Players of competitive online games tend to consider a game "fair" if they can equally access certain valuable resources or items, or if they can equally have a chance to win based on their time investments or skill levels, regardless of paying or not.

Therefore, this study provides several new perspectives of fairness in competitive gameplay when in-game purchases are involved. First, fairness in online gaming depends on *various forms of power dynamics*. In-game purchases may balance or imbalance such power dynamics, which creates perceptions of fair or unfair gameplay. Such power dynamics may exist between players and game companies, between players with various skill levels, or between players with access to different resources. For example, as mentioned above, whether the player trusts the game company and its intention to ship and maintain a "fair" game leads to their perception of fairness or unfairness of their in-game purchases (e.g., in-game purchases are necessary to maintain a fair game rather than creating unfair gameplay). Therefore, a transparent and more open communication between the game company and the players regarding the goal of in-game purchases might contribute to a more positive perception of the game itself (e.g., fair). In addition, the matchmaking processes, usually in sports games, tend to create inherent in-game power disparities between players with various skill levels and resources (e.g., matching novice players with more advanced, veteran players). These power disparities are even more evidence when the algorithms match pay-to-win players (make significant in-game purchases to gain advantages) and free-to-play players (spend money minimally in-game). Similar to prior research [22], we also found that pay-to-win players are way more likely to have better resources and items than players who spend minimally in-game. In this sense, in-game purchases in fact escalate the unbalanced power dynamics between different players, thus leading to the perception of unfair gameplay.

Second, fairness and in-game purchases can *co-exist* in online gaming. Though previous studies seem to indicate that it is significantly challenging to achieve a fair play if in-game purchases are involved [24, 32], our findings point to possible ways to achieve this co-existence. For example, we have highlighted an underlying contrast between sports games and card games. In sports games, players' skills and gameplay are directly influenced by their resources. Yet, in fantasy card games, players' skills and gameplay are independent from the cards they use. In other words, players of sports games may find it harder to manually score against an opponent with stronger, more expensive in-game items. In contrast, players of card games may rely on their skills to overpower opponents with stronger, more expensive cards. In this sense, a fair gameplay can still be achieved

if in-game purchases do not significantly interfere with the role of skills and strategies in the gameplay (e.g., matching opponents of very similar skills and resources). Creating this dynamic may boost players' satisfaction with fairness and competitive integrity of these games, as players can often tolerate losing a match as long as they perceive it as fair.

Third, fairness of gameplay is *intertwined* with fairness of in-game purchases. Our findings show that whether a certain purchase is perceived as fair or unfair can directly affect whether a game is perceived as fair or unfair, regardless of the players' actual performance in the game. In other words, if a player believes that their money is well spent when buying certain in-game items, that player also tends to consider the game and their gameplay as "fair," and vice versa. This observation thus leads to new considerations regarding how to better define and approach "fairness" in competitive online gaming. For example, when in-game purchases are involved, whether a game is perceived as fair depends on (1) how balanced, equal, and just the gaming dynamics are designed and; (2) how the transaction process and outcomes of the transaction are perceived as fair in the actual gameplay.

6.2 The Ethical Dilemmas Surrounding Competition, Spending, and Enjoyment in Competitive Gaming

Another uniqueness of this study lies in our focus on sports and card games as our research context. These games are popular and understudied, which emphasize intense competition between players, and eventually, winning. Therefore, the enjoyment of playing these games largely depends on accomplishing tasks and victories. While players of these games need to compete with each other and aim for winning, they also have the opportunity to choose whether they would invest monetary capital to fuel their competition and gain advantages over their opponent. This intertwining relationship between competition, victory, and enjoyment thus makes in-game purchases in these games even more complicated: spending in these competitive online games is not only for win but also for fun [9, 17, 31, 45]. Given the various modes of spending that players may do in competitive games (e.g., cosmetic and functional) [5, 17, 23, 25], how to achieve both a fair competition and an enjoyable gaming experience seems to introduce ethical dilemmas for both game designers and game players.

For example, our data has shown that while there are players who believe that in-game purchases dampen their ability to enjoy the game and the competition, there are plenty of others who either do not have a problem with it or outright deny that there is an issue at all. Players also differ in views on what they consider as ethical or unethical in the revenue model that a certain game utilizes. There are players who would argue that a different revenue model should replace current ones. Or they would prefer a model that only offer cosmetic in-game purchases so that players who pay would not have an advantage against those who do not pay. We have players who think that purchasing functional items are in the discretion of those who can afford to buy them. Yet, we also have players who insist that everyone must not commit or at least keep their in-game purchases at minimum to still be considered as a fair and ethical player.

In this sense, our study sheds light on new dynamics and ethical considerations in spending and enjoyment in competitive online games. We understand that the interplay of spending and enjoyment goes far beyond a simple, linear relationship. Our data show that certain sports games are designed as the more one spends, the more likely one will win (e.g., FIFA). However, this does not mean that pay-to-win players will have higher enjoyment. Because they feel they are forced to pay, they tend to consider the in-game purchases system unethical, which leads to negative play experiences [48]. In some other games (e.g. Hearthstone), players work around the in-game purchases systems to enjoy the game without spending. These insights thus lead to the implication that in-game purchases may become a double-edged sword for both the game company and the

players. If in-game purchases are perceived as fair and thus ethical, it will act as a win-win strategy. This means generating revenues for the game company and providing players with better gaming experiences. If they are perceived as unfair and thus unethical, they will become a lose-lose strategy. This means that players are unwilling to pay, which generates no or little revenue for the game company. Players may also perceive the game as unfair and unsatisfactory because their gaming experiences are not necessarily better. These insights point to the need for future research on how these ethical dilemmas surrounding competition, spending, and enjoyment should be taken into account when designing a fair, ethical, and satisfactory gameplay by leveraging in-game purchases.

6.3 Limitations and Future Research

This study has several limitations. First, we only used data from a prominent internet forum, Reddit, where the users demographics are skewed: its three top countries in terms of users is United States (221 million users) followed by Australia (17.55 million users) and India (13.57 million users) [13]. In terms of ethnicity, Reddit's user base is 17% White, 17% Black, and 14% Hispanic [8]. Therefore, we may not have captured a broad spectrum of players' perception of fairness of gameplay through in-game purchases in sports and card games. Second, our data seem to lean towards more negative opinions (seventeen codes in total), as opposed to positive and neutral ones (eight codes). However, this presents an opportunity for future studies on a deeper and more comprehensive view of various opinions pertaining to fairness of gameplay when in-game purchases are involved. Third, we chose the top, most popular sports games to ensure they are comparable. However, this may also lead to a potential limitation as they all are EA games. Our future work will involve including more diverse competitive games to better represent the general player base. Our findings based on content analysis is also limited to the scope of the collected textual data itself and our search queries. For example, the collected textual data may lack the richness of context and the generalizability to explain all possible perceptions of fairness in competitive online games. We also did not include other common forms of expressions in our search queries, such as "P2W" in addition to "pay to win." Future research will be needed to further verify findings from our content analysis by using different data sources and data types.

7 CONCLUSION

When it comes to in-game purchases in competitive online games, players have different perspectives regarding whether or not it is fair for the games to allow purchases of items that help enhance gaming performance. Through an analysis of Reddit posts spanning five popular sports and card games, we were able to analyze a wide range of players' perceptions and ethical judgments of the interplay of in-game purchases and fairness in competitive gaming. This suggests that there is yet no consensus regarding fairness of gameplay in competitive gaming that allows in-game purchases. This thus indicates that game designers, developers, and companies may need to walk a fine line between providing players with enjoyment and healthy competition dynamics, while still maintaining enough room for skills to matter more than the benefits of players' spending. Furthermore, our findings highlight that fairness of purchasing was strongly intertwined with fairness of other aspects of gameplay, which were strongly influenced by the game genre and game mechanics. We believe that these findings highlight the emerging ethical dilemmas surrounding competition, spending, and enjoyment in modern online gaming, which will help design fairer, healthier, and more ethical gaming experiences that also fulfill players' expectations to compete and win.

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