Exploring Consumption Behavior of Digital Assets in Esports: The Influence of Esports Identification

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Abstract

Digital assets have garnered widespread attention for their potential to generate revenues. Grounded in innovation diffusion theory, this study investigated the adoption behavior of esports consumers as it pertains to the application of digital assets, especially non-fungible tokens (NFT) in-game items (i.e., virtual skins and items). The purpose of this study was to explore the relationships among innovation adoption, esports identification, and purchase intentions. With a sample of 309 esports gamers, confirmatory factor analysis and structural equation modeling were performed to test the measurement and hypothesized paths using R-Studio. The results revealed that the innovation adoption of digital assets had a significant impact on purchase intentions. In addition, esports identification was positively associated with purchase intentions, and the moderating effect of esports identification was identified. This novelty of digital assets such as NFTs and their increasing popularity in digital culture will continue to shift public perceptions of digital assets in esports industries. This study has originality and value in that it sheds light on the impact of the adoption behavior of esports consumers in relation to NFT-based in-game items.

Keywords: digital assets, non-fungible tokens, virtual game items, esports identification

Introduction

Digital assets, initiated by the Bitcoin protocol in 2009, are computer-coded transactions validated through consensus algorithms and encompass a wide range of forms, including video highlights and virtual items sold in games (Kaal, 2020). Digital assets have emerged as a significant trend in sports industries in recent years (e.g., non-fungible tokens and fan tokens; Nelson, 2021). To this end, the digital asset market

has evolved through rapid growth and ongoing shifts driven by new asset creation (Kaal, 2020). Professional sports leagues and brands have begun exploring digital asset platforms, creating unique digital memorabilia that allows fans to own distinctive, verifiable digital items (Colicev, 2023). For example, video highlights of iconic sports moments and digital representations of sports merchandise have gained traction among collectors and fans. Furthermore, esports consumers have exchanged digital assets (e.g., in-game items or skins) for cash or alternative digital currencies (Greer et al., 2019; Hing et al., 2022). In-game items (e.g., weapons) directly affect its gameplay performance, whereas skins are virtual items that "provide cosmetic alterations to a player's weapons, avatar, or equipment used within the game" (Gambling Commission, 2017, p. 17). Trading digital items (e.g., skins) in various financial transactions has already become prevalent within esports settings (McLeod, 2017).

Within the new ecosystem in the esports industry, a non-fungible token (NFT) has emerged as a popular digital asset for its consumers. NFT is a cryptocurrency or digital collectible that utilizes blockchain technology to ensure the ownership of digital assets and goods (Kanellopoulos et al., 2021). NFTs can represent a diverse digital ecosystem encompassing virtual environments, collectables, works of art, and digitalized characters regarding sport, entertainment media, and esports gaming (Król & Zdonek, 2022). Various sport industry companies (e.g., professional sport leagues) have incorporated NFTs into their business models by offering NFTs to consumers, including esports consumers.

NFTs in the esports industry are conceivable in that their influence will inevitably permeate games in already-established virtual economies. Esports games in which player trading and marketplaces exist, such as CS:GO, Dota 2, Fortnite, Rocket League, Team Fortress 2, and PUBG: Battlegrounds, have already exhibited the dynamic digital economic behaviors demonstrated by their player bases. Some esports organizations, such as Team Liquid (2024), have formed strategic partnerships with blockchain-based gaming developers to adapt to such developments. The demand to replace in-game items, such as skins, with NFTs is particularly prevalent within the community of CS:GO players, which possesses a robust digital economy centered around the trading of such skins.

After all, game items and skins based on the NFTs would provide key esports stakeholders real-world value through blockchain-controlled digital assets (Pizzo et al., 2022). Given this phenomenon, NFTs represent a good alternative for reducing the game publishers' control over a game; they also incentivize game developers to add better features. Furthermore, NFTs can offer monetary benefits to esports consumers who can legally take part in the trade of in-game items with a transparent transaction (Muthe et al., 2020). Given that esports has continued to consider advancing the esports environment by adopting various state-of-the-art technologies (e.g., NFTs for in-game items), it is warranted to explore how esports consumers perceive the application of NFTs to better understand the dynamics of digital asset utilization within the esports community.

Accordingly, the current research aims to fill the gaps in knowledge on esports consumer adoption behavior pertaining to digital assets such as NFT items and skins by adopting Diffusion of Innovation Theory (DOI; Rogers, 2003). In addition, this research examines the interaction effects of esports consumers' perceived identification, defined as the degree to which individuals associate themselves with esports, either as fans or consumers, with esports as a moderator in the relationship between innovation adoption and purchase intention. It is conceivable that highly identified esports consumers are more likely to view digital assets as valuable extensions of their esports experience, leading to greater willingness to adopt the innovative digital assets and stronger intentions to purchase them. Jang et al. (2021) supported the notion that esports identification would affect their consumptive intentions in the context of esports. Their study identified esports consumers who highly identified had a significant relationship with their behavioral intention. To further understand the role of the consumers' perceived identification with their favorite players in esports consumer adoption behavior of digital assets in gameplay, this study also

examined the moderating role of esports identification in the relationship between innovation adoption and intentions to purchase the products.

Innovation Adoption: Diffusion of Innovation Theory

Rogers (2003) defined innovation as an idea, practice, or object that an individual or another adoption unit perceives as new. He also proposed the Diffusion of Innovation Theory (DOI), which suggests that an innovation's attributes can influence its acceptance or rejection. In DOI, innovation adoption is characterized by five attributes—relative advantage, complexity, compatibility, observability, and trialability. How esports consumers perceive these attributes will likely determine their behavior toward adopting NFT items and skins. First, referring to the degree to which an innovation is perceived as better than the current idea, relative advantage is a simple yet powerful predictor of innovation adoption (Min et al., 2018). The perception of an innovation's relative advantage may vary depending on the nature of the industry. In the case of esports, consumers may perceive NFT items and skins as superior to the existing ones, leading to a higher likelihood of purchasing them.

Second, compatibility is the degree to which an innovation's perception is consistent with individuals' needs, values, beliefs, and past experiences (Acikgoz et al., 2023). If esports consumers perceive that the emerging application of NFTs is compatible with their needs, beliefs, or values, they are more likely to adopt it. Third, complexity refers to the perceived difficulty end-users may face in understanding and using innovation. Therefore, according to Rogers (2003), complexity negatively impacts the decision to adopt an innovation. As blockchain-based NFTs may be challenging to comprehend, end-users' need for understanding may hinder their adoption (Hartley et al*.,* 2022). Nonetheless, esports consumers may not need to fully comprehend the technical aspects of using it, as they may perceive the technology's complexity as an advantageous feature. This tendency is more so for high-technology products, such as blockchain-based NFTs.

Fourth, observability refers to the extent to which an innovation's outcomes are easily evident to potential users. As observability is closely related to the time of innovation diffusion, Hartley et al. (2022) excluded blockchain's observability from an innovation's attributes since it is too early to observe its benefits for others. Lastly, trialability refers to the extent to which an innovation can be tested before adoption. Previous research has identified that potential users are more likely to be attracted if they are allowed for several trial periods, and those with pre-experience will positively affect their perceptions of adopting the innovation (Chung, 2014). As NFT items and skins are relatively new and unique, esports consumers may want to experiment with their usage before committing to them.

Innovation Adoption Influencing Behavioral Intentions

IDT posits that the causal effects of innovation attributes influence innovation adoption behaviors, with mediation through global motives such as innovation attitudes. Uhrich (2020) contends that understanding consumers' attitudes adds depth to our comprehension of the dynamics of reasons and behavioral intentions, offering insight into how adoption factors align with subsequent attitudes. In light of this, IDT enables scholars to investigate the cognitive connections between adoption factors and behavioral intentions. Behavioral intentions are defined as "the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior" (Warshaw & Davis, 1985, p. 214). In the context of this study, esports consumers' behavioral intention is centered on the purchase of NFT items and skins.

Research Hypotheses Development

The impact of innovation on purchase intentions. According to the DOI, five innovation adoption factors, including relative advantage, compatibility, complexity, observability, and trialability play pivotal

roles in influencing consumer behavior (Yuen et al., 2021). In addition, Uhrich (2020) investigated that innovation adoption can comprise multiple elements (e.g., perceived ease of use) affecting individuals' attitudes and behavioral intentions. Chou et al. (2023) investigated esports consumers' consumption patterns regarding in-game items and identified the impact of psychological factors on purchase intentions. Consequently, our hypothesis posits that esports consumers' perceived innovation adoption will positively influence their intentions to purchase NFT items and skins. Thus, we posit the following hypotheses:

H1: Innovation adoption will influence their purchase intentions.

Esports identification and purchase intentions. In general, team identification is referred to as sport fans' attachment with their favorite sport teams. Team identification has widely been examined in the context of sport management and frequently found that there is a positive relationship between identification and behavioral intentions (James & Trail, 2008). More recently, team identification has been defined as "an individual's self-concept, based on the emotional value attached to that membership, and the knowledge of, engagement with, and evaluation of the community itself " (Heere, 2016, p. 216). Individuals exhibiting higher levels of identification demonstrate a more pronounced sense of belongingness to the entity (Wann & Branscombe, 1993).

Following the recent definition of team identification, the current study applies the concept of team identification to the esports context, as esports identification is esports consumers who identify with an esports entity (e.g., their favorite esports teams or players). Esports identification has emerged as a crucial element in understanding esports consumer behavior (Hwang et al., 2024). In the dynamic realm of esports, NFTs can offer novel opportunities for the creation of personalized, exclusive in-game assets that enhance the overall immersive experience of esports experiences. For highly identified esports fans, the item could symbolize a deeper form of engagement, reflecting personal involvement in the esports community. Additionally, highly identified fans are likely to perceive the adoption of innovative technologies, such as NFTs, as a means to further express their identity and elevate their interaction with esports. In this sense, NFTs may not only enhance the esports consumer experience but also reinforce the consumer's psychological and social connection to esports, ultimately impacting their purchase intentions. Therefore, we posit the following hypotheses:

H2: Esports identification will influence their purchase intentions.

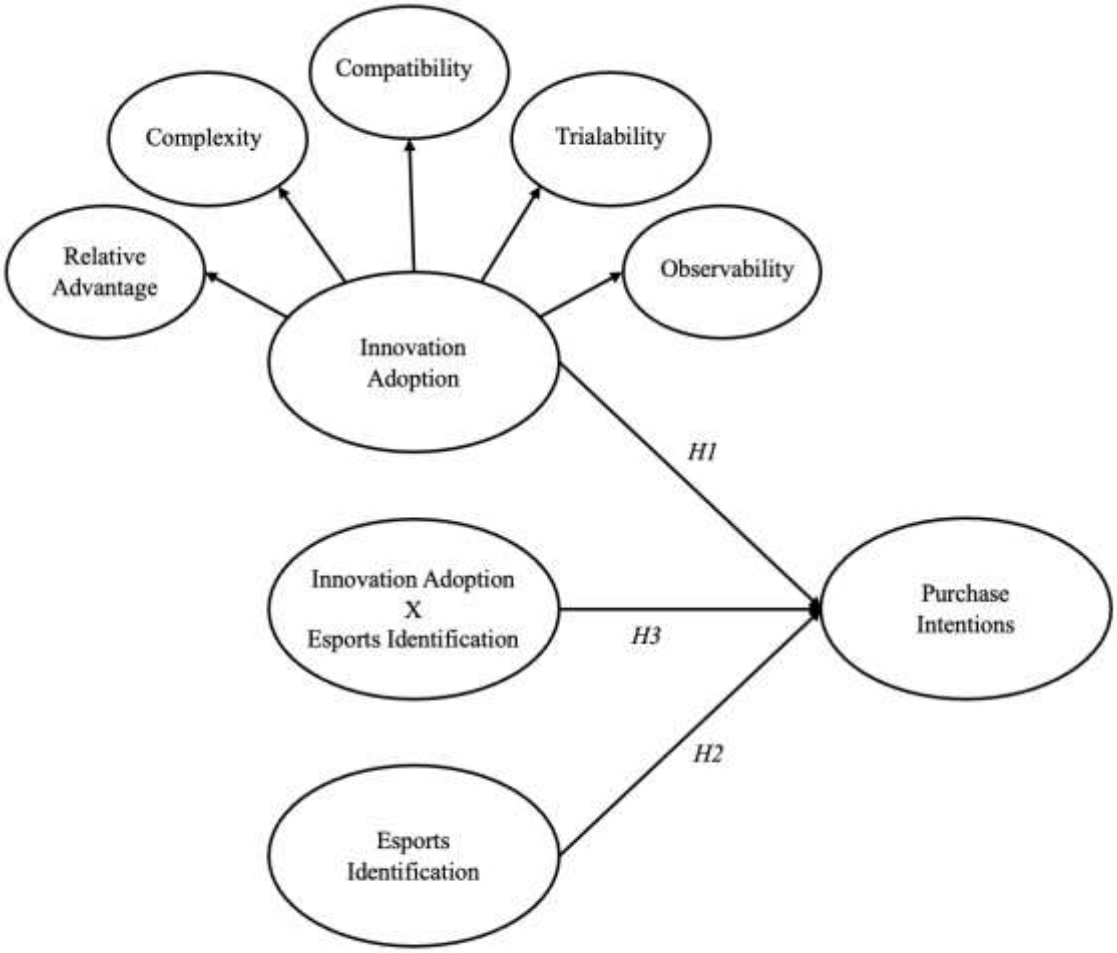
Moderating role of esports identification. Despite the importance of understanding esports identification in the context of esports, this concept has not been widely investigated. Recently, Kim et al. (2022) and Hwang et al. (2024) examined the impact of team identification on behavioral intentions. However, their studies focused on esports spectators' perceptions rather than esports consumers who play and trade game items in their favorite esports games. Thus, it is important to further explore the aspect of team identification in the esports setting. Whereas the results of Hwang et al.'s (2024) study found that sport esports fan's team identification influenced their team loyalty and attendance intentions, the interaction between innovation adoption and identification was not tested. The significance of examining the moderating role of esports identification lies in the understanding that it fosters a psychological connection influencing how esports consumers perceive, process, and respond to innovation adoption. This, in turn, influences the strength and direction of the relationship between innovation adoption and purchase intentions. Such insights are valuable for esports organizations seeking to better understand and segment their consumer profiles. In a similar vein, Zhang et al. (2012) explored how individual perceptions moderated the adoption of mobile commerce innovations. While the present study hypothesized esports identification as an antecedent of behavioral constructs (see Figure

1), it is also expected that the interaction effect with innovation adoption will influence behavioral intentions. For this reason, we posit the following hypotheses:

H3: The interaction effect between innovation adoption and esports identification will influence purchase intentions.

Figure 1

Model of esports consumers' adoption of NFT items and skins



Methodology

Sample and Data Collection

Institutional Review Board approval was obtained in 2022 to conduct the current study. An online survey was created in Qualtrics to gather data for this study. Participants were recruited using a convenience sampling method through Amazon Mechanical Turk (MTurk; Chandler & Shapiro, 2016). MTurk is a crowdsourcing web service that enables individuals to participate in research studies (e.g., surveys). To

ensure that the researchers collected the data from the study's target population, several filtering questions were employed. Participants were asked about their engagement with esports games, including weekly playing time and favorite game titles. These titles were cross-referenced with a list of esports tournaments or events (Esports Earning, 2022). Respondents who reported playing non-esports games were excluded from the study. The final sample consisted of 309 participants. Demographics showed that most participants were male (*n* = 195, 63.3%) and Caucasian (*n* = 246, 79.9%), with an average age of 35.14 years. In addition, about 62.7% of them hold a bachelor's degree, and 30.5% possess a master's and/or doctoral degree.

Instrument

The measures of relative advantage, complexity, compatibility, trialability, and observability were used with 19 items in this study. Relative advantage and complexity were each measured using four items adapted from Al-Jabri and Sohali (2012). A five-item measure of compatibility was adopted from Malik et al. (2021). To measure trialability, three items were adapted from Tan and Teo (2000). Observability was measured with Atkinson's (2007) three items. Purchase intentions were measured with Erkan and Evans' (2016) three items. A three-item measure of the identification scale was adopted and modified to the current context (Wu et al., 2012). All items were measured on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Single-item measures have gained preference over multi-item measurements in the sport management literature (e.g., Trail et al., 2023; Ko et al., 2023). Also, this approach eliminates the redundancy often associated with multi-item measures, where respondents may be required to answer similar questions repeatedly for a single construct. Bergkvist and Rossiter (2007) support the efficacy of single-item measures in maintaining data quality while streamlining the survey process. For this reason, this study first tested a measurement model using the original multi-measurement items, followed by the utilization of a single-item measure of innovation adoption.

Data Analysis

Using the lavaan (version 0.6–11; Rosseel, 2012), tidyverse (version 1.3.1; Wickham, 2021), and semTools (version 0.6–6; Jorgensen, 2022), the current study's measurement was tested with a confirmatory factor analysis (CFA) to verify the psychometric properties of measurement instruments. Subsequently, a structural equation modeling (SEM) approach was employed to examine the hypothesized relationships. The *lavaan* package is used for latent variable modeling and structural equation analysis, while *semTools* offers additional capabilities for the structural models. The *tidyverse* is employed for efficient data management.

Results

Prior to performing main data analyses, the multivariate non-normality was tested using the MVN package in R-Studio (Korkmaz et al., 2014). The results showed that the data were not normally distributed because of the significant levels of Mardia kurtosis (38.633, $p < .001$) and skewness (905.860, $p < .001$). To account for this non-normality, a robust estimation technique was carried out (i.e., maximum likelihood robust).

Multi-Item Measurement Validation

The measurement properties of the scale were examined through CFA. First, we examined factor loadings to see if the specified factor reflected the item well. Inspection of the factor loadings indicated

that four items did not meet the criteria (λ < .400; Brown, 2015; Floyd & Widaman, 1995). Thus, we removed the items. After removing the items, we examined the revised measurement. The internal consistency of each construct was ensured via Cronbach's alpha and Composite Reliability. All constructs' Cronbach's alpha coefficients and Composite Reliability exceeded the threshold of .70 (Bagozzi & Yi, 1988). In addition, average variance extracted (AVE) values for all constructs exceeded the suggested cutoff point of .50, except for compatibility (AVE = .48), observability (AVE = .49), and esports identification (AVE = .34). About the compatibility and observability constructs, the AVE values were close to the threshold, and both the compatibility and observability constructs showed acceptable reliability and internal consistency. However, the esports identification construct showed unacceptable construct validity. After reviewing the items, factors, and relevant literature, we decided to use a single-item measure of esports identification. Following Kunkel et al.'s (2022) approach using the single-item self-perception identification measure in the context of sport management, this study revised the original esports identification scale into a single-item measure (i.e., *I identify with a specific individual pro-player who plays [my favorite esports game]*).

With the revised measurement, the CFA demonstrated acceptable model fit: χ^2 (146) = 238.959, p <.001, CFI = .959, TLI = .952, RMSEA = .054 (90%, CI .041 to .066). The model fit and internal consistency of the measurement ensured internal validity of the latent constructs. To test the discriminant validity, the factor correlations between the constructs were tested. As shown in Table 2, the results indicated that all between-factor correlations were below the suggested benchmark of .85, indicating assurance of discriminant validity.

Validation of Single-Item Measurement Model

With the acceptable validity, reliability, and model fit of the original multi-item measurement, we refined the innovation adoption factors into a single-item measure. The validity assessment of innovation adoption showed that relative advantage (β = 0.73, SE = .03, p <.001), complexity (β = 0.54, SE = .05, p <.001), compatibility (β = 0.71, SE = .03, p <.001), trialability (β = 0.73, SE = .03, p <.001), and observability (β = 0.66, SE = .04, p <.001) had significant relationship with innovation adoption. With the single-item measurement, the CFA demonstrated better model fit: χ^2 (25) = 46.019, p <.001, CFI = .973, TLI = .961, RMSEA = .062 (90%, CI .032 to .090) (see Table 1). Thus, we used the single item measure of innovation adoption to test the study's hypotheses.

Table 1

Scale items of the measurement model

Construct	*M*	*SD*	*β*	*SE*	C.R.	AVE
Innovation Adoption*					N/A	N/A
Relative Advantage*						
NFT items or skins are a convenient way to manage finance.	5.32	1.31	.737	.037		
Complexity*						
NFT items or skins require a lot of mental effort.	5.30	1.31	.548	.052		

Compatibility*						
I believe that possessing NFT items or skins will fit my lifestyle.	5.32	1.28	.715	.039		
Trialability*						
I want to try NFT items or skins for at least one month.	5.35	1.40	.737	.037		
Observability*						
Other people seemed interested in NFT items or skins when they see me having it.	5.34	1.29	.662	.043		
Purchase Intentions					.769	.528
It is very likely that I will buy NFT items or skins.	5.30	1.36	.716	.040		
I will purchase NFT items or skins next time when I need it.	5.41	1.29	.701	.041		
I will definitely try NFT items or skins.	5.45	1.34	.762	.036		
Esports Identification						
I identify with a specific individual pro-player who plays (my favorite esports game)	5.50	1.31	N/A	N/A	N/A	N/A

Note: *M* = mean score; *SD* = standard deviation; *β* = beta weight; *SE* = standard error; C.R: = Composite Reliability; AVE: Average Variance Extracted; N/A = not applicable. **Innovation Adoption is a second order factor comprised of five first order factors indicated by *.

Research Hypothesis Testing

To test the proposed hypotheses, SEM was performed. The SEM model fit demonstrated acceptable model fit: χ^2 (25) = 28.024, p <.001, CFI = .991, TLI = .987, RMSEA = .024 (90%, CI .001 to .054). As illustrated in Table 2, all hypotheses were supported. Specifically, the path from innovation adoption to purchase intentions was positive and significant (β = 0.84, SE = .11, p <.001), supporting Hypothesis 1. In addition, esports identification significantly affected behavioral intentions (β = 0.15, SE = .04, p <.001), thereby Hypothesis 2 was supported.

To test Hypothesis 3, the interaction factor was created and estimated in the SEM. The results demonstrated that the interaction between innovation adoption and esports identification had a significant effect on purchase intentions (β = -0.15, SE = .06, p <.05, CI [-.278; -.023]), thus supporting Hypothesis

Table 2

Results of Hypotheses in SEM

Hypothesis	Paths	*β*	CI	Results
H1	Adoption → PI	0.721***	[0.555; 0.887]	Supported
H2	Esports ID → PI	0.092***	[0.003; 0.181]	Supported
H3	Adoption*ID → PI	-0.128**	[-0.234; -0.022]	Supported

Note: Esports ID: Esports Identification; PI: Purchase Intentions.

95% bootstrap confidence intervals with 5,000 subsamples; CI = confidence intervals [Lower bound – Upper bound]. *p <.05. **p <.01. ***p <.001.

Discussion

In this study, building upon the extended DOI, we aimed to explore esports consumers' adoption behavior of esports consumers pertaining to one of digital assets (i.e., NFT in-game products). Additionally, the current study sought to examine whether the innovation adoption indirectly affects behavior intentions through attitudes. Unlike past studies addressing esports consumers' consumptive behavior, this is the first study that empirically investigated the relationships between esports consumers' innovation adoption, attitudes, and purchase intentions in relation to in-game items and skins. Within that framework, the study identified that the most important adoption factor among esports consumers was relative advantage (e.g., efficient financial resource management), followed by observability, complexity, and compatibility.

The results suggest that esports consumers are likely to accept digital assets due to various adoption factors, including the ability to manage their personal finances, the complexity of using the items, the compatibility of the NFT products with their lifestyles, and the opportunity to try out the products. In response, enhancing esports consumers' perceptions affecting those adoption factors would likely increase their likelihood of adopting the NFT items and skins. Altogether, those results provide a foundation for understanding esports consumers' adoption behavior and thus extend the line of research on consumptive behavior regarding esports areas based on the IDT.

In terms of Hypothesis 1, we examined whether innovation adoption was positively associated with purchase intentions. Results indicate that esports consumers' adoption of in-game NFT products is likely influenced by adoption factors within the innovative decision-making process, including relative advantage, complexity, compatibility, and trialability, and that such factors are likely to drive purchase intentions. Those results are consistent with Uhrich's (2020) findings, which show that motivational factors for adopting innovative technology directly influence individuals' behavioral intentions. When extended to adoption behavior regarding NFT items and skins in esports settings, those findings suggest that esports consumers are likely to form favorable perceptions toward NFTs, thus influencing purchase intentions.

Regarding Hypothesis 2, esports identification positively influenced esports consumers' purchase intentions of NFT items and skins. Results indicate that esports consumers' purchase behavior is positively influenced by their identification with esports. The results align with prior studies showing that esports identification exerts significant positive effects on behavioral intentions (Hwang et al., 2024). Along those lines, our results extend the longstanding relationship between individuals' identification with

esports and behavioral intentions in the sport management literature by confirming that higher identified esports consumers will increase their intentions to purchase in-game NFT products.

With respect to Hypothesis 3, the findings demonstrate a significant moderating effect. While the results of the moderating effect align with our hypothesis, due to the negative coefficients, this result suggests an inverse relationship between the level of esports identification and the strength of the association between innovation adoption and purchase intentions, which we did not expect. However, the findings indicate that esports consumers with a low level of identification exhibit a greater tendency to adopt innovative in-game items, which subsequently affects their purchase intentions. This phenomenon may be attributed to two factors. Firstly, esports consumers with low identification often seek ways to be connected to the community (Abbasi et al., 2023). Thus, it is possible that these individuals are more prone to purchase digital items compared to highly identified esports consumers. Secondly, these individuals may also prioritize the functional aspects of innovations over psychological connections, being more likely to assess the utility and aesthetic appeal of new innovative in-game items and skins compared to their highly identified esports consumers counterparts. A combination of the two reasons could explain the findings that esports with a low identification showed stronger relationship between innovation adoption and purchase intentions. In addition, a low-identified esports consumer is likely an individual vulnerable to the allure of innovation adoption, thereby potentially enhancing their consumption behavior.

Managerial Implications

The uniqueness or innovativeness of NFTs contribute to their digital scarcity within the value chain (Kiliçaslan & Ekizler, 2022), which triggers a sense of urgency among esports consumers to adopt NFT products and, in turn, motivates their adoption behavior of the products. To maximize esports consumers' likelihood of adopting the new innovative technology, practitioners may need to consider enhancing the characteristics of the innovations behind NFT items and skins (i.e., relative advantage, complexity, compatibility, and trialability of NFT items and skins). When introducing NFT items and skins, it is also important to emphasize that in-game items are traded via secured and safe digital accounts. As aforementioned, NFTs in esports games can be used to attract previously unreachable audiences by allowing the secure trade of in-game items and skins.

Colicev (2023) highlighted the advantages of promoting NFTs as collectibles that afford exclusive access to other virtual rewards, such as entry to private channels, merchandise, and, in more advanced scenarios, full intellectual property rights. Stressing those benefits can be expected to evoke a sense of perceived uniqueness and ownership among esports consumers through the possession of NFT items and skins. Consequently, strategically limiting NFT offerings, providing pre-release access opportunities, and conducting exclusive collection sales restricted to esports consumers with various levels of identifications can be powerful marketing forces for NFT items and skins on the esports market. Likewise, genres that focus on collectible in-game items, notably collectible card games (CCGs) such as *Hearthstone* and sports games such as *FIFA* and *NBA 2K*, have the greatest potential for seamlessly integrating NFTs in their business models.

Beyond that, offering loot boxes that contain NFT items and skins and are subject to proper regulations provides a means to introduce esports consumers to the concept of in-game NFT products and thereby increases the likelihood of adopting NFT items and skins (i.e., trialability). As loot boxes incorporate entertainment elements appealing to various segments of the esports consumers, the strategic implementation of the loot boxes can effectively attract a diverse range of esports consumers across different engagement levels. Traditional loot boxes are typically acquired by esports consumers through payments using in-game virtual currencies or with real-world money, which comes with an increased risk of gambling, as children and young people are susceptible to the addictive nature of gambling. Leveraging

blockchain technology, NFTs have the capacity to mitigate that risk by ensuring the clear identification of ownership within digital assets and goods. Consequently, loot boxes with NFTs can function as a transparent, enjoyable feature within games that is free from the adverse consequences associated with traditional loot boxes in esports games.

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