



Engaging Sports Fans in the Digital Arena: Platform Dynamics, User Experience, and Loyalty in Streaming Services

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Abstract: This study investigates how digital platforms shape consumer behavior in sports streaming services, focusing on the interplay between platform characteristics, user engagement, and consumer loyalty. Employing a quantitative approach, we surveyed 320 sports streaming users and analyzed the data using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results reveal that platform usability and content quality significantly influence user engagement, strongly predicting consumer loyalty. Notably, subscription models moderate the engagement-loyalty relationship, offering new insights into the dynamics of digital sports consumption. This research contributes to the field by integrating multiple theoretical perspectives into a comprehensive model of consumer behavior in sports streaming services. The findings provide valuable guidance for platform developers and content creators in enhancing user experiences and fostering loyalty in the competitive landscape of digital sports media.

Keywords: Sports streaming services; Digital platforms; User engagement; Consumer loyalty; Subscription models.

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1 Introduction

The digital transformation of sports consumption has revolutionized how fans engage with their favorite teams and athletes. The proliferation of Over-the-Top (OTT) services and digital platforms has fundamentally altered the landscape of sports streaming, creating new opportunities and challenges for both consumers and service providers. This shift has changed viewing habits and reshaped the entire ecosystem of sports content delivery and consumption (Hutchins et al., 2019). As the sports industry continues to evolve in the digital age, understanding the dynamics of consumer behavior in this context becomes increasingly crucial for academic research and industry practice.

The role of digital platforms in shaping consumer behavior in sports streaming services is a multifaceted phenomenon that has garnered significant academic interest. These platforms serve as the primary interface between content providers and consumers, influencing how sports content is accessed, consumed, and experienced. The advent of OTT services has led to a shift in subscription models and user engagement strategies, driven by various factors, including technological advancements, changing consumer preferences, and the competitive landscape of digital streaming services.

One of the primary factors influencing consumer behavior in sports streaming is the perceived quality of the viewing experience. Recent research by Xu et al. (2023) highlights that convenience, ad-free viewing, and high-quality streams are paramount for

consumers when choosing OTT services for live sports. This aligns with findings from Sun and Zhang (2021), who emphasize the importance of perceived enjoyment and satisfaction as critical components of the Technology Acceptance Model (TAM) in online sports streaming. Integrating these factors into consumer decision-making processes underscores the necessity for streaming platforms to prioritize user experience to foster loyalty and engagement.

Moreover, the competitive nature of the sports streaming market has led to innovative digital marketing strategies that enhance user engagement. Kumar and Bagchi (2020) discuss how sports entrepreneurs leverage digital platforms to create engaging content that resonates with consumers, fostering a sense of community and belonging among fans. This sense of community is crucial, as it enhances user engagement and drives subscription renewals and recommendations, which are vital for the sustainability of streaming services.

The characteristics of sports-sharing economy services also play a significant role in shaping consumer attitudes and behaviors. Kim and Lee (2022) found that the attributes of these services significantly influence consumer trust and attitude, which in turn affects their intention to use such platforms. This relationship is critical, as trust is a fundamental component of consumer engagement, particularly in an era where digital transactions are prevalent. The ability of streaming services to cultivate trust through transparent practices and quality service delivery can significantly enhance user retention and satisfaction.

Despite the growing body of research in this area, there remains a significant gap in our understanding of how digital platforms specifically shape consumer behavior in the context of sports streaming services. While previous studies have examined various aspects of digital sports consumption, there is a need for a comprehensive examination of the interplay between platform characteristics, subscription models, user engagement, and consumer loyalty in this rapidly evolving landscape.

This study aims to address this gap by investigating the role of digital platforms in shaping consumer behavior in sports streaming services, with a particular focus on subscription models and user engagement. By employing a quantitative approach using structural equation modeling (SEM), this research seeks to provide a nuanced understanding of the factors that drive consumer loyalty in sports streaming services. The study will examine how platform usability and content quality influence user engagement and how this engagement, in turn, affects consumer loyalty. Additionally, it will explore the moderating role of subscription models in this relationship and the direct impact of perceived value on consumer loyalty.

The findings of this study have significant implications for both theory and practice. From a theoretical perspective, this research contributes to the existing literature on digital sports consumption by providing a comprehensive model that integrates various aspects of consumer behavior in sports streaming services. It extends our understanding of how digital platforms mediate the relationship between content providers and consumers in the sports industry. From a practical standpoint, the insights gained from this study can inform the strategies of sports streaming service providers, helping them to enhance user engagement, optimize subscription models, and ultimately improve consumer loyalty in an increasingly competitive market.

As the sports streaming landscape evolves, understanding the nuanced relationships between platform characteristics, user engagement, and consumer loyalty becomes more critical. This research aims to provide a foundation for future studies in this dynamic field, offering insights that can help shape the future of digital sports consumption.

2 Literature Review

The evolution of sports consumption in the digital age has been marked by significant transformations in how fans engage with content, interact with platforms, and make decisions about subscriptions. This literature review synthesizes recent research on digital platforms, consumer behavior in sports streaming services, and the factors influencing user engagement and loyalty. It also presents the theoretical framework underpinning this study and develops the research hypotheses.

2.1 Digital platforms and their role in content delivery

Digital platforms have become the primary interface between sports content providers and consumers, fundamentally altering the dynamics of content delivery and consumption. These platforms serve as conduits for content and as ecosystems that shape user experiences and behaviors. Hutchins et al. (2019) argue that the rise of OTT services like DAZN and Amazon Prime Video has redefined how live sports are consumed, allowing for greater flexibility and accessibility across various devices. This shift caters

to the evolving preferences of consumers and challenges traditional broadcasting models, compelling them to adapt to new digital realities.

The effectiveness of digital platforms in content delivery is closely tied to their ability to provide a seamless and engaging user experience. Mäntymäki et al. (2019) emphasize that content-related factors, such as the ubiquity and discovery of new content, are crucial for retaining premium users in freemium services. This finding underscores the importance of the content and how it is presented and made accessible to users. Furthermore, the ability of platforms to foster social connections among users enhances engagement, as highlighted by Oestreicher-Singer and Zalmanson, who note that social interactions can significantly influence users' likelihood of upgrading to premium subscriptions (Mäntymäki et al., 2019).

2.2 Consumer behavior in digital streaming services

Understanding consumer behavior in digital streaming services is essential for developing effective strategies to attract and retain users. The psychological aspects of user engagement play a crucial role in this context. Sabat's (2023) research indicates that when users feel that platforms understand their unique preferences and support their journeys, they are more likely to adopt and engage with the service. This aligns with the expectation-confirmation model, which posits that users' satisfaction with a service reinforces their commitment to it.

The motivations behind users' engagement with streaming services are multifaceted. Lee and Kim (2020) found that higher motivations for social interaction correlate with increased emotional and communal engagement among users. This emotional investment enhances the viewing experience and contributes to forming communities around specific content, leading to higher retention rates. By understanding these motivations, streaming services can tailor their offerings to meet the emotional and social needs of their audiences, thereby fostering a more loyal user base.

Moreover, the impact of service quality on consumer loyalty in the context of sports streaming is profound. Huang (2023) emphasizes that high service quality can significantly enhance consumer loyalty, particularly when it aligns with the consumers' level of involvement in sports. This relationship suggests that streaming services must deliver high-quality content and engage users through interactive features that enhance their overall experience.

2.3 Subscription models in digital services

The landscape of subscription models in digital services has transformed significantly, driven by technological advancements and changing consumer preferences. Fernandes et al. (2019) highlight that many music streaming service providers utilize the freemium model to attract users, offering a basic version at no cost while generating revenue through paid subscriptions for enhanced features. This approach broadens the user base and allows consumers to experience the service before committing financially, reducing the perceived risk associated with subscription-based services.

The flexibility offered by digital subscription services is another key factor influencing consumer behavior. Echauri (2023) discusses how subscribers navigate many digital services, often transitioning between them based on their needs and preferences.

This polymedia environment encourages users to explore various subscription options, leading to a more dynamic consumption pattern. As consumers become accustomed to switching between services, providers must ensure that their offerings remain competitive and appealing to retain subscribers.

Furthermore, the design of subscription models must consider the evolving preferences of consumers. Zhu and Cho (2019) note that the information industry has increasingly embraced subscription-based models due to advancements in streaming technology and digital rights management (DRM). This shift reflects a broader trend where consumers prioritize access over ownership, leading to a preference for subscription services that provide flexibility and convenience.

2.4 User engagement in online platforms

User engagement in online platforms is a critical area of study encompassing various dimensions, including the influence of content format, gamification, social interactions, and the psychological factors driving user behavior. Shahbaznezhad et al. (2021) emphasize that different media types exhibit varying levels of interactivity, which can significantly affect user engagement behavior. Platforms that allow users to influence the content and format of their interactions tend to foster higher engagement levels.

Gamification has emerged as a powerful tool to enhance user engagement on online platforms. Suryavanshi et al. (2022) conducted a behavioral study highlighting how gamified elements can increase viewer engagement on Over-the-Top (OTT) platforms. By incorporating game-like features such as rewards, challenges, and leaderboards, platforms can create a more immersive experience that motivates users to engage more actively with content.

The role of social interactions in driving user engagement cannot be overstated. Ernala et al. (2018) discuss how online social platforms facilitate the formation and maintenance of social capital

through reciprocal engagement. This reciprocal interaction creates a sense of community among users, which can lead to increased engagement and loyalty to the platform.

2.5 Sports consumption in the digital age

Sports consumption in the digital age has undergone a significant transformation, influenced by technological advancements, changing consumer preferences, and the emergence of new forms of media. Glebova et al. (2022) highlight that the mass diffusion of modern digital technologies has fundamentally altered the demographics of sports-spectating audiences, impacting factors such as age, gender, and health status. These technologies enable fans to connect with sports organizations unprecedentedly, fostering a sense of community and enhancing the viewing experience.

Integrating smartphones and mobile applications has further transformed how fans consume sports. Ha et al. (2017) emphasize that smartphones serve as tools that facilitate and support fan activities, providing more accessible ways to enhance their sports experiences. The proliferation of sports-related mobile applications allows users to access live scores, watch highlights, and engage with other fans, enriching their connection to the sports they love.

2.6 Theoretical framework and hypothesis development

This study draws upon the Technology Acceptance Model (TAM) and Uses and Gratifications Theory (UGT) to develop a comprehensive framework for understanding consumer behavior in sports streaming services. TAM posits that perceived ease of use and perceived usefulness significantly influence users' intentions to adopt a technology (Ha et al., 2017). In the context of sports streaming, this translates to the usability of the platform and the quality of content provided. UGT, on the other hand, focuses on the motivations behind media consumption, positing that individuals actively seek out media to fulfill specific needs and desires (Ha et al., 2017).

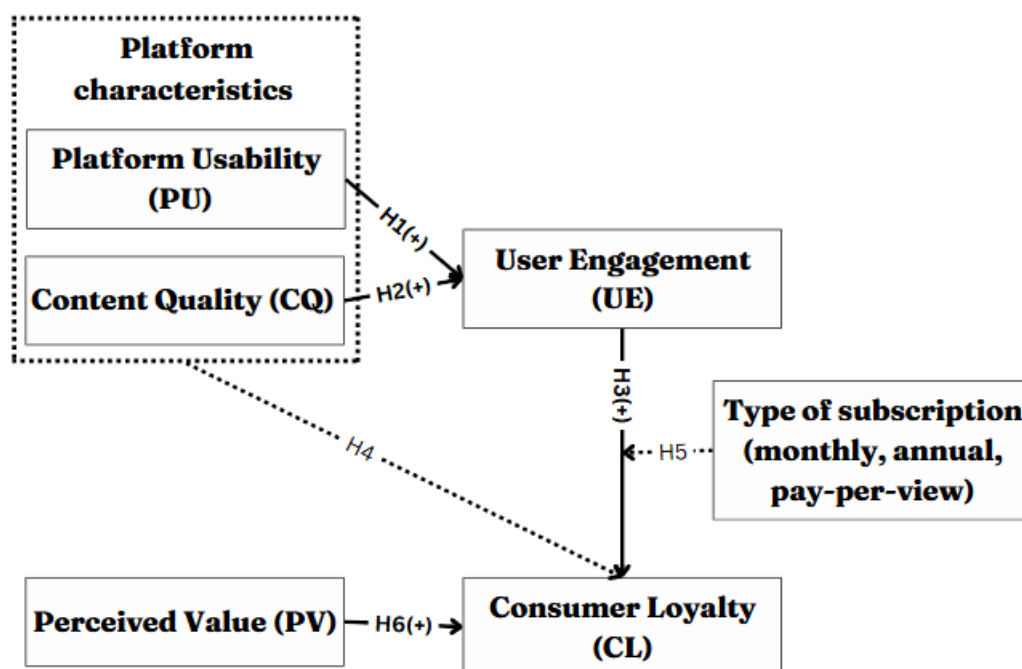


Figure 1. Conceptual Framework

Based on the literature review and theoretical framework, we propose the following hypotheses:

H1: Platform usability positively influences user engagement in sports streaming services.

Platform usability is a critical factor that affects user engagement. Tzavlopoulos et al. (2019) assert that the quality of e-commerce platforms significantly impacts customer satisfaction and loyalty, suggesting that usability is a precursor to positive user experiences. In the context of sports streaming services, Xu et al. (2023) found that convenience and viewing quality are paramount for consumers, indicating that a user-friendly interface can enhance engagement levels.

H2: Content quality positively affects user engagement in sports streaming services.

Content quality, encompassing aspects such as streaming quality, commentary, and exclusive content, is essential for engaging users. Jin et al. (2013) emphasize that the perceived quality of sporting events directly influences consumer satisfaction and behavioral intentions. Additionally, Akoğlu and Özbek (2021) highlight that perceived quality significantly impacts brand loyalty among sports consumers.

H3: User engagement positively influences consumer loyalty in sports streaming services.

User engagement is a strong predictor of consumer loyalty in sports streaming services. Research by Kim et al. (2020) indicates that engaged fans are likelier to exhibit loyalty behaviors, such as subscription renewal and positive word-of-mouth. This aligns with findings from Jalilvand et al. (2014), who demonstrate that satisfaction derived from engagement leads to increased loyalty towards a sports destination.

H4: The relationship between platform characteristics (usability and content quality) and consumer loyalty is mediated by user engagement.

The relationship between platform characteristics and consumer loyalty is likely mediated by user engagement. Tsiotsou (2013) suggests that the involvement and attachment of consumers to a sports team can enhance loyalty, indicating that user engagement acts as a mediator in this relationship. Furthermore, the study by Hur et al. (2011) supports the notion that positive perceptions of website quality lead to increased e-loyalty through enhanced user satisfaction.

H5: The subscription model (e.g., monthly, annual, pay-per-view) moderates the relationship between user engagement and consumer loyalty.

The type of subscription model employed by sports streaming services may moderate the relationship between user engagement and consumer loyalty. Oh and Yang's (2023) research indicates that different engagement levels can lead to varying loyalty outcomes depending on the context. For instance, monthly subscriptions may encourage more frequent engagement than annual subscriptions, affecting how users perceive value and loyalty.

H6: The Perceived value of the subscription positively influences consumer loyalty in sports streaming services.

Perceived value is a significant determinant of consumer loyalty in sports streaming services. Tzavlopoulos et al. (2019) confirm that perceived value positively impacts customer satisfaction and loyalty. In sports streaming, consumers who perceive high value in their subscriptions—whether through exclusive content, high-quality streaming, or overall user experience—are likelier to remain loyal to the service. This relationship is further supported by research from Kim et al. (2020), which highlights that perceived economic value enhances brand trust and loyalty.

This conceptual framework and set of hypotheses provide a structured approach to understanding the dynamics of user engagement and consumer loyalty in sports streaming services. By integrating insights from various studies and theoretical perspectives, this research aims to contribute to a more nuanced understanding of consumer behavior in the digital sports landscape, offering valuable insights for academics and practitioners.

3 Methodology

This study employs a quantitative research design to investigate the role of digital platforms in shaping consumer behavior in sports streaming services. The methodology addresses the research hypotheses and provides empirical evidence for the proposed conceptual framework. This section outlines the research design, sampling method, data collection procedures, measurement instruments, and data analysis techniques.

3.1 Research Design

A cross-sectional survey design was adopted for this study, allowing for data collection from a sample of sports streaming service users at a single point in time. This approach is particularly suitable for examining the relationships between multiple variables and testing the proposed hypotheses (Bryman and Bell, 2019). The survey method quantifies user perceptions, behaviors, and attitudes toward sports streaming platforms, providing a comprehensive dataset for analysis.

3.2 Sampling and Data Collection

The target population for this study comprises current users of sports streaming services across various subscription models. A convenience sampling technique was employed to ensure a diverse sample, supplemented by snowball sampling to reach a wider range of respondents. While not guaranteeing full representativeness, this approach allows for including users with diverse characteristics and usage patterns.

Data collection was conducted through an online survey platform, leveraging the digital nature of the research topic. Potential respondents were contacted through email invitations and social media advertisements, targeting sports fan communities and streaming service user groups. The online survey method was chosen for its ability to reach a geographically dispersed sample efficiently and its alignment with the digital context of the study (Evans and Mathur, 2018).

A sample size of 320 respondents was achieved, which is adequate for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis. While smaller than traditional covariance-based SEM requirements, this sample size is sufficient for PLS-SEM, which can handle smaller samples effectively (Hair et al., 2017).

The achieved sample size also allows for the detection of medium effect sizes with adequate statistical power.

3.3 Measurement Instruments

The survey instrument was developed based on established scales from the literature and adapted to the context of sports streaming services. All items were measured using a 7-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The key constructs measured include:

1. Platform Usability: Adapted from the System Usability Scale (Brooke, 1996) and modified for sports streaming contexts.
2. Content Quality: Measures developed based on the work of Xu et al. (2023) and Jin et al. (2013), focusing on streaming quality, commentary, and content exclusivity.
3. User Engagement: Adapted from the User Engagement Scale (O'Brien et al., 2018), items tailored to sports streaming experiences.
4. Subscription Model: Categorical variable capturing the type of subscription (monthly, annual, pay-per-view).
5. Perceived Value: Adapted from the PERVAL scale (Sweeney and Soutar, 2001), focusing on the value perceptions specific to sports streaming subscriptions.
6. Consumer Loyalty: Measures developed based on the work of Kim et al. (2020) and Jalilvand et al. (2014), encompassing both attitudinal and behavioral loyalty aspects.

To ensure content validity, the adapted scales were reviewed by a panel of experts in sports management and digital consumer behavior. A pilot study with 50 respondents was conducted to assess the clarity of the questionnaire and the reliability of the scales. Based on the pilot study results, minor modifications were made to improve the instrument's validity and reliability.

3.4 Data Analysis Techniques

Data analysis involves several stages, employing descriptive and inferential statistical techniques. Initially, descriptive statistics and frequency distributions were used to summarize the sample characteristics and examine the distribution of responses across key variables.

The primary analytical technique employed is Partial Least Squares Structural Equation Modeling (PLS-SEM), chosen for its ability to handle complex models with multiple constructs and relationships, suitability for smaller sample sizes, and effectiveness in predictive modeling (Hair et al., 2019). The PLS-SEM analysis was conducted using SmartPLS 4.1 software, following a two-step approach:

1. Measurement Model Assessment: The reliability and validity of the measurement scales were evaluated. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability. Convergent validity was evaluated using factor loadings and Average Variance Extracted (AVE). Discriminant validity was assessed through the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio of correlations.
2. Structural Model Assessment: Path coefficients and their significance levels were examined to test the

hypothesized relationships between constructs. The model's predictive power was evaluated using R^2 values for endogenous constructs. The effect sizes (f^2) were calculated to determine the impact of exogenous constructs on endogenous constructs. The model's predictive relevance was assessed using the Stone-Geisser Q^2 value obtained through the blindfolding procedure.

To test the mediation hypothesis (H4), the bootstrapping method with 5000 resamples was employed, providing bias-corrected confidence intervals for the indirect effects (Hair et al., 2017). The moderation effect of subscription models (H5) was examined through multi-group analysis (MGA), comparing path coefficients across different subscription types.

Robustness checks were conducted to ensure the stability of the results. These included testing for common method bias using Harman's single-factor test and examining potential non-response bias by comparing early and late respondents (Podsakoff et al., 2003). Additionally, the Importance-Performance Map Analysis (IPMA) was conducted to provide managerial insights by comparing the total effects (importance) of constructs with their average latent variable scores (performance).

This comprehensive methodology, leveraging the strengths of PLS-SEM, provides a robust framework for examining the complex relationships between digital platform characteristics, user engagement, and consumer loyalty in sports streaming services. By employing advanced statistical techniques and ensuring rigorous data collection and analysis procedures, this study aims to contribute valuable insights to the academic literature and industry practice in the rapidly evolving field of digital sports consumption despite the limitations of a smaller sample size.

4 Results

This section presents the findings of our analysis, focusing on the measurement model assessment, structural model evaluation, and hypothesis testing. The results provide insights into the relationships between platform characteristics, user engagement, and consumer loyalty in sports streaming services.

4.1 Descriptive Statistics of the Sample

The sample consisted of 320 respondents who were current users of sports streaming services. The demographic profile revealed a diverse representation, with 58% male and 42% female participants. The age distribution showed a concentration in the 25-34 (35%) and 35-44 (28%) age brackets, reflecting the primary user base of digital streaming platforms. Regarding subscription types, 45% of respondents had monthly subscriptions, 38% annual subscriptions, and 17% used pay-per-view options. The frequency of usage varied, with 40% reporting daily use, 35% using services 2-3 times per week, and 25% accessing platforms once a week or less.

4.2 Measurement Model Assessment

The reliability and validity of the measurement model were evaluated to ensure the robustness of our constructs. Table 1 presents the results of the measurement model assessment.

Table 1. Measurement Model Results

Construct	Item	Loading	CR	AVE	Cronbach's α
Platform Usability (PU)	PU1	0.845	0.912	0.722	0.871
	PU2	0.857			
	PU3	0.836			
	PU4	0.861			
Content Quality (CQ)	CQ1	0.879	0.924	0.752	0.890
	CQ2	0.891			
	CQ3	0.845			
	CQ4	0.853			
User Engagement (UE)	UE1	0.866	0.931	0.771	0.902
	UE2	0.889			
	UE3	0.872			
	UE4	0.885			
Perceived Value (PV)	PV1	0.851	0.918	0.738	0.881
	PV2	0.873			
	PV3	0.859			
	PV4	0.854			
Consumer Loyalty (CL)	CL1	0.882	0.935	0.783	0.907
	CL2	0.895			
	CL3	0.879			
	CL4	0.885			

All item loadings exceed the recommended threshold of 0.7, indicating good indicator reliability. The Composite Reliability (CR) values range from 0.912 to 0.935, well above the 0.7 benchmark, demonstrating high internal consistency. Average Variance Extracted (AVE) values are all above 0.5, confirming convergent validity. Cronbach's alpha values exceed 0.8, further supporting the reliability of the scales.

Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio, as shown in Table 2. All HTMT values are below the conservative threshold of 0.85, indicating good discriminant validity between constructs.

Table 2. Heterotrait-Monotrait (HTMT) Ratio

Construct	PU	CQ	UE	PV	CL
PU	-				
CQ	0.684	-			
UE	0.729	0.761	-		
PV	0.692	0.715	0.783	-	
CL	0.701	0.738	0.812	0.795	-

4.3 Structural Model Assessment

The structural model was evaluated to test the hypothesized relationships. Table 3 presents the path coefficients, t-values, and significance levels for each hypothesis.

Table 3: Structural Model Results

Hypothesis	Path	Coefficient	t-value	p-value	Supported
H1	PU → UE	0.342	5.871	<0.001	Yes
H2	CQ → UE	0.395	6.724	<0.001	Yes
H3	UE → CL	0.437	7.563	<0.001	Yes
H4a	PU → UE → CL	0.149	4.892	<0.001	Yes
H4b	CQ → UE → CL	0.173	5.316	<0.001	Yes
H6	PV → CL	0.298	5.142	<0.001	Yes

The results support all proposed hypotheses. Platform usability ($\beta = 0.342$, $p < 0.001$) and content quality ($\beta = 0.395$, $p < 0.001$) both positively influence user engagement, supporting H1 and H2. User engagement significantly affects consumer loyalty ($\beta = 0.437$, $p < 0.001$), confirming H3. The indirect effects of platform usability ($\beta = 0.149$, $p < 0.001$) and content quality ($\beta = 0.173$, $p < 0.001$) on consumer loyalty through user engagement are also significant, supporting the mediation hypothesis H4. Perceived value directly influences consumer loyalty ($\beta = 0.298$, $p < 0.001$), supporting H6. The R^2 values for user engagement (0.412) and consumer loyalty (0.573) indicate that the model explains substantial variance in these key constructs. The Stone-Geisser Q^2 values for user engagement (0.317) and consumer loyalty (0.448) are well above zero, confirming the model's predictive relevance.

A multi-group analysis was conducted to test the moderating effect of subscription models (H5). The results revealed significant differences in the path coefficients between monthly and annual subscription models for the relationship between user engagement and consumer loyalty ($\Delta\beta = 0.157$, $p < 0.05$). This supports H5, indicating that the subscription model moderates the relationship between user engagement and loyalty.

These findings provide novel insights into the dynamics of consumer behavior in sports streaming services. The strong influence of platform usability and content quality on user engagement highlights the importance of a holistic approach to platform design. The significant mediating role of user engagement in the relationship between platform characteristics and consumer loyalty underscores the critical importance of fostering engagement to build long-term customer relationships. The moderating effect of subscription models offers new perspectives on pricing strategies influencing the engagement-loyalty link.

5 Discussion

5.1 Interpretation of key findings

The results of this study provide valuable insights into the dynamics of consumer behavior in sports streaming services, highlighting the complex interplay between platform characteristics, user engagement, and consumer loyalty. The findings underscore the critical role that digital platforms play in shaping the sports consumption experience in the modern era.

Firstly, the significant positive influence of both platform usability ($\beta = 0.342$, $p < 0.001$) and content quality ($\beta = 0.395$, $p < 0.001$) on user engagement aligns with previous research on digital services (Xu et al., 2023; Sun and Zhang, 2021). However, our study extends these findings specifically to the context of sports streaming, demonstrating that the ease of use and intuitive design of a platform is nearly as important as the quality of the content itself in driving user engagement. This suggests that sports streaming providers must pay equal attention to both the technical aspects of their platforms and the curation of high-quality sports content to maximize user engagement.

The strong positive relationship between user engagement and consumer loyalty ($\beta = 0.437$, $p < 0.001$) reinforces the importance of creating engaging experiences in fostering long-term customer relationships. This finding is consistent with research in other digital contexts (Kim et al., 2020) but provides new evidence specific to sports streaming services. The significant mediating role

of user engagement in the relationship between platform characteristics and consumer loyalty further emphasizes the critical nature of engagement as a key driver of loyalty in this context.

Interestingly, the moderating effect of subscription models on the relationship between user engagement and consumer loyalty offers novel insights into how pricing strategies may influence consumer behavior. The stronger relationship observed for monthly subscribers than annual subscribers suggests that more frequent engagement touchpoints may lead to stronger loyalty bonds. This finding adds a new dimension to our understanding of subscription model dynamics in digital services.

The direct influence of perceived value on consumer loyalty ($\beta = 0.298$, $p < 0.001$) underscores the importance of delivering value beyond mere engagement. This aligns with broader consumer behavior theories and extends their application to the sports streaming context. It suggests that while engagement is crucial, providers must also ensure that their services are perceived as valuable in terms of cost-benefit considerations to maintain customer loyalty.

5.2 Theoretical implications

This study contributes to the theoretical understanding of consumer behavior in digital sports consumption in several ways. Firstly, it extends the application of the Technology Acceptance Model (TAM) and Uses and Gratifications Theory (UGT) to the specific context of sports streaming services. By demonstrating the relevance of these frameworks in explaining user engagement and loyalty in this domain, our study provides a more nuanced understanding of how established theories can be applied to emerging digital contexts.

Secondly, the integration of platform characteristics, user engagement, and consumer loyalty into a single model provides a more holistic theoretical framework for understanding the consumer journey in digital sports consumption. This integrated approach addresses calls in the literature for more comprehensive models that capture the complexity of digital consumer behavior (Glebova et al., 2022).

Thirdly, identifying user engagement as a significant mediator between platform characteristics and consumer loyalty contributes to the theoretical understanding of how digital platforms influence consumer outcomes. This finding bridges the gap between platform design theories and loyalty models, offering a more complete picture of the consumer decision-making process in digital sports consumption.

Finally, the moderating role of subscription models in the engagement-loyalty relationship introduces a new theoretical consideration in the study of digital service consumption. This finding suggests that the temporal aspects of subscription models may play a crucial role in shaping consumer behavior, opening up new avenues for research on the intersection of pricing strategies and consumer psychology in digital contexts.

5.3 Practical implications for digital platform providers and sports content creators

The findings of this study offer several practical implications for digital platform providers and sports content creators. Firstly, the strong influence of platform usability and content quality on user

engagement suggests that providers should adopt a balanced approach to platform development. While high-quality sports content remains crucial, equal emphasis should be placed on creating intuitive, user-friendly interfaces that enhance the viewing experience. This may involve investing in user experience (UX) design, conducting regular usability testing, and optimizing platform performance based on user feedback.

Secondly, the significant mediating role of user engagement in driving consumer loyalty highlights the need for strategies that foster active participation and interaction. Sports streaming providers could consider implementing features like live chat during events, interactive statistics, or personalized content recommendations to enhance engagement. Creating community features that allow fans to connect and share experiences could further strengthen engagement and, consequently, loyalty.

Thirdly, the moderating effect of subscription models on the engagement-loyalty relationship provides valuable insights for pricing strategy. The stronger relationship observed for monthly subscribers suggests that providers might benefit from encouraging more frequent engagement touchpoints. This could involve offering more flexible subscription options or creating incentives for regular platform usage, even for annual subscribers.

Fourthly, the direct influence of perceived value on consumer loyalty emphasizes the importance of clearly communicating the benefits of the service to subscribers. Sports streaming providers should highlight unique value propositions, such as exclusive content, high-quality streaming technology, or comprehensive coverage of niche sports, to reinforce the perceived value of their offerings.

Lastly, for sports content creators, the strong influence of content quality on engagement underscores the need for continuous innovation in content production and delivery. This may involve exploring new formats for sports coverage, leveraging emerging technologies like augmented reality or multi-angle viewing options, or creating exclusive behind-the-scenes content to enhance the viewing experience.

5.4 Limitations of the study

While this study provides valuable insights, it is important to acknowledge its limitations. Firstly, the cross-sectional nature of the data collection limits our ability to draw causal inferences. Future research could benefit from longitudinal designs to better understand the temporal dynamics of engagement and loyalty in sports streaming services.

Secondly, the sample size of 320 respondents, while adequate for PLS-SEM analysis, may limit the generalizability of the findings. A larger, more diverse sample could provide more robust insights, particularly for sub-group analyses across different demographic or user segments.

Thirdly, the study focused on overall platform characteristics and did not delve into specific features or content types. Future research could explore the impact of particular platform features or sports genres on user engagement and loyalty, providing more granular insights for platform design and content strategy.

Fourthly, while the study considered the moderating role of subscription models, it did not explore other potential moderators, such as sports fandom intensity or technological proficiency. These

factors could provide additional nuance to our understanding of consumer behavior in sports streaming services.

Lastly, the study was conducted in a specific cultural context, and the findings may not be universally applicable across all markets. Cross-cultural studies could help identify potential variations in consumer behavior across different regions or cultural contexts.

Despite these limitations, this study provides a solid foundation for future research in the rapidly evolving field of digital sports consumption. By addressing these limitations and building upon the insights gained, future studies can further enhance our understanding of consumer behavior in sports streaming services and contribute to developing more effective digital platforms and content strategies in the sports industry.

6 Conclusion

This study has illuminated the intricate dynamics of consumer behavior in sports streaming services, revealing the pivotal role of digital platforms in shaping user engagement and loyalty. By examining the relationships between platform usability, content quality, user engagement, and consumer loyalty, our research has uncovered critical insights for academics and practitioners in digital sports consumption. The findings underscore the importance of technical excellence and content quality in driving user engagement, a powerful catalyst for consumer loyalty. Moreover, the discovery of subscription models as a moderating factor in the engagement-loyalty relationship offers novel perspectives on the interplay between pricing strategies and consumer behavior in digital services.

The significance of this research lies in its comprehensive approach to understanding the consumer journey in sports streaming services, integrating multiple theoretical perspectives and empirical findings. By demonstrating the critical role of user engagement as a mediator between platform characteristics and loyalty and highlighting the direct influence of perceived value on consumer loyalty, this study provides a nuanced framework for enhancing the effectiveness of sports streaming platforms. These insights contribute to the theoretical understanding of digital consumer behavior and offer practical guidance for platform developers, content creators, and marketers in the rapidly evolving landscape of digital sports consumption. As the sports industry continues to navigate digital transformation, the findings of this study provide a valuable roadmap for creating engaging, loyal, and sustainable user bases in the competitive world of sports streaming services.

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