Loyalty Pattern of Formula One Fans in Iran

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Abstract

Purpose: In recent years, due to the increasing interest of Iranian fans in Formula One races, the issue of attracting and maintaining the loyalty of this group of people has become one of the main concerns for organizations related to this sport, including the Iranian Motorcycling and Automobile Racing Federation. is In this regard, designing and implementing a comprehensive and practical model to increase the loyalty of Formula One fans in Iran plays a very important role in the success and development of this sport in the country, which is the goal of this research.

Method: The current research is practical in terms of purpose and was conducted using a qualitative method using a descriptive phenomenological approach. The people participating in the research included experts related to the subject, and 21 of the mentioned people were selected as a sample. The sampling method was purposeful and snowball, and the sampling was carried out as long as it was possible to extract non-repetitive concepts from the interviews; continued The data collection tool in the qualitative part of the interview was a semi-structured interview, and in order to review and categorize the information, MaxQuda version 20 software was used. Validity, transferability, trustworthiness and verifiability criteria were used to determine validity and reliability.

Results: detailing and analyzing the findings obtained from the information of the participants in the research; Effective factors in the loyalty of Formula One fans in Iran include: 60 sub-themes in the form of 6 main themes of individual factors, social factors, economic factors, technical factors, motivational factors, moral factors and the consequences of the loyalty of Formula One fans in Iran including: 37 themes In the form of 5 main themes of economic development, increasing awareness, increasing popularity, media development and increasing the capacity of fans.

Conclusion: The effort to improve and strengthen each of the themes expressed in this research will increase the satisfaction and loyalty of the fans.

Keywords: loyalty, Formula One, car racing, fans.

Introduction

Formula 1 racing, as one of the most thrilling and popular global sports, has managed to attract millions of fans from around the world in recent decades. Beyond being a competitive arena for cutting-edge technologies and industrial innovations, Formula 1 has become a platform for international social and cultural interactions. The sport's growing popularity particularly in developing countries demonstrates its potential to create transformative impacts within the realms of sports and entertainment (Rao, 2019). Moreover, Formula 1 operates not merely as a sporting event but as a cultural and economic phenomenon. It stimulates the automotive industry and high-tech innovations while generating significant economic impact through sports tourism, marketing, and advertising (Chadwick & Norton, 2020). Understanding the factors influencing the development and management of fan engagement in Formula 1 within Iran could pave the way for new opportunities in investment and sectoral growth. Given the globalized nature of sports and the expanded accessibility to live event broadcasts via social media and the internet, Formula 1 is swiftly emerging as a popular sport in Iran. The young generation in Iran, immersed in digital and virtual environments, plays a pivotal role in shaping the future of Formula 1 fandom. Additionally, the development of emerging technologies such as virtual reality, live streaming, and increased access to information and news related to Formula 1 may profoundly enhance the fan experience.

As one of the most-watched and technologically advanced sports in the world, Formula 1 attracts a vast global audience. It is not only a spectacle of speed and innovation but also part of global culture and the entertainment industry. In Iran, increasing access to digital media and social networks has led to growing interest in international sports, including Formula 1. However, fandom in this sport remains at a nascent stage, facing multiple challenges

(Liberty Media, 2021). Although public awareness of Formula 1 in Iran has improved in recent years due to the proliferation of social media and access to race broadcasts, fans often remain dispersed and unorganized. The lack of adequate infrastructure, the absence of coherent promotional programs, and the dominance of more established sports such as football and volleyball have hindered Formula 1 from realizing its full potential in Iran. The present study seeks to design a comprehensive model for cultivating fan loyalty toward Formula 1 in Iran. It aims to identify key factors influencing fan loyalty, examine the cultural, social, and economic impacts of the sport, and propose strategies for sustainable fan engagement.

In today's world, sport has become a key pillar of global culture and a significant economic industry, influencing various aspects of individual and social life. Sports are not only seen as entertainment but also as powerful tools for promoting values, fostering social cohesion, and driving economic development. Among these, Formula 1 racing occupies a unique place in the hearts of millions of fans worldwide. In professional sports, fan loyalty is a fundamental element for long-term success of teams, brands, and sporting events. Loyal fans not only provide sustainable economic returns through ticket purchases, merchandise sales, and media subscriptions but also enhance the cultural and social standing of the sport by participating in fan communities. As one of the most watched and technologically driven global sports events, Formula 1 has succeeded in attracting millions of fans and offers a dynamic environment for cultivating fan loyalty through the integration of competitive excitement, global branding, and media appeal (Allison, 2021).

Nevertheless, in Iran despite the growing accessibility of media platforms and increased public interest Formula 1 still lacks local experiences, organized fan communities, and supportive infrastructure. Fandom in this sport largely takes the form of digital, individualized,

and non-localized engagement, heavily dependent on media interactions and affiliation with international brands such as Mercedes and Red Bull. The absence of live events, limited access to branded merchandise, and lack of targeted cultural policies constitute major barriers to building fan loyalty in Iran (Al-Haddad, 2021; Yoshida et al., 2015). At the same time, Iranian youth, particularly in urban centers and among the culturally middle class, are forming a new type of media-based, globally oriented fan identity via social networks, online documentaries, and interactive digital spaces. This emerging style of fandom—characterized by multimedia consumption, support for global brands, and participation in online fan communities has developed in the absence of physical experience and within the unique cultural structure of Iran, making it a valuable subject of study in the humanities and communication sciences.

The core research question guiding this study is: Given the significant global rise in Formula 1 fandom and the impracticality of hosting such events in Iran, what factors can effectively support the creation, retention, and enhancement of Formula 1 fan loyalty within Iran's cultural and media environment? This research aims to design a comprehensive model of Formula 1 fan loyalty in Iran that not only contributes to the theoretical advancement in this field but also provides a foundation for cultural and sports policymaking tailored to local contexts and the digital generation. Fan loyalty constitutes a vital component in the success, sustainability, and branding of professional sports. Internationally, Formula 1 due to its unique combination of advanced technology, thrilling competition, and media appeal—has attracted millions of fans and created extensive opportunities in the economic, cultural, and sports diplomacy sectors (Antunovic, 2012). Host countries have leveraged fan loyalty not only to generate revenue through ticket sales and advertising but also to benefit from sports tourism, foreign investment, and national brand promotion.

Despite a growing interest in Formula 1 among Iranian youth, particularly urban social media users, the sport remains peripheral in comparison to more mainstream sports. The lack of infrastructure, constraints on organizing live events, and weaknesses in cultural and media strategies have resulted in a fandom that is largely digital, fragmented, and institutionally unsupported. Nonetheless, the emergence of virtual platforms, international documentaries, fan pages, and social media presents a strategic opportunity to redefine sports loyalty in a digital context especially where physical attendance is not feasible. A review of existing literature reveals a stark gap in domestic research on fan loyalty in individual sports, particularly Formula 1. Most studies focus on team sports such as football, overlooking the unique dimensions of digital fandom, emotional and attitudinal loyalty, and media engagement in Formula 1. Therefore, there is a critical need to develop a localized model that analyzes and enhances fan loyalty in this sport. Such a model should illuminate the motivations, behaviors, and needs of Iranian fans and serve as a basis for informed cultural policymaking, sports marketing, and development of media and economic capacities in this field.

Materials and Methods

This study was applied in nature and employed an exploratory mixed-methods design. The research was conducted in two phases: qualitative and quantitative.

In the qualitative phase, semi-structured interviews were conducted with 23 experts, including university faculty members, Formula 1 specialists, senior federation managers, former drivers, and active fans. Participants were selected using purposive and theoretical sampling, and data collection continued until theoretical saturation was achieved. The data were analyzed and coded using MAXQDA 2020 software.

In the quantitative phase, a questionnaire was developed based on the codes and themes extracted from the qualitative phase. The target

population included Formula 1 fans, federation managers, and academic faculty in sport management. Due to the undefined size of the population, purposive and snowball sampling methods were used. According to Morgan's table, a sample size of 384 respondents was determined, and out of 470 distributed questionnaires, 384 valid responses were collected.

Instrument validity in the qualitative phase was assessed through criteria such as credibility, transferability, dependability, and confirmability, with peer checks and inter-coder agreement between two trained coders. In the quantitative phase, content validity was evaluated using CVI and CVR indices based on expert judgment from 10 professionals. Reliability was confirmed using Cronbach's alpha and Composite Reliability (CR). Convergent and discriminant validity were assessed using AVE, Fornell-Larcker matrix, and HTMT.

Data analysis was conducted using Structural Equation Modeling (SEM) via SPSS and SmartPLS, with the significance level set at $\alpha = 0.05$.

Results

This study was conducted using the Grounded Theory approach (Glaser's classical approach) and went through the three key coding stages—open, axial, and selective coding—to identify the dimensions and consequences of Formula 1 fan loyalty in Iran.

Stage One – Open Coding:
In this stage, through the content analysis of interviews with experts, 110 initial codes were extracted. After eliminating redundancies and merging overlapping concepts, the list was reduced to 43 final codes. These codes reflect the diverse consequences of fan loyalty, categorized into the following thematic areas:

- Economic: Private sector investment, revenue generation, job and business opportunities
- Media and Digital: Increased audience reach, growth of online platforms, television programs
- Social and Cultural: Boost in fan enthusiasm, inclusion of women, social cohesion, generating interest
- Technical and Industrial: Advancement in automotive competition, driving skills, data analysis
- Psychological and Behavioral: Excitement and passion, time dedicated to F1, increased engagement
- Educational and Scientific: Technical learning, automotive engineering, academic foundations

Stage Two – Axial Coding:
The finalized open codes were grouped into seven core categories, representing the overall consequences of fan loyalty:

1. Economic Development
2. Media Development
3. Increased Awareness
4. Enhanced Fanbase Capacity
5. Growing Popularity of Events
6. Socio-Cultural Development
7. Technological Advancement and Innovation

Stage Three – Selective Coding and Conceptual Modeling:
In this stage, the core categories were integrated into a conceptual model, mapping the interrelationships between them. For empirical validation of the outcomes, Exploratory Factor Analysis (EFA) was conducted, with the following results:

- KMO = 0.86 (indicating sufficient sample adequacy)
- Bartlett's Test of Sphericity was significant ($p < 0.001$)

The data were reduced to five main factors, which together explained 63% of the variance. These factors were:

1. Media and Digital Content Development
   (e.g., watching races, followers, online platforms)
2. Economic and Financial Opportunities
   (e.g., F1 subscriptions, advertising, revenue, investments)
3. Brand Promotion and Social Engagement
   (e.g., fan enthusiasm, social media participation, brand recognition)

4. Technology, Knowledge, and Skills (e.g., data analysis, vehicle technology, driving skills)

5. Awareness and Cultural Values (e.g., environmental concerns, attitude improvement, attracting new audiences, especially women)

To evaluate the validity and reliability of the conceptual model and confirm the factors influencing fan loyalty in Formula One races in Iran, Confirmatory Factor Analysis (CFA) using the Partial Least Squares (PLS) method was employed. The analysis results are summarized below:

In the first step, to assess construct validity, factor loadings of the items related to the identified factors (including individual, ethical, economic, technical, motivational, and social factors) were examined. According to Habibi (2012), items with a factor loading below 0.30 were removed, those between 0.30 and 0.60 were considered acceptable, and those above 0.60 were deemed desirable. The results indicated that most items had desirable factor loadings, and their t-statistics were greater than 1.96 and statistically significant at $p < 0.001$. Although a few items such as questions 31 and 40 had relatively lower loadings, they were retained due to statistical significance.

In the next step, reliability was assessed using Cronbach's alpha and Composite Reliability (CR). According to George and Mallery (2003), values above 0.70 for both indices are considered acceptable. The findings showed that all components related to Formula One fan loyalty demonstrated acceptable reliability. Additionally, the Average Variance Extracted (AVE) was used to assess convergent and discriminant validity. All AVE values exceeded 0.50, confirming convergent validity. Furthermore, based on the Fornell-Larcker criterion (1981), discriminant validity was also confirmed for all components.

Next, the predictive power of the model was evaluated using the Q^2 (cross-validated redundancy) and R^2 (coefficient of determination) indices. R^2 values for most variables were in the desirable range (greater than 0.67), indicating strong predictive ability of the model.

Finally, to assess the overall model fit, the Goodness of Fit (GOF) index was calculated. The obtained GOF value was 0.77, which indicates a very strong model fit. Accordingly, it can be concluded that the conceptual model of the study demonstrates suitable validity, reliability, fit, and predictive power, and effectively explains the factors influencing Formula One fan loyalty in Iran.
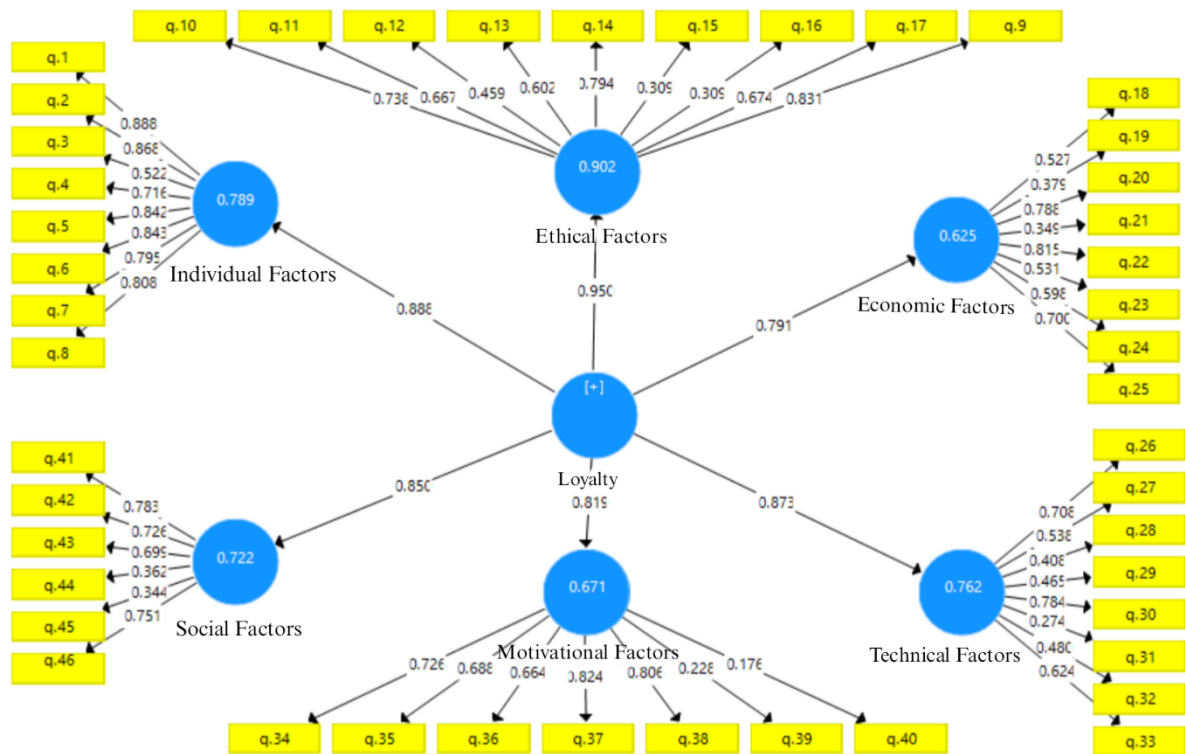
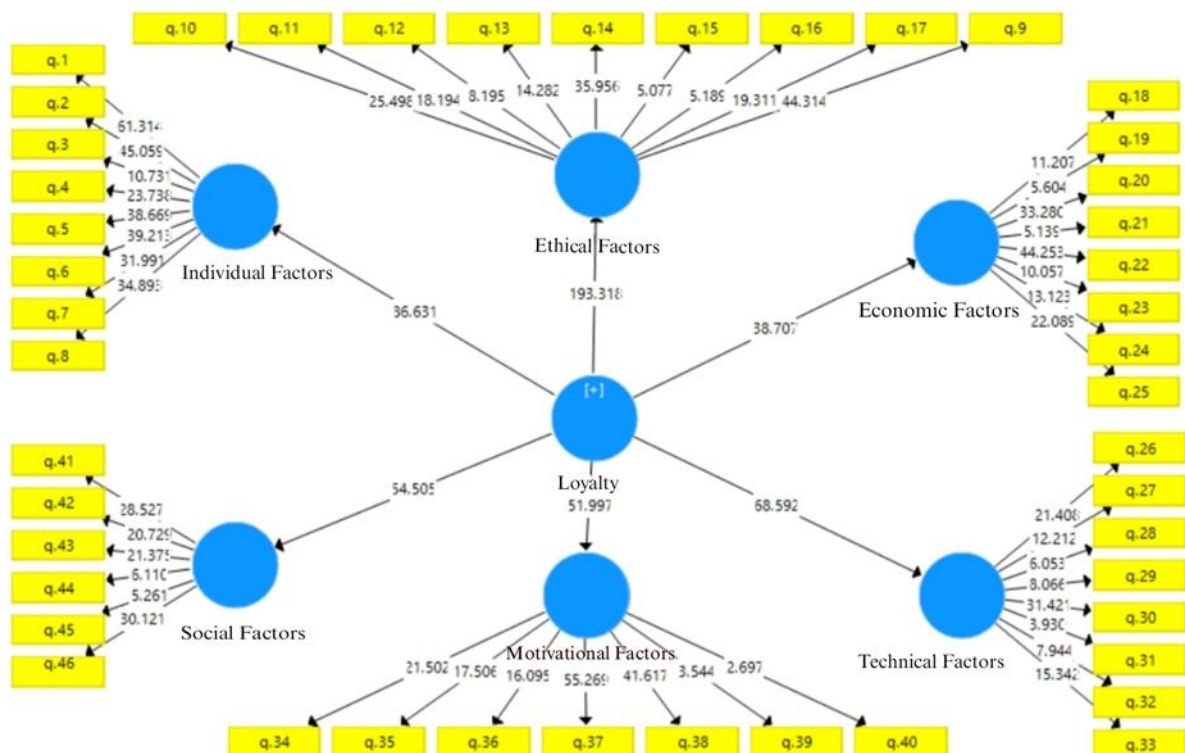**Figure 1 - Factor Loading Coefficient of the Research Model**

Figure 2: Significance Coefficient of the Research Model

In this study, to examine the consequences of fan loyalty toward Formula 1 races in Iran and to assess the accuracy of the proposed conceptual model, Confirmatory Factor Analysis (CFA) using the Partial Least Squares (PLS) method was employed. This method was used to validate

the constructs identified in the qualitative phase and to ensure the validity and reliability of the measurement instrument.

The analysis of factor loadings revealed that most items had loadings above 0.60, which are considered desirable according to established criteria (Habibi, 2012). Additionally, all t-values exceeded 1.96 and were statistically significant at $p < 0.001$. Even the items with lower factor loadings (such as questions 9 and 21) were retained due to their significant t-values. These results confirm that all items effectively measured their respective constructs and that the model demonstrates strong construct validity.

Reliability was assessed using Cronbach's alpha and Composite Reliability (CR). According to the standard threshold of 0.70 (George & Mallery, 2003), all variables in the study, including economic development, awareness increase, popularity increase, media development, and capacity enhancement, showed acceptable levels of internal consistency. This indicates that the measurement tool was both reliable and consistent.

Convergent validity was assessed using the Average Variance Extracted (AVE) index. All constructs had AVE values greater than 0.50, which confirms that the items within each construct shared sufficient common variance. Discriminant validity was assessed using the Fornell and Larcker criterion, which confirmed that the square root of the AVE for each construct was greater than its correlation with any other construct. This means that each item correlated more strongly with its own construct than with others, indicating distinctiveness between constructs.

To evaluate the model's predictive power, two indices were used: the cross-validated redundancy (Q^2) and the coefficient of determination (R^2). The Q^2 values were positive, indicating good predictive relevance. The R^2 values were also high for example, 0.92 for economic development and between 0.56 and 0.81 for other components. According to Stevens (2009), values above 0.67 are considered strong, around 0.33 moderate, and around 0.19 weak. Thus, the model adequately predicts the outcomes of fan loyalty toward Formula 1 in Iran.

Finally, the Goodness of Fit (GOF) index, which assesses the overall quality of the structural equation model, was calculated to be 0.80. This exceeds the threshold of 0.36 and indicates a strong model fit. The GOF combines the average of AVE and R^2 values, confirming that the model performs well both in terms of measurement and structure.

In conclusion, the structural model developed to analyze the consequences of Formula 1 fan loyalty in Iran shows strong validity and reliability, offers robust predictive capabilities, and demonstrates an excellent overall fit. These quantitative findings provide substantial support for the theoretical structure of the model and affirm the validity and reliability of the identified factors in explaining fan loyalty in the context of Formula 1 in Iran.
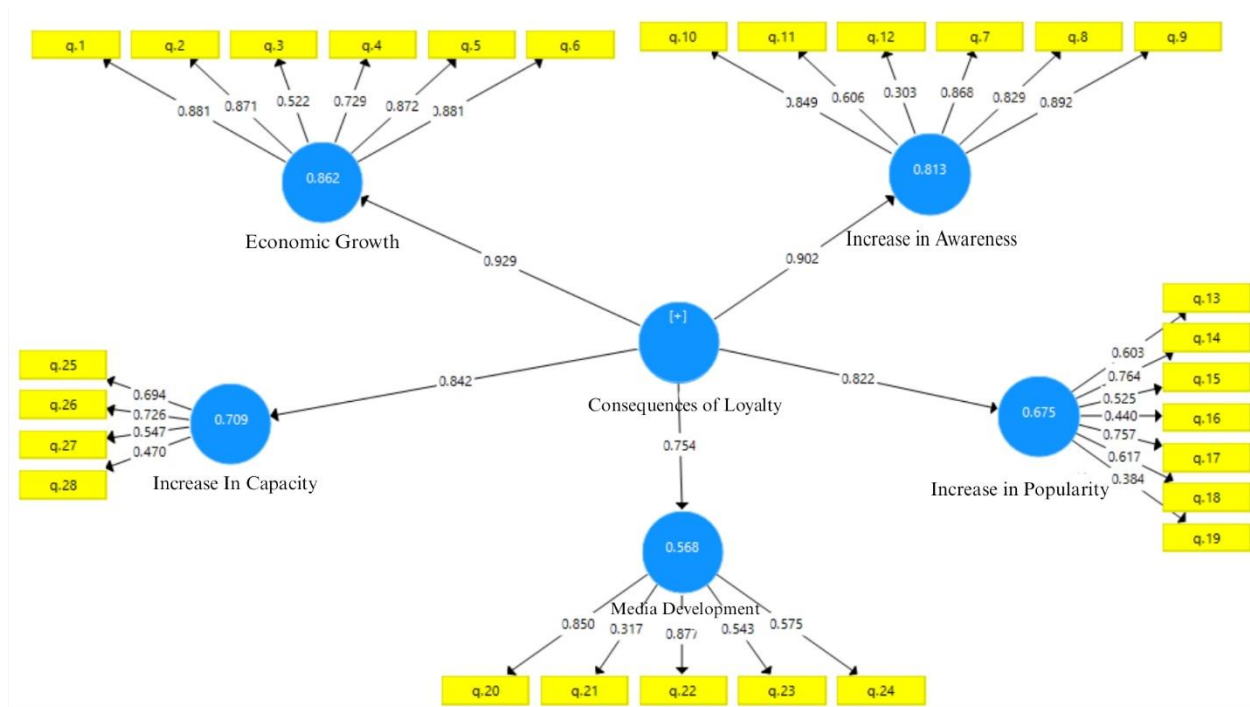
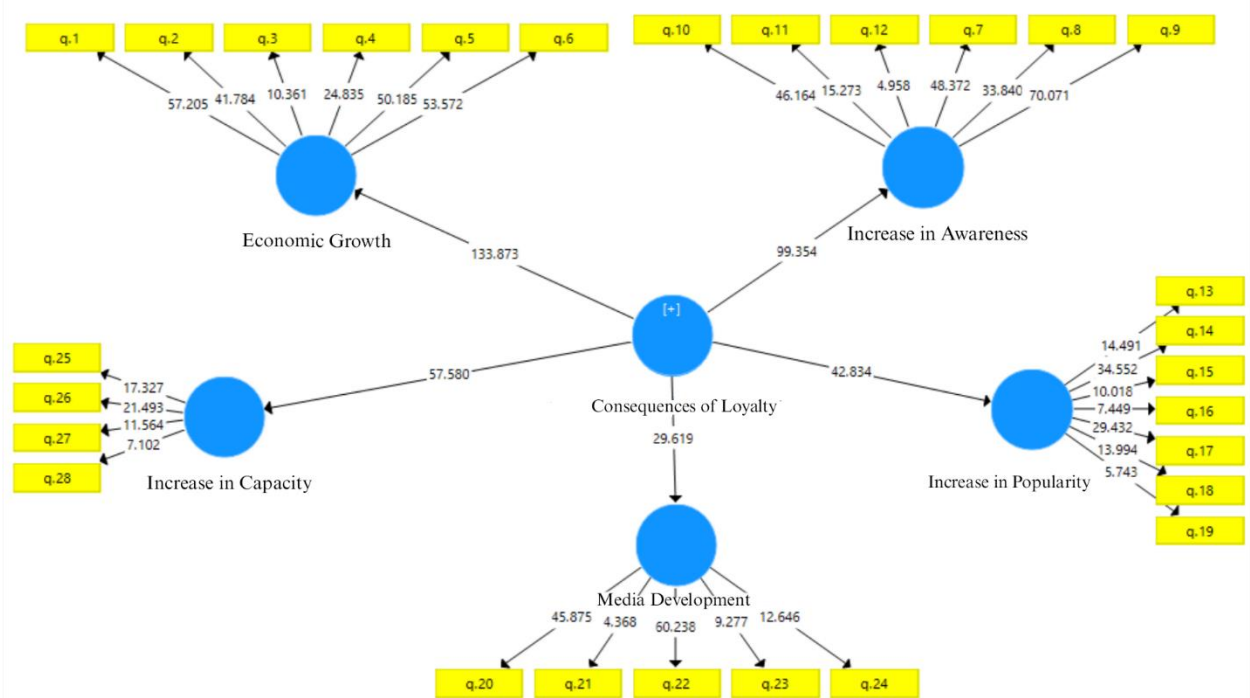**Figure 3: Factor Loading Coefficient of the Research Model**

Figure 4 : Significance Coefficient of the Research Model

Discussion

In the discussion section of this article, the findings of the research on Formula 1 fan loyalty in Iran are examined and analyzed within the framework of relevant theories. The results indicate that individual factors play a very significant role in the formation and persistence of loyalty. Personal interest, identification with a team or driver, a positive attitude toward the sport, and alignment of personal values with those represented by the teams or drivers are key components. These results align with the Psychological Continuum Model by Funk and

James (2001) and Social Identity Theory by Tajfel and Turner (1986).

Social factors such as interaction with other fans, participation in fan communities, the influence of family and friends, and extensive use of social media also play a prominent role in reinforcing a sense of belonging and loyalty. In the absence of live event experiences, digital media has taken on the emotional and social functions of such experiences, providing a platform for the emergence of a virtual fan community. These findings are also consistent with the views of Jenkins (1992) and studies by Myers et al. (2020).

Overall, in Iran's specific cultural and structural context where there are many limitations on physical participation fan loyalty is more likely to form through media, psychological, and social pathways. Therefore, to enhance this loyalty, cultural policymakers should focus on establishing official digital fan networks, producing emotionally resonant and value-driven content, and representing shared identities.

In the discussion of economic and technical factors influencing Formula 1 fan loyalty in Iran, analyses show that both financial and technological aspects play complementary and crucial roles in shaping and solidifying loyalty.

From an economic perspective, Formula 1 fandom in Iran faces challenges such as high costs of accessing original products, lack of opportunity for physical attendance at races, and infrastructural limitations. Findings suggest that negative perceptions about the value of money spent can reduce motivation and loyalty. However, policies such as discounts, exclusive perks, participatory packages, and affordable content production can compensate for these drawbacks. Additionally, professional job opportunities in digital media, content creation, or sports tourism have been identified as tools for structurally engaging fans. This approach can lead to the development of a form of economic-professional loyalty.

At a broader level, government investment in infrastructure, support for fan clubs, creation of alternative experience spaces such as fan zones or collective viewing events, and attracting domestic sponsors in the digital space have been proposed. These actions can improve the quality of the fan experience and help maintain and strengthen loyalty. Specifically, strategies such as providing specialized F1 content in Persian, membership in specialized content platforms, or even support from domestic brands for fan pages play an important role in this model.

On the technical side, the quality of media coverage, technical innovations of the teams, the technical performance of races, safety, and digital access to race content are among the factors that directly impact fan experience and satisfaction. The use of modern technologies for live broadcasting, graphic analyses, interactive content, and up-to-date information increases the appeal of the races and maintains the viewer's connection to them. In a context where live attendance is not possible, this technical and media quality is considered an effective substitute for the physical experience.

In summary, in Iran's cultural and economic context, the sustainability of Formula 1 fan loyalty depends on coordinated policymaking in economic and technical domains. These policies must not only make fan-related costs justifiable but also provide a rich and high-quality experience. Loyalty in such a context is only realized when financial support, professional employment, specialized content, and digital access are designed and implemented simultaneously and purposefully.

Additionally, this section of the discussion shows that Iranian Formula 1 fan loyalty is influenced by a combination of technical, motivational, and ethical factors. Advanced and innovative car technologies, especially in areas like hybrid engines, analytical systems, and high safety standards, are highly valued by fans interested in engineering and technology. These technologies create a unique and complex mental experience which, if accompanied by specialized Persian-language media, can lead to

long-term loyalty. Alongside this, driver performance and the quality of competition are key to maintaining fan interest particularly in Iran, where the connection to the sport is primarily media-based due to the lack of in-person experiences.

Motivational factors such as the excitement of competition, high speeds, and behind-the-scenes content are also important in attracting and retaining fans. A lack of engaging content and interactive services such as localized apps reduces motivation. Furthermore, satisfaction with the viewing experience, quality of analysis, and variety of merchandise products play a significant role in enhancing the experience and turning it into a fan lifestyle. Iranian fans are increasingly looking to connect with brands and drivers whose values and personalities resonate with their own.

Another key aspect of the discussion is the role of ethical values. Fans tend to support teams and drivers who uphold principles such as justice, gender equality, social responsibility, and professional behavior. Environmental initiatives and the elimination of racial discrimination are also viewed as very important. Therefore, in Iran, loyalty is shaped not only by technical performance and excitement but is also deeply connected with cultural and ethical values. Ultimately, it is recommended that cultural, media, and sports institutions invest in developing media infrastructure, producing ethically focused content, and enhancing the digital experience to help strengthen Formula 1 fan loyalty in Iran.

In the discussion section, four key outcomes of

Conclusion

This study, aimed at designing a model of Formula 1 fan loyalty in Iran, revealed that sports loyalty in this context is a complex, multidimensional phenomenon shaped by the interaction between digital culture, generational identity, and modern media. Unlike traditional patterns, Formula 1 fandom in Iran predominantly emerges in a digital, transnational, and media-driven environment,

Formula 1 fan loyalty in Iran are examined, each highlighting the potential of this phenomenon beyond mere sports interest. First, the economic dimensions of this loyalty are emphasized, which can contribute to strengthening industrial infrastructure and job creation by attracting private investment, developing sports tourism, expanding the merchandise market, and stimulating the automotive engineering sector. Second, fan loyalty promotes increased awareness and technical knowledge, strategic understanding and analysis of races, and fosters interest in science and technology among young people providing a suitable platform for technological learning and the growth of STEM fields.

Third, this loyalty contributes to enhancing the Formula 1 brand in Iran and plays a vital role in media popularity, cultural participation, and increasing advertising opportunities for brands. Digital fandom, especially among the youth, enables the creation of a dynamic participatory culture that can be leveraged for sports marketing and localized content development. Fourth, fan loyalty strengthens media relations and cultural-social capacities. Its consequences include increased participation of women, broader environmental awareness, and the development of a digital lifestyle based on social media.

In conclusion, Formula 1 fan loyalty in Iran has multifaceted dimensions and can be considered a tool for economic, educational, cultural development, and informal diplomacy by policymakers.

where online experiences, virtual social interactions, and cultural representations play a central role.

The findings indicate that this loyalty is not merely behavioral or emotional, but rooted in factors such as intrinsic motivation, media trust, ethical identity, and even environmental values. Therefore, the loyalty model proposed in this research has an interdisciplinary nature and can

serve as a foundation for cultural policy-making, media program design, and the development of localized sports brands.

Ultimately, Formula 1 fan loyalty in Iran can be interpreted as a form of "digital sports identity" that, in addition to enhancing cultural participation, may contribute to the development

of digital infrastructure, media literacy, cultural diplomacy, and intercultural dialogue at both national and international levels. It is recommended that future research focus on the role of cultural policymaking and foresight in supporting this emerging form of fandom.

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