Keeping the ball rolling: using the S-O-R framework to investigate the determinants of football fan loyalty

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Abstract

Purpose – Insights into how fan experience can be used to cultivate football (soccer) fan loyalty are limited. Based on the stimulus–organism–response (S-O-R) paradigm, this study develops and tests a theoretical model investigating the effects of football-game socialisation, team interest, football interest and transaction satisfaction (stimuli) on fanship and cumulative satisfaction (organism), and subsequently, attitudinal loyalty and behavioural loyalty (response). National culture was a moderator.

Design/methodology/approach – A self-administered online survey collected data from a convenience sample of 762 football fans from Brazil, China and Germany.

Findings – The PLS-SEM results support the S-O-R based model, indicating that football fan-loyalty behaviours are determined by fanship and cumulative satisfaction with the team. Fan experiences, in turn, are also found to be influenced by fan perceptions relating to socialisation, team interest, football interest and transaction satisfaction—elements over which the football team's management may exert some degree of control. Some national cultural differences were found, with three of the model's 12 structural paths significantly different for Germany vis-à-vis Brazil.

Originality/value – This study advances the authors' understanding of the significance of socialisation and fan-interest factors for football, providing evidence supporting the role of the fan experience and service-consumption stimuli related to those game experiences as significant drivers (stimuli) of the fan's affective (fanship) and cognitive states (cumulative satisfaction). This study enriches the limited body of evidence on fanship's role as a driver of attitudinal and behavioural loyalty. Finally, the multi-country study partially supports the moderation effect of national culture.

Keywords Fan loyalty, S-O-R, Consumer experience, Football, Soccer, Fanship, Satisfaction, Culture, Brazil, China, Germany, PLS-SEM

Paper type Research paper

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1. Introduction

Football (soccer) is the leading professional sport worldwide. Globally, the 20 highest earning football clubs generated €9.2bn of combined revenue in 2021–2022, up 13% in 2020–2021, with Manchester City leading at €731mn (Bridge *et al.*, 2023). In 2019–2020, European football achieved revenues of €25.2bn (Consultancy.eu, 2021). Five billion people engaged with the 2022 FIFA Men's World Cup, with 1.5bn watching the final (FIFA, 2023); the 2019 FIFA Women's World Cup attracted 1.12bn viewers (FIFA, 2019).

In Germany, Brazil and China, the countries we focus on, football is a leading sport. With about 24,544 football clubs and 149,735 teams at all levels, for a total of 7.1mn members, the German Football Association is the largest sports organisation in Germany (DFB, 2019). In Brazil, football is the most popular sport (Gaffney, 2014), with 29,208 football clubs, 2.1mn registered players and 790 football stadiums (Portal, 2014, 2015). In China, there are 711,235 registered players and over 25mn unregistered players playing for 2,221 clubs (FIFA, 2015).

Despite football's dominant position globally, it faces increased competition from other sports and the diversity of consumer leisure options in an increasingly crowded entertainment category. Therefore, football must continually seek to understand the factors driving fan loyalty. Given the recent pandemic and service-sector challenges (Genchev *et al.*, 2021; Ostrom *et al.*, 2021), which includes football, teams need to develop more fan-focused strategies, such as improving the fan experience and identification with the team and the sport to enhancing the fan's consumption (game) experience and increase attendance (Alonso-Dos-Santos *et al.*, 2018; Yoshida *et al.*, 2015b). A customer-centric focus is required to create better customer experiences (Grewal and Roggeveen, 2020; Lemon and Verhoef, 2016; Rahman *et al.*, 2022).

A recent football fan-loyalty study (Yun *et al.*, 2021) identifies the importance of attitudinal and behavioural loyalty, along with the need for improved understanding of the drivers of these fan-loyalty outcomes, when studying football in international markets. In addition, the drivers of fanship and cumulative satisfaction for football fans across multiple countries are yet to be explored. Specifically, it remains unknown whether environmental stimuli, which are facilitated by football clubs, are linked to the fan experience and, subsequently, how fanship influences fans' loyalty perceptions. Therefore, we respond to calls for empirical examination of the antecedents and outcomes of fanship in football across multiple contexts (Alonso-Dos-Santos *et al.*, 2018; Yun *et al.*, 2021).

Cultural factors influence the customer experience (Grewal and Roggeveen, 2020) but are absent from consumer-journey research (Shavitt and Barnes, 2020). Although fan-loyalty drivers can vary by country (Han *et al.*, 2016), with there being a need for more cross-cultural sports fan research (Theodorakis *et al.*, 2017), scant research has attempted to investigate the antecedents of both attitudinal and behavioural loyalty for football fans across Germany, Brazil and China (for one exception, see Maderer and Holtbrügge, 2019). Investigating fan-loyalty drivers across these countries offers potential insights because of differences in their economies, football markets, growth rates of sports spending vs GDP growth (Collignon and Sultan, 2014) and situational and socio-cultural contingencies in the consumption experience (Becker and Jaakkola, 2020).

Although recognition of the necessity to better comprehend factors affecting football fan loyalty has grown over the last decade (Biscaia *et al.*, 2012, 2016), there are still avenues in need of further exploration (Yun *et al.*, 2021), such as the effects of environmental stimuli on football fans' loyalty outcomes through the fan experience, as investigated in this paper. In short, understanding the effects of sports service-environment drivers on football fan loyalty requires further exploration (Kim *et al.*, 2019). Football fans experience vary different customer journeys, shaped by a variety of contextual, environmental, societal and individual factors, with cognitive, emotional and behavioural reactions, with a need to better understand holistically the factors affecting the customer experience (Grewal and Roggeveen, 2020). By assessing key customer experiences during football fans' service-

consumption stage, we focus on Ostrom *et al.*'s (2021) research priorities of *resource and capabilities constraints*, which signify the adaptability, agility and resilience of capabilities to anticipate environmental, social, cultural and demographic shifts. Thus, this research aims to explore the effects of how a football club operationalises its services-consumption environment to deliver a superior customer experience for fans.

To address the identified research gaps, we extend Mehrabian and Russell's (1974) stimulus–organism–response (S-O-R) paradigm by including football-consumption-environment stimuli to reflect the fan experience. The S-O-R paradigm has been used in a variety of contexts, including social media (Carlson *et al.*, 2018), fashion (Alanadoly and Salem, 2022), luxury brands (Rao and Ko, 2021), tourism (Lin *et al.*, 2019) and customer engagement (Naqvi *et al.*, 2021). To this end, we propose and test an extended S-O-R model (see Figure 1) that posits socialisation, team interest, football interest and transaction satisfaction (stimuli) influencing fanship and cumulative satisfaction (organism), which then affect attitudinal and behavioural loyalty (response).

Flowing from the findings of our study, we contribute to the understanding of football fan loyalty connected with service-consumer, consumption-stage experiences. Our findings can also assist teams to formulate more effective, fan-centric, game-day-experience and communication strategies. We next present the theoretical background, hypotheses development, methodology and analysis, before discussing the results, theoretical contributions, practical implications, limitations and future research directions.

2. Theoretical background: the S-O-R paradigm

Using the S-O-R paradigm as our theoretical framework (Lin *et al.*, 2019), we develop an integrative model of how football fans respond to their environment. The S-O-R paradigm assumes an individual's perceptions and interpretation of an environment influence how
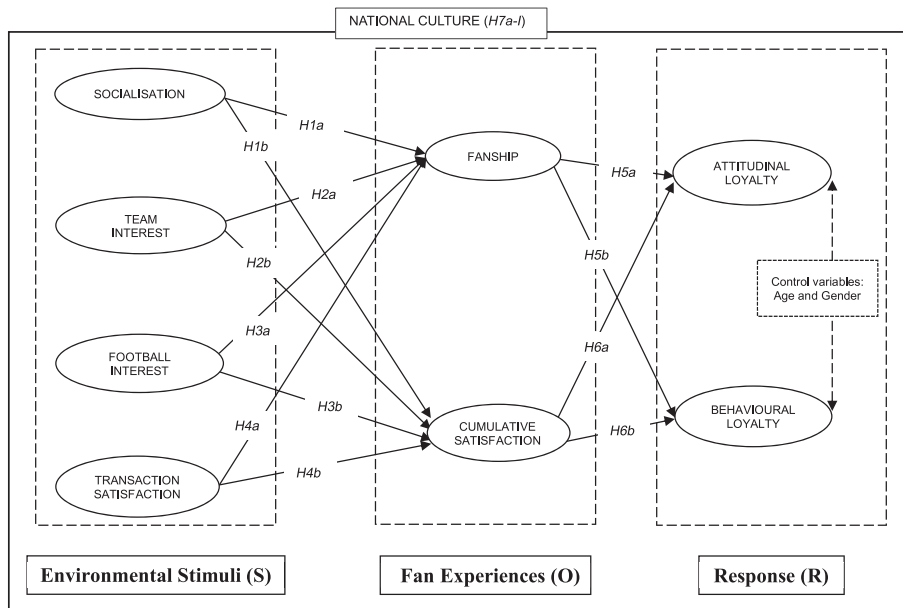

Figure 1.
Conceptual model founded upon the S-O-R framework

Source(s): Authors own creation

they feel in that environment, which then affects their behaviour (Carlson *et al.*, 2018). That is, it captures the effect of a stimulus (S) (e.g. football game) on fans, fans' internal processes in responding to that influence (O) and the resulting fan behaviours (R), such as attitudinal and behavioural reactions (Kim and Johnson, 2016).

The customer-experience journey can be iterative and dynamic in nature, whereby past experiences can influence expectations regarding current and future experiences (Grewal and Roggeveen, 2020) – i.e. consumer satisfaction. Consumer satisfaction is a well-grounded variable influencing consumer behaviour or loyalty. Examining dynamic aspects of consumer satisfaction can assist sports managers in determining whether to focus more on transaction satisfaction or cumulative satisfaction (based on past repeated experiences). Thus, we focus on both satisfaction types as part of the "S" and "O" states of football fans.

A stimulus is an influence that arouses the individual and affects internal, organismic states (Eroglu *et al.*, 2001); that is, something that evokes an inner reaction (Lin *et al.*, 2019). Our football-consumption stimuli—socialisation, team interest, football interest and transaction satisfaction—represent social-psychological aspects of fans' service experience (i.e. the football game). This is important, as we focus on how football fans perceive and interpret football-related, hedonic service consumption of these important environmental stimuli of the customer experience (Becker and Jaakkola, 2020; Grewal and Roggeveen, 2020; Lemon and Verhoef, 2016).

Building on prior studies that extend the S-O-R paradigm (e.g. Naqvi *et al.*, 2021), we argue that the level of game and team quality, plus social interaction amongst fans and interest in the team and football, are critical components of the football fan's experience. Football is a spectator sport, where consumption involves other consumers, as they share space, time, similar interests and motives for extended periods of time in a given context (Kim *et al.*, 2019). Given the hedonic nature of the football fan's experience (Kim *et al.*, 2019), human interactions are essential in creating satisfaction and fan loyalty (Dedeoglu *et al.*, 2018) and are an important customer-experience influence (Becker and Jaakkola, 2020; Grewal and Roggeveen, 2020; Lemon and Verhoef, 2016).

Fans' internal states (O) are represented by fanship (affective) and cumulative satisfaction (cognitive). The affective state reflects the experience of feeling or emotion (i.e. fanship). Emotions associated with consumption are formed in response to a specific appraisal made by the consumer (Kim, 2022). The cognitive state is the process of thought based on information-processing; that is, cumulative satisfaction (Lemon and Verhoef, 2016; Wang *et al.*, 2019). Finally, the individual's affective and cognitive states (O) lead to a response (R). Following other S-O-R studies (e.g. Kim *et al.*, 2019; Rao and Ko, 2021), the football fan's response is fan loyalty – both attitudinal and behavioural types. In summary, our S-O-R model posits that the effect of the game environment (S) on fan-loyalty behaviour (R) is mediated by fans' emotional state of fanship and cognitive state of cumulative satisfaction (O).

The application of the S-O-R paradigm for informing our model is suitable for two reasons. First, football fans' experiences are shaped by a variety of contextual, environmental, societal and individual factors, with cognitive, emotional and behavioural reactions, where past experiences can influence expectations regarding current and future experiences (Grewal and Roggeveen, 2020; Yoshida, 2017). Given the dynamic nature of the service (match) environment and transaction satisfaction in influencing the fan's consumption experience of a football match, the S-O-R paradigm offers a holistic, coordinated approach to assess the impacts of service environments as stimuli for fans' in-person experiences and resulting loyalty outcomes.

Second, the S-O-R paradigm has not been utilised widely in previous fan-behaviour studies (Foroughi *et al.*, 2019), yet it has potential in this context, especially regarding the cross-cultural context. Given the environmental stimuli in a football context may vary across

cultures, and the role culture can play in influencing the customer experience (Grewal and Roggeveen, 2020; Shavitt and Barnes, 2020), there remains room to better understand this gap. As football fans are very culturally diverse globally, our (S-O-R grounded) model will assist sports marketers in offering a more customised fan experience. The model deepens understanding of why and how fans from a particular culture are loyal to their team. Are Brazilian fans attending the games due to their emotional and cognitive states of cumulative satisfaction? Are Chinese fans loyal to the team because of the social aspects of the game environment? Thus, our S-O-R model aims to address this gap in uncovering whether this framework would generalise to the specific football context.

In sum, the S-O-R paradigm is a suitable theoretical framework for explaining important contributors leading to improved fan loyalty. Although extant research in the general service literature has used the S-O-R paradigm (e.g. Lin *et al.*, 2019; Naqvi *et al.*, 2021), its applicability for explaining football fan loyalty is not yet clear. To this end, we seek to address these gaps in the fan-loyalty literature by developing a model based on the S-O-R paradigm to examine the generalisability to the football context and help understand potential cultural differences. We next critically review the literature on our key constructs influencing fan loyalty.

3. Literature review and hypotheses development
Our model captures a variety of contextual, environmental, societal and individual factors that involve cognitive, emotional and behavioural reactions for the football consumption experience (Grewal and Roggeveen, 2020; Yoshida, 2017). Their relationships and posited hypotheses are discussed in this section.

3.1 Environmental stimuli
3.1.1 Socialisation. Social influence is a recognised factor influencing the customer experience (Grewal and Roggeveen, 2020). Whilst a team's fans typically do not know each other personally, they still view fellow fans as a community or group (Reysen and Branscombe, 2010). Attending football games facilitates socialisation amongst a team's fans and greater sport community prior to, during and following games. This influence includes both active social presence (verbal or physical interactions with other fans) and passive social presence (the mere presence of other fans in the vicinity) (Grewal and Roggeveen, 2020). As fans have a high level of attachment to individuals associated with a team (Clemes *et al.*, 2011), we anticipate that these social experiences facilitate fans bonding with others whilst attending a game (Reimers *et al.*, 2018), thus connecting them to other members of the greater sport community and enhancing team involvement. Higher levels of participation in a social setting add to the likelihood that fans' values align with those of the group (Funk *et al.*, 2012; Reysen and Branscombe, 2010). Further, values have the power to leverage the effect on fans' attitudes, which then influence intention (Perić, Vitezić and Badurina, 2019). The socialisation experience during game attendance shapes the social awareness of football fans (Theodorakis *et al.*, 2017) and, given those who are higher in fanship display a strong bond with a team or sport in general (Clemes *et al.*, 2011), we posit that a fan's social cohesiveness through social bonding with other fans drives fanship. Additionally, as interaction with others can affect one's perceptions of the experience (Becker and Jaakkola, 2020; Lemon and Verhoef, 2016; Yoshida, 2017), this social bonding is also expected to drive a fan's cumulative satisfaction (Daniels *et al.*, 2020). These inimitable opportunities to socialise with others during a game, particularly those connected to transaction-specific setting (i.e. in-person game attendance), ultimately set it apart from watching a live broadcast or recorded game, where there is limited opportunity to directly socialise with other fans. Thus, we hypothesise.

H1. Socialisation during game attendance is positively related to (a) Fanship and (b) Cumulative Satisfaction.

3.1.2 Team interest. Team interest captures the comparative vigour of a fan's continued process of involvement with a team, and it is related to the interface between a fan and their team. Football fans interact with a team and demonstrate their interest (e.g. in-person game attendance, watching on TV/Internet and everyday offline/online interaction with the players and team). These interest levels are established by weighing up interest in the team (Funk *et al*., 2012), as experienced during attending or watching games. Accordingly, a fan's perception of the whole team, not just an individual player, has a favourable impact on their experience by establishing vertical ties with the team (Yoshida *et al*., 2015b). For example, the pre-game and in-game fan experience at the stadium yields positive perceived interactions that can enhance fans' overall (cumulative) evaluation of the team and the satisfaction of following that team and sport (Lamberti *et al*., 2022). Individuals who publicise their association with a team express a desirable group affiliation that characterises them as members (Funk *et al*., 2003); thus, fans feel a belonging to the greater community of the team, leading to increased fanship and cumulative satisfaction in following their team. Hence, we hypothesise.

H2. Team Interest is positively related to (a) Fanship and (b) Cumulative Satisfaction.

3.1.3 Football interest. Interest in one's favourite sport, considering oneself a fan and following all aspects of it are some of dimensions of the fan experience, via which fans form an opinion about their team (Clemes *et al*., 2011). The football fan experience includes, but is not limited to, a particular team and the attributes of the team. Funk *et al*. (2003) present a myriad of fan-experience clues (i.e. sport interest), which are significant facets of fans' formation of identification or fanship, experiences and subsequent loyalty intentions. Football interest also has a positive cognitive nature (Lamberti *et al*., 2022); therefore, we expect it to positively influence cumulative satisfaction. Reasons frequently associated with both transaction-specific and cumulative satisfaction (team success, team win–loss record, on-field success) have also been connected to fan-consumption experiences (e.g. Biscaia *et al*., 2012; Genchev *et al*., 2021). These fan-experience cues are likely to enhance fans' perception of how they form their attachment towards their team. Hence, we hypothesise.

H3. Football Interest is positively related to (a) Fanship and (b) Cumulative Satisfaction.

3.1.4 Transaction satisfaction. Akroush and Mahadin (2019) highlight two types of customer satisfaction—transaction and cumulative. Here we focus on the former, leaving discussion of the latter until later. Transaction satisfaction captures a fan's assessment of the immediate consumption experience (Taylor *et al*., 2014), the perceived satisfaction and expected outcome related to the decision to attend a game; that is, the fan's experience with and reaction to a specific game (Bodet, 2008; Matsuoka *et al*., 2003). Every game is a new experience (Matsuoka *et al*., 2003); thus, transaction satisfaction is appropriate for understanding the variability associated with the service delivery of a particular game (Bodet and Bernarche-Assollant, 2011).

The transaction-specific satisfaction aspects of the most recent game attended may have strong relationships with fanship and cumulative satisfaction. Fans are psychologically connected with the object of their interest (in our case, the football team), in which fans demonstrate transaction-specific interest (attending games, showcasing interest in a specific team and the sport itself). They are also enthusiastic, fervent and devoted followers of football and create fan cohesiveness through fan identification (Reysen and Branscombe, 2010). Transaction satisfaction acts as a driver of cumulative satisfaction (Akroush and Mahadin, 2019); therefore, fans who are more transaction-satisfied with the team (i.e. when it

performs well in a particular game) tend to be more satisfied overall (Bodet, 2008). Additionally, the better the game experience, the more likely a fan is to be identified with the team, along with involvement with the particular sport, which in turn leads to the formation of team loyalty. For instance, after experiencing sport consumption, the relevant values of hedonic and social needs positively influence sport fanship, which leads to a wellbeing improvement (Kim *et al.*, 2017). Hence, we hypothesise.

H4. Transaction Satisfaction is positively related to (a) Fanship and (b) Cumulative Satisfaction.

3.2 Fan experience and loyalty response

3.2.1 Fan loyalty. Loyalty is a deeply held commitment to re-buy and re-patronise a preferred product or service constantly in the future (Ahrholdt *et al.*, 2019). The sports literature has moved beyond the early notion of loyal fans exhibiting only repeat (behavioural) patronage to a more evolved, two-dimensional view comprising both attitudinal loyalty and behavioural loyalty (Bodet and Bernache-Assollant, 2011; Maderer and Holtbrügge, 2019; Reimers *et al.*, 2018), where attitudinal loyalty represents the psychological commitment in the form of affective or emotional responses a fan makes towards their chosen team or players (Doyle *et al.*, 2013) and behavioural loyalty represents fans undertaking a diverse set of positive behaviours (Biscaia *et al.*, 2021), such as purchasing team-related items, attending games and actively exploring information regarding their team or players (Stevens and Rosenberger, 2012; Yun *et al.*, 2021).

3.2.2 Fanship. A spectator's extraordinary experience at an organised event (e.g. football game), which sometimes creates a profound impact on psychological involvement (in a deep and profound manner outside their ordinary life), has a long-lasting influence on future participation (Reysen and Branscombe, 2010). These extraordinary experiences draw people to the event, which may offer transcendental-type dynamic interactions, termed "rituals" or "pilgrimages" (Hill *et al.*, 2022). These shared extraordinary, authentic and unique experiences at sports events create a fan who is a passionate aficionado of a particular sport or team and displays a strong bond with that team or sport in general (i.e. fanship; Clemes *et al.*, 2011). Clemes *et al.* (2011) go on to describe these extraordinary fans of a particular team, who manifest their identification by purchasing or displaying team insignia or merchandise, thus expressing their self-identity. At the same time, fanship develops over time and is directly linked to the satisfaction a spectator derives from these extraordinary experiences from a game and its peripheral services. By intensifying fan experiences with the team, a fan has a heightened sense of identification or fanship (Hill and Green, 2012). Wu *et al.* (2012) also argue that the factors most affecting spectators' attendance reflect fans' sense of personal achievement when their team plays well and identification with the team. Fanship is thus an important explanatory factor for hedonic services, especially sports, where fans experience a multitude of consumption experiences (Watkins, 2014). Consequently, enthusiastic or highly identified fans exhibit fan-related attitudinal loyalty to the team and sponsor brands (Bodet and Bernache-Assollant, 2011; Doyle *et al.*, 2013), and we also expect a positive influence on behavioural loyalty (Clemes *et al.*, 2011). Hence, we hypothesise.

H5. Fanship is positively related to (a) Attitudinal Loyalty and (b) Behavioural Loyalty.

3.2.3 Cumulative satisfaction. Cumulative satisfaction represents "all of a consumer's previous experiences with a firm, product or service cumulatively" (Bodet, 2008, p. 157). Loyalty must be evaluated over time (Bodet and Bernache-Assollant, 2011) for sports fans (Heere and Dickson, 2008), as a football season features a combination of wins, losses and draws. Further, cumulative satisfaction can be a direct loyalty driver, as football fans may

consider their entire experience over time (Biscaia *et al.*, 2021; Koenigstorfer *et al.*, 2010). Thus, for the football satisfaction → loyalty relationship, conceptualising satisfaction as the outcome of one single transaction may be overly restrictive (Ahrholdt *et al.*, 2019; Yun *et al.*, 2021).

An extensive body of literature indicates that satisfied fans are more likely to remain loyal to their team. Cumulative satisfaction has been found to influence both attitudinal loyalty (Bodet and Bernache-Assollant, 2011; Yun *et al.*, 2021) and behavioural loyalty (Biscaia *et al.*, 2021; Yoshida *et al.*, 2015a; Yun *et al.*, 2021). Hence, we hypothesise.

H6. Cumulative Satisfaction is positively related to (a) Attitudinal Loyalty and (b) Behavioural Loyalty.

3.3 National culture

A nation's culture is argued to shape sports fans' perceptions and behaviours (Biscaia *et al.*, 2021). Therefore, it is worth considering the influence of national culture, which describes a set of meanings shared by people in a given place and time (Shavitt and Barnes, 2020), thus a pattern of thinking, feeling and acting rooted in common values and societal conventions (Nakata and Sivakumar, 2001). At a macro level, football fans' customer experience is influenced by cultural factors, with Hofstede's cultural-dimensions framework useful in highlighting the role culture can play (Grewal and Roggeveen, 2020; Shavitt and Barnes, 2020). Under Hofstede's cultural-dimensions framework, our focal countries exhibit meaningful differences, including individualism-collectivism (Germany = 67, Brazil = 38, China = 20), indulgence (Germany = 40, Brazil = 59, China = 24) and power distance (Germany = 35, Brazil = 69, China = 80) (The Hofstede Centre, 2015). Sport-related culture differences are also reported in the literature (Biscaia *et al.*, 2021; Theodorakis *et al.*, 2017), such as between Chinese and American fans in their motivation to follow professional sports, along with fan-identification levels (Han *et al.*, 2016; Kaplan and Langdon, 2012). Professional sport is a service experience, with a review of cross-cultural services research noting that inconsistent findings have been found across countries (Zhang *et al.*, 2008). For example, Ma and Kaplanidou (2020) found that US and Taiwanese baseball fans perceived service quality factors and their influences on perceived value and consumption behaviour differently. Ladhari *et al.* (2011) found French high-power-distance consumer cultural groups perceived lower service quality than their low-power-distance Canadian counterparts. Therefore, we examine national culture's effects on the proposed model and hypothesise the following.

H7a-l. National culture has an influence on each structural path in the model.

4. Methodology

The data for this study comes from a larger study on fan loyalty. A self-administered online survey that took about 10 min was used. Participants were asked to nominate their favourite football team and then answered all survey questions about this team. Participants were recruited from major universities in the respective countries via email, course-wide postings on Blackboard, student-club social-media postings and text-messaging platforms. Data collection took between two-and-a-half to four weeks depending on the country. German data collection took place in the first half of the season, whilst China and Brazil data collection occurred during the second half of the season.

To minimise non-response bias, we used good survey design techniques, offered the survey in the local language, used reminders and multiple modes of contact, along with highlighting the anonymous nature of participants' responses and ethical considerations, including that their responses would be kept confidential. We compared early and late

responses (first and last quartiles for demographics and loyalty outcomes using cross-tabulation and group-difference tests as appropriate) and found no consistent pattern of differences across the three countries except for age, with later responders being slightly younger. We then compared our sample profile with that of similar football studies (e.g. Theodorakis *et al.*, 2017; Yun *et al.*, 2021), concluding that our sample is similar in nature; thus, non-response bias is not expected to be an issue.

4.1 Measures

Measures were adopted from prior sports and marketing studies (see Appendix 1). Three items each, adapted from Wang *et al.* (2011), measured Team Interest, Football Interest and Socialisation on a 7-point, Likert-type scale (1 = strongly disagree, 7 = strongly agree). Transaction Satisfaction was measured using three items from Theodorakis *et al.* (2017) on an 11-point, Likert-type scale (0 = strongly disagree, 10 = strongly agree), tapping satisfaction with the most recent game attended. Five items on a 7-point, Likert-type scale (1 = very dissatisfied, 7 = very satisfied) were used to capture the fan's Cumulative Satisfaction with the team (Clemes *et al.*, 2011; Yun *et al.*, 2021). Fanship was measured via a single item from Clemes *et al.* (2011) on a 7-point, bi-polar scale (1 = do not support at all, 7 = support very strongly). Attitudinal Loyalty was measured via four items on a 7-point, Likert-type scale (1 = strongly disagree, 7 = strongly agree) (Gladden and Funk, 2001; Stevens and Rosenberger, 2012; Wang *et al.*, 2011). Behavioural Loyalty was measured via four items covering previous and future attendance at home games (6-point scale), games watched on TV (6-point scale) and team-merchandise items owned on a 4-point scale (Gladden and Funk, 2001; Stevens and Rosenberger, 2012). To reduce common-method bias (CMB), items were grouped by construct with predictor and criterion variables separated, used different scale endpoints (or anchors), used different response formats (e.g. 4-, 6-, 7- and 11-point scales) and emphasised participant anonymity (Podsakoff *et al.*, 2003).

Latent constructs were modelled reflectively, except Behavioural Loyalty, which was modelled formatively (Baumann *et al.*, 2011) following the decision rules of Jarvis *et al.* (2003). On this basis, the attributes of Behavioural Loyalty have an impact on (forming) Behavioural Loyalty (Hair *et al.*, 2017), whose formative indicators capture the important attributes of fans' loyalty behaviours. To account for potential sample heterogeneity, age and gender were included as controls.

Items were translated by groups of graduate students into Portuguese, German and Chinese. Separate groups back-translated each version to English to check for true accordance between the original English scale and the translated version (Banville *et al.*, 2000). We supervised the translation and back-translation processes with the assistance of respective faculty members to ensure validity.

4.2 Sample

We used a convenience sample of Brazilian, Chinese and German university-student participants who followed football and were a fan of a particular football team. Convenience samples are suitable for studies seeking to build a theory that helps explain relationships occurring in a real-world situation, as opposed to generalising effects to a specific population (Calder *et al.*, 1981), as with this study. Furthermore, using a homogeneous group of respondents allows for more precise theory building compared with a heterogeneous sample (Yun *et al.*, 2021).

Our final sample comprised 762 football fans, 70% male and 30% female, with an average age of 23 years and 44.2% (337) from Brazil, 37.5% (286) from Germany and 18.2% (139) from China. On average, participants were interested in football (4.9 out of 7) and watched 6–10 football games each season not involving their team (44% watched 11+ games). Regarding

their team, participants attended 1 home game in the previous season (26% attended 5+ games), planned to attend 2–4 home games in the next season (38% planned to attend 5+ games), watched 6–10 of their team's games on TV each season (48% watched 11+ games) and owned 3–4 items of their team's merchandise.

The sample size satisfies the minimum requirements necessary to detect minimum R^2 values of 0.10 for each country at a 5% significance level and at a 1% significance level for the combined sample (Hair *et al.*, 2017). In sum, the sample was deemed suitable for the study's purposes.

4.3 Data analysis strategy
Data analysis used partial least squares structural equation modelling (PLS-SEM), SmartPLS v3.2.8 (Ringle *et al.*, 2015). PLS-SEM is appropriate for studies explaining the variance of constructs in complex models with theoretical knowledge (Chin, 2010), for identifying the key driver constructs in conceptual models with many reflective measurement items and for models with one or more formative constructs (Hair *et al.*, 2017, 2019). Therefore, we followed recent marketing studies (e.g. Cheung *et al.*, 2022; Naqvi *et al.*, 2021; Yun *et al.*, 2021) and used PLS-SEM to perform our data analysis.

Following a two-step approach (Hair *et al.*, 2017), we first validated our outer (measurement) model by establishing convergent validity, scale reliability and discriminant validity. We then evaluated the inner (structural) model paths. The recommended 5,000 samples, path weighting and BCa bootstrapping procedure (one-tailed tests) were used (Hair *et al.*, 2019).

5. Results
5.1 Assessment of construct reliability and validity
First, all reflective item loadings exceeded the 0.708 threshold (see Appendix 1) and loaded significantly ($p < 0.01$) and more strongly on the relevant construct (Hair *et al.*, 2019). Second, the reliability for each multi-item reflective construct using composite reliability (CR), rho_A (ρ_A) and Cronbach's alpha surpassed the recommended 0.70 threshold (Chin, 2010). Third, convergent validity for all reflective constructs using the average variance extracted (AVE) exceeded the recommended 0.50 threshold. Overall, we found support for good internal consistency of all reflective scales (see Table 1).

All formative Behavioural Loyalty item weights were significant ($p < 0.01$) and featured an average inter-item correlation of 0.35, with the largest at 0.68.

Constructs	AVE	CR	Cronbach's Alpha	ρA	R^2
Attitudinal Loyalty	0.75	0.92	0.87	0.90	0.58
Behavioural Loyalty	na	na	na	na	0.52
Fanship	na	na	na	na	0.40
Football Interest	0.67	0.86	0.76	0.80	na
Cumulative Satisfaction	0.74	0.93	0.91	0.91	0.40
Transaction Satisfaction	0.83	0.94	0.90	0.91	na
Socialisation	0.76	0.90	0.84	0.87	na
Team Interest	0.72	0.89	0.81	0.81	na

Note(s): na = not applicable, AVE = Average Variance Extracted, CR = Composite Reliability
Source(s): Authors own creation

Table 1.
Construct reliability
and validity

We assessed the reflective constructs' discriminant validity using the Fornell and Larcker (1981) and heterotrait-monotrait ratio (HTMT) (Henseler *et al.*, 2015) criteria. First, the AVE square root for each reflective construct was greater than all corresponding correlations, thus satisfying the Fornell-Larcker (1981) criterion (see Table 2). Second, all HTMT values were ≤ 0.77 (see Appendix 2), thus falling below the more conservative 0.85 threshold (Henseler *et al.*, 2015; Hair *et al.*, 2019). Hence, discriminant validity was established.

Third, collinearity was assessed, with the inner-model VIF values < 1.7 and the formative-item VIF values < 2 suggesting that multicollinearity is not a problem. Finally, we checked for CMB using Harmon's one-factor test. Six factors emerged with eigenvalues >1, and the largest accounting for 41.8% of the variance, suggesting CMB is not an issue (Podsakoff *et al.*, 2003).

5.2 Assessment of the structural model

To evaluate our model, we utilised the PLS-SEM criteria of coefficient of determination (R^2), AVA (average variance accounted for), cross-validated redundancy (Q^2), Shmueli *et al.*'s (2016) out-of-sample predictive power ($Q^2_{predict}$) and the path coefficients. The R^2 values for our model (0.40–0.58; see Table 1) are in the average-to-substantial range (Hair *et al.*, 2011), suggesting good (in-sample) predictive accuracy. The AVA was 0.48. The Q^2 and $Q^2_{predict}$ values support the predictive power and accuracy of our model at the construct level (see Appendix 2 for details). (The path coefficients are discussed in the next section.) When controlling for age and gender, there were no meaningful changes due to the controls' inclusion/exclusion.

5.3 Testing the hypothesised model – direct effects

The parameter estimates for all hypothesised paths (total sample) were positive and highly significant ($p < 0.001$) except for one path (H1b; see Table 3). Socialisation had a significant, positive effect on Fanship {H1a: β = 0.124; t (3.452), $p < 0.001$} but a marginally significant, positive effect on Cumulative Satisfaction {H1b: β = 0.057; t (1.588), $p = 0.056$}. Team Interest had a significant, positive effect on Fanship {H2a: $\beta = 0.284$; t (6.760), $p < 0.001$} and Cumulative Satisfaction {H2b: $\beta = 0.215$; t (5.244), $p < 0.001$}. Football Interest had a significant, positive effect on Fanship {H3a: $\beta = 0.243$; t (6.265), $p < 0.001$} and Cumulative Satisfaction {H3b: $\beta = 0.209$; t (5.247), $p < 0.001$}. Transaction Satisfaction had a significant, positive effect on Fanship {H4a: $\beta = 0.151$; t (3.785), $p < 0.001$} and Cumulative Satisfaction {H4b: $\beta = 0.302$; t (6.998), $p < 0.001$}. Next, Fanship had a significant, positive effect on Attitudinal Loyalty {H5a: $\beta = 0.560$; t (18.796), $p < 0.001$} and Behavioural Loyalty {H5b: $\beta = 0.636$; t (24.536), $p < 0.001$}. Similarly, Cumulative Satisfaction had a significant, positive effect on Attitudinal Loyalty {H6a: $\beta = 0.341$; t (10.849), $p < 0.001$} and Behavioural Loyalty {H6b: $\beta = 0.126$; t (4.015), $p < 0.001$}.

5.4 The moderating influence of national culture

The individual-country results showed a general consistency across the three countries, although there were differences in the magnitude of the path coefficients (see Table 4). To evaluate national culture's moderating influence, we assessed the model's pairwise path differences between countries (see Table 3) using the permutation test (Hair *et al.*, 2017). Permutation tests were run (5,000 permutations) with a multiple-comparison Bonferroni adjustment applied (x/3) for p-value evaluation, where $p \leq 0.017$ = significant and $p \leq 0.033$ = marginally significant. Although eight pairwise differences were initially found (at $p \leq 0.10$), only three remained significant with the Bonferroni adjustment applied (i.e. $p \leq 0.017$) between German and Brazilian fans: Transaction Satisfaction → Cumulative

Variables	Mean	SD	Correlation matrix								
			1	2	3	4	5	6	7	8	9
1. Attitudinal Loyalty	5.34	1.71	*0.86*								
2. Age	22.99	7.34	0.01	*1*							
3. Behavioural Loyalty	3.38	1.12	0.68	-0.02	na						
4. Fanship	5.05	1.84	0.69	-0.05	0.71	*1*					
5. Football Interest	4.88	1.67	0.54	-0.01	0.48	0.52	*0.82*				
6. Gender	1.30	0.46	-0.16	-0.11	0.39	-0.23	-0.25	*-0.33*			
7. Transaction Satisfaction	5.18	1.82	0.64	-0.06	0.49	0.47	0.50	0.54	*1*		
8. Socialisation	4.34	1.69	0.48	-0.03	0.39	0.43	0.46	0.36	-0.07	*0.91*	
9. Team Interest	5.80	1.50	0.65	-0.01	0.52	0.54	0.49	0.60	-0.09	0.53	*0.85*

Note(s): Diagonal entries are the square root of the AVE; all others are correlations coefficients. *na* = not applicable

Source(s): Authors' own creation

Hypothesis	Relationship	Total sample ($n = 762$) Path (β)	t-value	Hypothesis outcome
H1a	Socialisation → Fanship	0.124***	3.452	Supported
H1b	Socialisation → CS	0.057^	1.588	Partially supported
H2a	Team Interest → Fanship	0.284***	6.760	Supported
H2b	Team Interest → CS	0.215***	5.244	Supported
H3a	Football Interest → Fanship	0.243***	6.265	Supported
H3b	Football Interest → CS	0.209***	5.247	Supported
H4a	TS → Fanship	0.209***	3.785	Supported
H4b	TS → CS	0.302***	6.998	Supported
H5a	Fanship → AL	0.560***	18.769	Supported
H5b	Fanship → BL	0.636***	24.536	Supported
H6a	CS → AL	0.341***	10.849	Supported
H6b	CS → BL	0.126***	4.015	Supported
Control Variables				
	Age → AL	0.075**	2.62	
	Age → BL	0.020	0.739	
	Gender → AL	0.009	0.368	
	Gender → BL	−0.082**	2.775	
Explanatory Ability (R^2)				
	R^2 of Fanship	0.404		
	R^2 of CS	0.397		
	R^2 of AL	0.579		
	R^2 of BL	0.517		
	AVA	0.47		

Note(s): ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$, ^ = $p < 0.10$; AL: Attitudinal Loyalty; BL: Behavioural Loyalty; CS: Cumulative Satisfaction; TS: Transaction Satisfaction; AVA = Average Variance Accounted For
Source(s): Authors own creation

Table 3.
PLS results – hypothesis testing

Satisfaction (H7h), Cumulative Satisfaction → Attitudinal Loyalty (H7i) and Fanship → Attitudinal Loyalty (H7k).

6. Discussion

The results support all proposed direct-effects hypotheses fully except one (H1b is partially supported) and contribute to theory development in the fan-loyalty context. The results also support our use of the S-O-R paradigm to improve our understanding of drivers of football fan loyalty related to the fan experience and service-consumption stimuli of game experiences. The hypothesis testing showed that all four stimuli—socialisation, team interest, football interest and transaction satisfaction—influence fanship. Equally, these four stimuli influence cumulative satisfaction, providing strong evidence supporting the stimulus → organism part of our extended S-O-R conceptual model. This finding supports our conceptual argument that the level of game and team quality, along with social interaction among fans and team and football interest, act as critical components of the football fan experience (Biscaia *et al.*, 2016; Bodet, 2008; Clemes *et al.*, 2011; Grewal and Roggeveen, 2020; Wang *et al.*, 2011).

Next, the hypothesis testing showed that our posited internal (O) affective (fanship) and cognitive (cumulative satisfaction) states lead to attitudinal and behavioural loyalty responses (R). This supports the organism → response part of our model (Ahrholdt *et al.*, 2019; Clemes *et al.*, 2011; Wu *et al.*, 2012; Yoshida *et al.*, 2015a, b).

Hypothesis	Relationship	Brazil Sample (n = 337) Path (β)	t-value	China Sample (n = 139) Path (β)	t-value	Germany sample (n = 286) Path (β)	t-value	Hypothesis outcome
H7a	Socialisation → Fanship	0.070^	1.303	0.288***	3.667	0.147**	2.778	Not supported
H7b	Socialisation → CS	0.089*	1.729	0.196*	2.300	0.001	0.006	Not supported
H7c	Team Interest → Fanship	0.202***	3.352	0.377***	3.512	0.270***	4.623	Not supported
H7d	Team Interest → CS	0.146**	2.646	0.173*	1.949	0.102	1.270	Not supported
H7e	Football Interest → Fanship	0.230***	3.795	0.172*	1.687	0.343***	6.397	Not supported
H7f	Football Interest → CS	0.201***	3.564	0.177^	1.392	0.197**	2.804	Not supported
H7g	TS → Fanship	0.257***	4.108	0.039	0.478	0.102*	1.697	Not supported
H7h	TS → CS	0.421***	8.051	0.245*	2.010	0.098^	1.562	Supported: G-B‡
H7i	Fanship → AL	0.502***	10.802	0.585***	8.568	0.673***	12.814	Supported: G-B‡
H7j	Fanship → BL	0.592***	13.248	0.622***	11.142	0.684***	18.694	Not supported
H7k	CS → AL	0.373***	7.717	0.267***	3.350	0.160***	3.284	Supported: G-B‡
H7l	CS → BL	0.167***	3.251	0.165**	2.632	0.117**	2.321	Not supported
	Control Variables							
	Age → AL	0.143***	3.652	0.002	0.016	-0.024	0.664	G-B‡
	Age → BL	0.085*	2.107	-0.036	0.735	-0.075*	1.866	G-B‡
	Gender → AL	-0.005	0.151	0.133**	2.407	-0.009	0.184	
	Gender → BL	-0.130**	2.843	-0.097	1.113	-0.063^	1.393	
	Explanatory Ability (R^2)							
	R^2 of Fanship	0.392		0.467		0.425		
	R^2 of CS	0.521		0.525		0.572		
	R^2 of AL	0.563		0.533		0.546		
	R^2 of BL	0.521		0.525		0.572		
	AVA	0.50		0.47		0.41		

Note(s): ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$, ^ = $p < 0.10$; ± multiple-comparison Bonferroni adjustment applied for the group tests, where $p \leq 0.017$ = significant and $p \leq 0.033$ = marginally significant; G-B = Germany–Brazil comparison; AL: Attitudinal Loyalty; BL: Behavioural Loyalty; CS: Cumulative Satisfaction; TS: Transaction Satisfaction; AVA = Average Variance Accounted For
Source(s): Authors own creation

Table 4.
PLS-MGA results by
country – direct
effects model

These findings add to the football fan-loyalty literature, providing evidence that supports the role of the fan experience and service-consumption stimuli related to those game experiences as significant drivers (stimuli) of the fan's affective (fanship: Bodet and Bernache-Assollant, 2011; Watkins, 2014; Wu *et al.*, 2012) and cognitive states (cumulative satisfaction: Biscaia *et al.*, 2012; Lamberti *et al.*, 2022). These findings add to the limited evidence on fanship's antecedents and its role as a driver of attitudinal and behavioural loyalty, such that highly enthusiastic (or identified) fans have been found to display fan-related behaviours and commitment to a particular team (e.g. Clemes *et al.*, 2011; Doyle *et al.*, 2013).

However, we found a marginally significant relationship between the socialisation aspect of environmental stimuli and cumulative satisfaction. This may be because fans see the all-encompassing football (i.e. game satisfaction, team interest and football interest) as the main driver of cumulative satisfaction, and socialisation is not as directly related to the sport of football. The explanation for this may be that socialisation contributes to the improvement of perceived fanship (Clemes *et al.*, 2011; Hill and Green, 2012), which leads fans to have a positive experience. However, socialised fans' outcomes may decline (Evans *et al.*, 2008) due to fans relying on the experience-quality elements (between fans during and post-game) to determine their overall satisfaction, which is beyond the control of the football club. In our study, the average levels of fans' stimuli (i.e. team and sport interest, socialisation and transaction satisfaction) indicate that fans perceive their experience in more passionate than rational terms. Football matches offer socialisation opportunities, but these are not sufficiently strong in our sample to achieve meaningfully improved levels of cumulative satisfaction given the other more directly football-related stimuli in our model.

Further, the findings confirm cumulative satisfaction's role as a driver of attitudinal and behavioural loyalty, which is consistent with the literature (e.g. Ahrholdt *et al.*, 2019; Biscaia *et al.*, 2021; Gray and Wert-Gray, 2012; Yun *et al.*, 2021). Regarding its weak influence on behavioural loyalty, considering the emotional attachment fans often have (Prayag *et al.*, 2020), it is argued that die-hard fans are more likely to be loyal to a particular team regardless of their level of satisfaction with their team's overall performance (Biscaia *et al.*, 2012). It is also possible that cumulative satisfaction has a non-linear influence on loyalty (see Ahrholdt *et al.*, 2019). Thus, future research could explore fan identification's moderating role on the fan satisfaction → loyalty relationship.

Finally, the model's relationships showed some differences existed across the three countries, with three of the model's 12 structural paths (H7h, H7i and H7k) significantly different (along with the influence of the control variable, age, on attitudinal and behavioural loyalty), for Germany vis-à-vis Brazil. The mixed findings are consistent with the sports literature, which has noted both similarities and differences being found in cross-cultural studies (Biscaia *et al.*, 2021; Theodorakis *et al.*, 2017).

7. Theoretical implications

Our study provides four theoretical contributions that advance the fan-loyalty discourse. First, building on past S-O-R studies, we empirically confirm a conceptual model wherein socialisation, team interest, football interest and transaction satisfaction (stimuli) influence fanship and cumulative satisfaction (organism), which then affect attitudinal and behavioural loyalty (response) in the football context. We argue that these factors are vital to consider, as football fans are often strangers, along with team and sport interest increasing fans' engagement and experiences in offline/online interactions (Yun *et al.*, 2021). They also represent important customer-experience elements (Becker and Jaakkola, 2020; Lemon and Verhoef, 2016), with the findings of this study helping to address the need for a more holistic understanding of the factors influencing the consumer's experience (Grewal and Roggeveen, 2020). We believe that this is one

of the first studies to empirically assess fanship as a central element, enriching the existing fan-loyalty literature.

Second, we advance the understanding of the significance of socialisation and fan-interest factors in the service industry of football. We identify football fans' service-consumption environment as important to understand the effects of experience and socialisation motives (Becker and Jaakkola, 2020; Lemon and Verhoef, 2016; Yoshida, 2017) along with transaction satisfaction (Akroush and Mahadin, 2019; Bodet, 2008; Matsuoka *et al.*, 2003). Team and sport (football) interest and (transaction) satisfaction with the match drive the fanship and cumulative satisfaction considerations of fan experiences. However, while socialisation influences fanship, it does not appear to have as meaningful a role in driving cumulative satisfaction as part of football fan experiences. This may be due to the fans participating in our study perceiving their experience in more passionate than rational terms, with the socialisation opportunities partaken of not sufficiently strong enough to achieve meaningfully improved levels of cumulative customer satisfaction given the other more directly football-related stimuli in our model. We believe this is an interesting contribution to the literature. Football games are mostly thought of in terms of fans being interested in attending the match only based on their team and sport interest. However, our results suggest that they also value the interactions with other fans attending the game. This experience emotionally contributes towards fanship within the football context, and thus indirectly drives attitudinal and behavioural loyalty. Therefore, this study expands the literature on fanship in football (e.g. Watkins, 2014; Wu *et al.*, 2012) by demonstrating its positive influence on fan loyalty and how it channels the influence of socialisation towards attitudinal and behavioural loyalty.

Third, we develop a theoretical framework that explores the outcomes of fanship and the transaction and non-transaction aspects of customer satisfaction with football. Fan-loyalty studies typically include only one type of satisfaction, yet both satisfaction types play a role in consumer behaviour (Bodet, 2008; Genchev *et al.*, 2021), as shown by our study. We identify football fans' service-consumption environment as important to understanding the effects of experience and socialisation motives (Becker and Jaakkola, 2020; Lemon and Verhoef, 2016) along with transaction satisfaction (Akroush and Mahadin, 2019; Bodet, 2008; Matsuoka *et al.*, 2003). Our study thus confirms the importance of fanship and cumulative satisfaction for football fans, which were both found to be significant predictors of both attitudinal and behavioural loyalty in the football context. Therefore, football fans exhibiting greater fanship and cumulative satisfaction levels are likely to attend more games in person or watch them on TV, spend longer socialising among fans during or post-game and purchase team paraphernalia. By addressing these issues, our study helps address the need for empirical examination of the antecedents and outcomes of fanship in football across multiple contexts (Alonso-Dos-Santos *et al.*, 2018; Yun *et al.*, 2021).

Finally, our study contributes to the fan-loyalty literature by comprehensively conceptualising socialisation, team interest, sport interest and transaction satisfaction (game) as environmental stimuli that collectively have a strong impact on fan loyalty as a response through the organism state of fanship and cumulative satisfaction. To the best of our knowledge, no fan-loyalty studies have applied the S-O-R framework in investigating fan involvement (e.g. Hill and Green, 2012) as a stimulus, which improves the understanding of the framework and furthers the knowledge of fan experiences. The results show that there are some cultural differences across the three countries, with three of the model's 12 structural paths significantly different for Germany vis-à-vis Brazil, which partially supports the moderating effect of culture. Given the extent of the similarities across countries, we also conclude that our model largely holds in a variety of national-culture contexts, which provides an initial boundary check on its generalisability.

8. Practical implications

Several practical fan-loyalty implications emerge from this research. Our findings will assist teams to formulate more effective, fan-centric, game-day-experience and communication strategies, leading to a larger, more loyal fan base. Having a stable fan base implies that teams can increase their revenue by extending core products into new income generators and charging a price premium (Mahony *et al.*, 2000). Moreover, as fan experience and service-consumption stimuli related to those game experiences play an important role in driving fanship and cumulative satisfaction and, in turn, attitudinal and behavioural loyalty, teams could communicate and continue to emphasise the history and status of the team and sport during the season and look to enhance pleasurable experiences for football fans through the social aspect of watching a game and ensuring a good performance by the teams in the game, thus driving fanship and cumulative satisfaction and thence loyalty.

Additionally, whilst there is large degree of consistency in the model's results across the three countries, there are some individual differences in magnitude that warrant consideration for fine-tuning potential actions. Based on our cross-cultural results, practical strategies would include (a) focusing on transaction satisfaction for Brazilian fans, (b) promoting team interest and the social aspects for general Chinese fans, (c) increasing both football and team interest for general Brazilian and German fans and (d) focusing on fanship to increase attitudinal and behavioural loyalty for all countries. Chinese sports marketers should strive to enhance team interest and the social aspects during the games since the impact of socialisation on cumulative satisfaction was only significant for the Chinese sample. As German and Brazilian fans already have well-established fanship, increasing general football interest and suggesting teams reach out to general populations would be important.

The interactive, experiential nature of the football stadium atmosphere includes a multitude of environmental cues, such as the crowd, the stadium and the game itself, which could bring new considerations to the fanship and loyalty behaviour discussion. For instance, to encourage fan interaction (social, team or game related) around the game day, a team could consider live trivia event before the game or during half-time (e.g. via an add-on to the team's smartphone app) to engage fans with the team and the game itself, whilst also encouraging socialising between spectators at the game. To broaden the scope for interaction, this could include not only those in the stadium but fans watching at home or the pub. This offline/online interaction would help keep fans engaged during the game and, at the same time, also engage fans who are not present during the game but who could then still interact with fans at the game. This interaction—if executed appropriately with proper implementation—would develop overall fanship towards the team and foster socialisation both on and off the field for fans.

Furthermore, given the ongoing nature of the COVID-19 pandemic, although games are now back to the stands being filled, the initial experience of COVID-19 should not be forgotten given future outbreaks are a possibility, as consumers increasingly take a "safety first" mindset (Rahman *et al.*, 2022). Ensuring a safe customer experience in the football consumption setting post-COVID requires teams to identify the safety elements playing a large role during the service encounters in the stadium whilst fans are consuming the offering and interacting with employees and other fans, which also includes such things as physical accessibility, social distancing and interpersonal interactions with others. Doing this means that fans' sense of personal and social well-being can be heightened (i.e. lower fear and anxiety levels), resulting in improved loyalty outcomes (Rahman *et al.*, 2022).

9. Limitations and future research

There are research limitations to keep in mind when seeking to compare and generalise these findings, which suggest future research avenues. First, a cross-sectional, student sample was

used from three countries. Second, other factors may also play a role in explaining attitudinal and behavioural fan loyalty. Therefore, future research could include more countries and non-student populations, along with considering other constructs, such as engagement, relationship quality, fan identity, cultural dimensions and co-creation of value. Future research could also explore the what football fans perceive to construe a safe customer experience at a football match in a post-pandemic context and how that affects the various S-O-R stages in our model. The potential role of gender and age could also be explored.

10. Conclusion
Our study addresses a gap in the literature by providing a better understanding of what contributes to fan loyalty for football teams. Based on the S-O-R paradigm, we developed and empirically validated a model of the effects of football-game socialisation, team interest, football interest and transaction satisfaction (stimuli) on fanship and cumulative satisfaction (organism) and subsequently their attitudinal and behavioural loyalty (response). Our study advances our understanding of the significance of socialisation and fan-interest factors for football, providing evidence supporting the role of the fan experience and service-consumption stimuli related to those game experiences as significant drivers (stimuli) of the fan's affective (fanship) and cognitive (cumulative satisfaction) states. Our study also enriches the limited body of evidence on fanship's role as a driver of attitudinal and behavioural loyalty. Whilst some between-country differences were found that partially support the moderating effect of national culture, the similarities also provide an initial boundary check of our model, suggesting it holds in a variety of national-culture contexts. We provide practical implications for sports marketers, including identifying differences amongst the three countries.

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Appendix 1

Components and manifest variables	Total sample (*n* = 762)	Brazil (*n* = 337)	Germany (*n* = 286)	China (*n* = 139)
Attitudinal Loyalty: Reflective Measure Sources: Gladden and Funk (2001), Stevens and Rosenberger (2012)	*Loading* AVE: 0.75, CR: 0.92, ρA: 0.90	*Loading* AVE: 0.74, CR: 0.92, ρA: 0.89	*Loading* AVE: 0.73, CR: 0.92, ρA: 0.90	*Loading* AVE: 0.80, CR: 0.94, ρA: 0.93
LOYAL_AL_1: I would be willing to defend my favourite team publicly, even if it caused controversy	0.85* (64.04)	0.83* (40.09)	0.85* (27.63)	0.90* (37.83)
LOYAL_AL_2: I could never change my affiliation from my favourite team to another professional team	0.87* (59.60)	0.85* (40.12)	0.90* (37.58)	0.93* (57.84)
LOYAL_AL_3: I consider myself a committed fan of my favourite team	0.91* (116.58)	0.88* (62.69)	0.93* (78.76)	0.95* (96.92)
LOYAL_AL_4: I would watch my favourite team regardless of which team they were playing against at the time	0.82* (44.16)	0.87* (49.85)	0.72* (13.22)	0.77* (18.14)
Fanship: Reflective Measure Source: Clemes et al. (2011)	*Loading* AVE: na, CR: na	*Loading* AVE: na, CR: na	*Loading* AVE: na, CR: na	*Loading* AVE: na, CR: na
On the scale below, would you consider yourself a casual follower or an avid fan of YOUR favourite sporting team?	1	1	1	1
Football Interest: Reflective Measure Source: Wang et al. (2011)	*Loading* AVE: 0.67, CR: 0.86, ρA: 0.80	*Loading* AVE: 0.72, CR: 0.89, ρA: 0.84	*Loading* AVE: 0.62, CR: 0.83, ρA: 0.79	*Loading* AVE: 0.66, CR: 0.85, ρA: 0.75

Table A1.
Construct measures
and indicator loadings

Components and manifest variables	Total sample (n = 762)	Brazil (n = 337)	Germany (n = 286)	China (n = 139)
SPORT_1: My interest in my favourite sport sparked my interest in the team	0.71* (24.92)	0.75* (19.95)	0.62* (9.56)	0.83* (18.22)
SPORT_2: I attend my favourite team's games because it is one of my favourite sport	0.88* (80.86)	0.88* (59.69)	0.84* (28.31)	0.83* (18.47)
SPORT_3: First and foremost, I consider myself a fan of my favourite sport	0.87* (70.15)	0.91* (86.12)	0.89* (49.73)	0.78* (14.82)
Cumulative Satisfaction: Reflective Measure *Sources: Clemes* et al. *(2011), Yun* et al. *(2021)*	*Loading* AVE: 0.74, CR: 0.93, ρA: 0.91	*Loading* AVE: 0.74, CR: 0.93, ρA: 0.91	*Loading* AVE: 0.58, CR: 0.87, ρA: 0.86	*Loading* AVE: 0.77, CR: 0.95, ρA: 0.95
SAT_OA_1: The entertainment value of the games of YOUR favourite team that you watched	0.84* (65.19)	0.79* (34.38)	0.80* (24.48)	0.88* (30.85)
SAT_OA_2: The effort put in by the players of YOUR favourite team	0.88* (61.41)	0.87* (35.87)	0.84* (31.40)	0.88* (29.10)
SAT_OA_3: Team performance (i.e. quality of play by YOUR team)	0.90* (106.90)	0.92* (88.86)	0.85* (34.97)	0.93* (60.48)
SAT_OA_4: The excellence of the contest (i.e. the quality/standard of play by both teams)	0.87* (59.91)	0.83* (30.19)	0.79* (21.34)	0.93* (57.42)
SAT_OA_5: Your feelings towards the league YOUR favourite team competes in can best be characterised as …	0.80* (45.07)	0.88* (60.10)	0.46* (5.54)	0.76* (12.12)
Transaction Satisfaction: Reflective Measure *Source: Theodorakis* et al. *(2013)*	*Loading* AVE: 0.83, CR: 0.94, ρA: 0.91	*Loading* AVE: 0.89, CR: 0.96, ρA: 0.94	*Loading* AVE: 0.77, CR: 0.91, ρA: 0.97	*Loading* AVE: 0.83, CR: 0.93, ρA: 0.95
SAT_GAME_1: Overall, I think the game was a satisfying experience	0.84* (46.60)	0.92* (64.05)	0.71* (12.18)	0.89* (51.88)
SAT_GAME_2: Overall, I am satisfied with my decision to go to the game	0.95* (156.91)	0.96* (115.78)	0.95* (62.86)	0.92* (27.82)
SAT_GAME_3: I did the right thing to attend this game	0.94* (144.34)	0.95* (87.88)	0.96* (98.38)	0.91* (28.72)
Socialisation: Reflective Measure *Source: Wang* et al. *(2011)*	*Loading* AVE: 0.76, CR: 0.90, ρA: 0.90	*Loading* AVE: 0.80, CR: 0.93, ρA: 0.89	*Loading* AVE: 0.72, CR: 0.88, ρA: 0.84	*Loading* AVE: 0.76, CR: 0.90, ρA: 0.86
SOC_1: I enjoy interacting with other spectators and fans when attending	0.88* (81.53)	0.89* (60.83)	0.86* (34.56)	0.88* (32.05)
SOC_2: Games give me a chance to meet other people with similar	0.88* (71.32)	0.89* (46.19)	0.88* (54.50)	0.90* (48.70)
SOC_3: I like to talk with other people sitting near me at games	0.85* (49.96)	0.91* (55.54)	0.79* (19.42)	0.83* (18.55)
Team Interest: Reflective Measure *Source: Wang* et al. *(2011)*	*Loading* AVE: 0.72, CR: 0.89, ρA: 0.81	*Loading* AVE: 0.71, CR: 0.88, ρA: 0.79	*Loading* AVE: 0.66, CR: 0.85, ρA: 0.74	*Loading* AVE: 0.82, CR: 0.93, ρA: 0.93

(*continued*)

Table A1.

Components and manifest variables	Total sample (n = 762)	Brazil (n = 337)	Germany (n = 286)	China (n = 139)
TEA_1: I consider myself a fan of the whole team	0.85* (49.21)	0.84* (36.24)	0.80* (15.76)	0.83* (12.33)
TEA_2: I come to games to support the whole team	0.84* (45.34)	0.86* (42.80)	0.77* (18.52)	0.93* (48.12)
TEA_3: I am a fan of the entire team	0.86* (55.56)	0.82* (29.39)	0.85* (23.39)	0.95* (87.29)
Behavioural Loyalty: Formative Measure *Sources: Gladden and Funk (2001), Stevens and Rosenberger (2012)*	*Index Weights (Formative construct)*	*Index Weights (Formative construct)*	*Index Weights (Formative construct)*	*Index Weights (Formative construct)*
LOYAL_BL_1: How many home games of YOUR favourite team do you anticipate yourself attending in the next season?	0.20* (3.45)	0.30* (3.60)	0.26* (2.46)	0.28^ (2.29)
LOYAL_BL_2: How many home games of YOUR favourite football team did you attended in the previous season?	0.29* (5.45)	0.28* (3.76)	$0.15^{\#}$ (1.40)	0.06 (0.58)
LOYAL_BL_3: How many items of YOUR favourite team's merchandise, such as hats, posters, flags and jerseys, do you own?	0.33* (7.39)	0.20* (2.68)	0.53* (7.49)	$0.13^{\#}$ (1.44)
LOYAL_BL_4: On average, how many of YOUR favourite team's games do you watch on television during a season?	0.54* (12.85)	0.51* (6.81)	0.47* (6.25)	0.79* (9.42)

Note(s): *t*-values in parentheses; CR: Composite Reliability; * = meets or exceeds criterion of $p < 0.01$, ^ $p < 0.05$, $^{\#}p < 0.05$ (1-tailed); *na*: not applicable

Source(s): Authors own creation

Table A1.

Appendix 2.
Technical detail – HTMT matrix and predictive validity

	1	2	3	4	5	6	7	8	9
1. Age									
2. Attitudinal Loyalty	0.037								
3. Fanship	0.045	0.732							
4. Football Interest	0.012	0.629	0.566						
5. Gender	0.113	0.166	0.226	0.288					
6. Cumulative Satisfaction	0.135	0.617	0.425	0.587	0.093				
7. Transaction Satisfaction	0.064	0.71	0.492	0.579	0.073	0.60			
8. Socialisation	0.04	0.54	0.458	0.561	0.025	0.417	0.425		
9. Team Interest	0.046	0.771	0.605	0.603	0.096	0.583	0.621	0.57	

Source(s): Authors own creation

Table A2.
HTMT matrix

Predictive validity

We assessed the model's predictive relevance by means of the Q^2 blindfolding procedure (cross-validated redundancy approach, omission distance = 7) to calculate the Stone–Geisser assessment (Geisser, 1974), which combines aspects of out-of-sample prediction and in-sample explanatory power (Hair *et al.*, 2019). The Q^2 values ranged from 0.25 to 0.40, indicating that the PLS path model has predictive relevance and a medium to large predictive accuracy (Hair *et al.*, 2019).

Next, the prediction relevance was also checked using the Shmueli *et al.* (2016) out-of-sample PLSpredict k-folds procedure (folds = 10, repetitions = 10) as implemented in SmartPLS. The $Q^2_{predict}$ values were for assessed for the endogenous latent variables in the PLS path model (Hair *et al.*, 2019), with all $Q^2_{predict}$ values > 0 for the latent-variable prediction, which indicates that the model outperforms the most naïve benchmark – i.e. the indicator means from the analysis sample. In sum, the Q^2 and $Q^2_{predict}$ values support the predictive power and accuracy of the PLS path model at the construct level.

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