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Connecting the worlds of sailing and e-sailing: the structural relationships among gaming experience, psychological variables and sport behaviour intentions

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ABSTRACT

Purpose/Rationale: This study examines the relationship between virtual sport gaming experiences related to sport and subsequent sport-related behavioural intentions, specifically in the context of sailing.

Design/Methodology/Approach: Utilising data from 593 participants of the 'Virtual Regatta' online community, this research employs a two-step structural equation modeling approach to test hypotheses that are established based on theories and empirical results.

Findings: Our findings revealed significant relationships among online game identification, positive affect, satisfaction, attachment and behavioural intentions, supporting all the hypotheses.

Practical implications: The results suggest that sport video games can significantly influence real-world sport engagement. Sport marketers are advised to develop integrated campaigns that connect video game experiences with physical sport activities to enhance fan engagement and participation.

Research contribution: This study extends the existing literature by mapping the emotional and cognitive pathways through which sport gaming experiences influence fanship and media consumption, adding depth to the understanding of sport consumer behaviour in digital contexts.

Originality/Value: This research highlights the utility of psychological theories in explaining the impact of virtual sport gaming experiences on real-world behaviour. This provides a novel insight into the strategic integration of digital and traditional sport platforms to boost sport participation.

Introduction

The e-sailing market has seen rapid growth in recent years, driven by the increasing popularity of the digital sailing platform (i.e. Virtual Regatta) and competitive online sailing events (e.g. Olympic Esports Series, eSailing World Championship; World Sailing, 2020). This rapidly growing digital ecosystem offers unique opportunities to promote real-world sailing by engaging younger, tech-savvy audiences who may not have previously interacted with the sport, bridging the gap between

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virtual and physical sailing. Extant research on sailing has primarily concentrated on its health and psychological benefits. For example, many studies uncovered that sailing improves the quality of life (Cappelletti et al., 2020) and contributes to reducing the psychological distress of certain groups (Mirandola et al., 2020). Similar positive impacts were observed with virtual sailing experiences, suggesting that such benefits may extend into the virtual realm. For instance, virtual sailing significantly enhances motor coordination and cognitive functions, while also providing psychosocial benefits such as improved mood and social engagement (Xiao, 2024). Due to the advancement of technologies, studies exploring augmented reality for sailing have emerged as a promising new research area (e.g. Laera et al., 2024). While research on online games has been widely framed within the context of business, media studies, sociology paradigms, and problematic behaviours across various genres of games (Chan et al., 2022), investigating e-sailing as a marketing tool remains notably scarce.

Hence, a gap in this body of research is the lack of attention to the e-sailing and the marketing perspective of the online sport game. Despite the growing popularity of esports, limited research has examined how these virtual experiences influence real-world sport engagement. Given the increasing role that digital platforms play in shaping consumer behaviour and sporting interests (Ráthonyi et al., 2018; Tu et al., 2019), this gap is worth exploring. The gap is particularly significant given the increasing popularity of e-sailing games, which offer unique opportunities and challenges for the sport as well as esports event marketers. Understanding the consumer behaviour dynamics of e-sailing is essential for leveraging its benefits to broader sailing fans and sport itself.

With this regard, behaviour research on online games is broadly divided into three areas: (a) the attractive features of virtual environments, (b) the psychology of players, and (c) the cognitive aspects that shape gamers' attitudes and behaviour (Koo, 2009). Concerning the third category that the current study situates itself; it is intuitive that online sport gaming (i.e. e-sailing in this study) can affect user experiences toward actual sport (i.e. sailing in this study). However, the underlying mechanism explaining how sport gaming experience (e.g. emotion and satisfaction) can translate into sport-related behaviour intentions (e.g. fanship and media consumption intentions) remains to be understood. This omission points to the need for comprehensive research that investigates how traditional sailing experiences can be effectively promoted by e-sailing. This lack of understanding of existing knowledge led to two primary research objectives. Therefore, the first objective of this research is to investigate the potential of e-sailing as a marketing tool for promoting participation in real-life sailing from an organisational perspective. The second objective of this research is to examine how psychological variables associated with e-sailing experiences may influence intentions to engage in real-life sailing-related behaviours from a consumer perspective.

In an effort to address the questions, the present research proceeds as follows: (a) this study develops a theoretical framework informed by several key theories such as social identity theory, cognitive appraisal theory, attachment theory and expectancy disconfirmation theory, (b) the current study details the process of data collection and methodologies employed to answer the research questions, and (c) this study discuss the implications of the findings, drawing conclusions that contribute to both the academic literature and practical applications in the field. The potential theoretical contribution of the current research is its being the first to explain whether and how gaming experience factors (e.g. identification, positive affect, satisfaction and attachment) impact loyal behaviours of the actual sport. A potential practical contribution is that, given global concerns about

physical inactivity and declining sport engagement, the findings suggest that sport organisations can leverage virtual sports to bridge the gap between virtual and traditional activities.

Theoretical background and hypothesis development

Social identity theory: the influence of game identification on positive affect

According to social identity theory, by categorising themselves as members of a certain social group or through psychological connections to social categories and activities, they create their own identity to establish self-esteem and show favourable bias toward the social group or activity domain to which they feel connected (Mael & Ashforth, 1992; Tajfel & Turner, 1986). Importantly, individuals derive positive psychological benefits and self-concept not only from a sense of belonging in a group but also through their engagement with and attachment to specific social contexts and activities (Ashforth & Mael, 1989; Yim et al., 2023). This conceptualisation is particularly relevant in the context of online gaming, where players develop a significant aspect of their self-concept through their sustained engagement with gaming activities, even in the absence of formal group membership. As a result, individuals who strongly identify with gaming activities are more likely to experience positive emotions and feel satisfaction towards themselves and their chosen domain of identification. It is worth noting that the theory has been successfully applied in understanding sport fans' consumer behaviour (e.g. Kim & Manoli, 2022, 2023).

Previous studies applying social identity theory to online game research have often concentrated on specific aspects or elements within games. For instance, a considerable amount of research has been directed towards understanding users' identification with characters or avatars in the game (Li & Lwin, 2016; Teng, 2017) or self-identification as a gamer (Jung, 2020). Conversely, there has been limited

investigation into users' identification with the game itself (Badrinarayanan et al., 2015). This study aims to fill this gap by focusing on game identification. Online gamers identify themselves as gaming activities (e.g. characters or avatars) they develop in the game (Teng, 2017). In this study, thus, e-sailing gamers' identification with a game (i.e. Virtual Regatta) is focused on and framed within the context of the social identity theory, and the concept encompasses both aspects of identification: the connection with specific gaming activities itself and the identification with characters or avatars developed within the game.

The synthesis of these findings underscores a significant association between social identity and emotional factors within the gaming context. Moreover, it is worth noticing that online game and their community provide an ideal opportunity to study a horizontal relationship (i.e. fan-to-fan relationship) while maintaining a chance to examine fan-to-game relationships (i.e. fan-to-game relationship; Katz et al., 2018). For instance, members in an online community strengthen a sense of identification with the community to the extent of their relationship with other members throughout the interaction and participation (Qu & Lee, 2011). Identification with a game can evoke significant emotional responses from fans. Thus, this study hypothesises:

> **H1**. The e-sailing game identification is associated with positive affect of fans.

Cognitive appraisal theory: positive affect as an antecedent of satisfaction and attachment

Cognitive appraisal theory posits that emotions are short-term mental reactions arising from the appraisal of personally relevant information (Roseman, 1984) or from an individual's evaluation of their consumption experiences (Soscia, 2013). The term "positive emotion" is often used interchangeably with "positive affect" (Park et al., 2019), and it plays a crucial

role in shaping the consumption experience (Babin et al., 1998). As a result, positive affect has gained substantial attention in research due to its critical role in understanding positive consumer responses. The differences in appraisal processes among individuals result in diverse emotional reactions to the same stimuli, underlining the need for further investigation (Roseman et al., 1990). The theory supports the notion that emotions, derived from the cognitive appraisal, play a critical role in shaping satisfaction.

A substantial body of research has established a significant relationship between positive affect and satisfaction across various domains, from sport fans (Prayag et al., 2020) and customers (Busser et al., 2022; Calvo-Porral et al., 2018; Park et al., 2019) to students in higher education (Lee et al., 2021). They consistently confirmed that the presence of positive affect during the consumption of a product or service plays a crucial role in customers determining their level of satisfaction. In line with the empirical results, the theory explains that emotions result from the cognitive appraisal process, wherein individuals evaluate the attributes of their gaming experiences in the current context. Although the influence of positive affect has been mainly examined from the perspective of esports players (Behnke et al., 2022), understanding its impacts from the perspective of fans and e-sailing remains a substantial gap in the literature. In addition, while the significance of positive affect on consumer satisfaction is well-established, its specific association with the satisfaction levels of e-sailing users has yet to be thoroughly investigated. Given that the role of positive affect as a primary precursor to consumer satisfaction across a variety of contexts and based on the cognitive appraisal theory, it is reasonable to hypothesise that a similar relationship exists for e-sailing fans.

> **H2**. Positive affect towards the e-sailing game is associated with satisfaction.

Cognitive appraisal theory further explains the connection between positive affect and attachment. The theory also provides the basis for understanding how affective responses, driven from cognitive processes, lead to deeper emotional bonds such as attachment. Online game fans do not always make rational choices as neurocognitive and psychological studies suggest that affect (i.e. emotions) can significantly shape their judgement and decisions (Pham, 2007). Given that attachment is a relationship-based concept that captures an emotional bond between an individual and a specific object (Chi et al., 2018), the interplay between affect and attachment has been an important research topic in various fields, ranging from tourism to sport event management, highlighting its relevance across diverse sectors (e.g. Ouyang et al., 2017; Sung et al., 2021). The empirical findings have demonstrated that positive affect contributes positively to the formation of attachment, while negative affect tends to lead to the development of negative attachments. For instance, Hosany et al. (2017) empirically confirmed that negative emotions experienced by tourists, including disappointment and unhappiness, weakened their attachment to a tourist destination. Conversely, positive emotions played a crucial role in establishing place attachment (Hosany et al., 2017).

Prior research within sport management and marketing has applied attachment theory to examine antecedents of team attachment (e.g. Takamatsu, 2021) and multiple attachment points (e.g. sport, player and local attachments) and their outcomes such as behaviour intentions and loyalty of fans (e.g. Kwon et al., 2005). However, the body of literature has often overlooked the influence of positive affect on behavioural outcomes (Prayag et al., 2020). Moreover, there has been a lack of examination into the link between positive affect and attachment within the domain of game marketing and online game users' perspective heretofore. Research has mainly investigated this

concept from the perspective of spectatorship (Yu et al., 2022). The literature has yet to establish a linkage between fans' positive affect and attachment in the context of esports; yet the foundation for hypothesising this relationship can be robustly supported by empirical studies from analogous contexts. For example, Prayag et al. (2020) confirmed that positive affect (i.e. happiness and love) has a significant and direct impact on team attachment for a sport team. Thus, this study hypothesises:

> **H3**. Positive affect towards the e-sailing game is associated with attachment.

Satisfaction as an antecedent of media consumption intentions and fanship

The notion of consumer satisfaction has been conceptualised variably within the literature: as a cognitive response (Bolton & Drew, 1991), an affective reaction (Halstead et al., 1994), a psychological state (Howard & Sheth, 1969), an overall evaluative judgement (Westbrook, 1987), or as an evaluative process (Johnson & Fornell, 1991). In this study, satisfaction is based on expectancy disconfirmation theory. The expectancy disconfirmation theory posits that consumer satisfaction is determined by the alignment between initial expectations and actual product performance or service (Oliver, 1980). This framework encompasses four principal concepts: (a) expectations, (b) actual performance, (c) the degree of disconfirmation (the variance between expected and actual performance), and (d) satisfaction (Oliver, 1980). In the current context, for example, positive disconfirmation occurs when the gaming experience surpasses expectations, leading to satisfaction, while negative disconfirmation, where the experience falls short of expectations, typically results in dissatisfaction.

As a consequence of satisfaction, the present study has two dependent variables: media consumption intentions and fanship. Major intentional aspects of sport consumer behaviours include (a) attendance intention, (b) sports media consumption intention, and (c) licenced merchandise consumption intention (Kim & Trail, 2011). The current study focused on the sport media consumption intention of e-sailing gamers. To understand the concept of fanship, it is important to differentiate the concept from fandom. Fanship refers to an individual's psychological attachment to a particular interest (Schroy et al., 2016), while fandom pertains to the collective psychological attachments among fans who share the same interest (Reysen & Branscombe, 2010). It is worth noting that the fandom is often linked to group identification (Ray et al., 2017). Fanship has been explored in the sport context in an attempt to understand sport fans' behaviour intention (Branscombe & Wann, 1991; Reysen & Branscombe, 2010). Several psychosocial factors are associated with fanship such as attitude and buying intention (Pentecost & Andrews, 2010) and social connection (Chadborn et al., 2018).

While a direct connection between the psychological factors of positive experience in online gaming and these two dependent variables that are related to behavioural intentions towards the sport remains to be fully established, several studies can infer the associations. Despite the varied conceptual, theoretical, and methodological perspectives on defining the variables (e.g. Kim et al., 2014), along with acknowledged limitations (e.g. Fan & Suh, 2014); satisfaction and attachment are broadly recognised as a key precursor to the behavioural intentions of both sport fans (Koo et al., 2014; Lee & Kang, 2015) and online gamers (Liao et al., 2020b; Teng, 2010) directly and indirectly. Thus, the present study hypothesises:

> **H4**. Satisfaction towards the e-sailing game is positively associated with media consumption intentions.

> **H5**. Satisfaction towards the e-sailing game is positively associated with fanship.

Attachment theory: attachment as an antecedent of media consumption intentions and fanship

Sport fans' attachment is defined as "a process that occurs when an individual assigns emotional, functional, and symbolic meaning to ideas, thoughts, and images related to a sport object (e.g. team)" (Funk & James, 2006, p. 196). In this study, attachment to the e-sailing game is conceptualised as a consumer's psychological bond with the game, which covers a range of elements within the game, mirroring the conceptualisation of game identification. In some research, the concept of attachment is a sub-dimension of sport fans' team identification (Funk & James, 2001), the current study delineates the attachment as a distinct psychological connection to esports (i.e. e-sailing), differentiating it from identification, which is viewed as a cognitive process of self-categorisation. However, the relationship between attachment to an online sport game and the intention to consume related media and fanship remains a relatively unexplored area. Previous research has demonstrated the influence of sport and team attachment on behavioural intentions, such as word-of-mouth

and purchase intentions (Levental et al., 2021). Based on the attachment theory and extending previous empirical results to this context, this study posits that e-sailing game fans who are more attached to the game are more likely to consume actual sailing-related media and develop fanship. Thus, the present study hypothesises (see Figure 1 for research model):

H6. Attachment towards the e-sailing game is positively associated with media consumption intentions.

H7. Attachment towards the e-sailing game is positively associated with fanship.

The theories used in establishing hypotheses are complementary, forming a sequential framework where identification leads to appraisal and appraisal leads to attachment, and they help understanding how virtual gaming experiences influence real-world behavioural intentions. Social identity theory explains how game users develop a sense of belonging by identifying with the game through shared experiences. Cognitive appraisal theory then builds on this by explaining that the identity influences how players evaluate their experiences and form specific
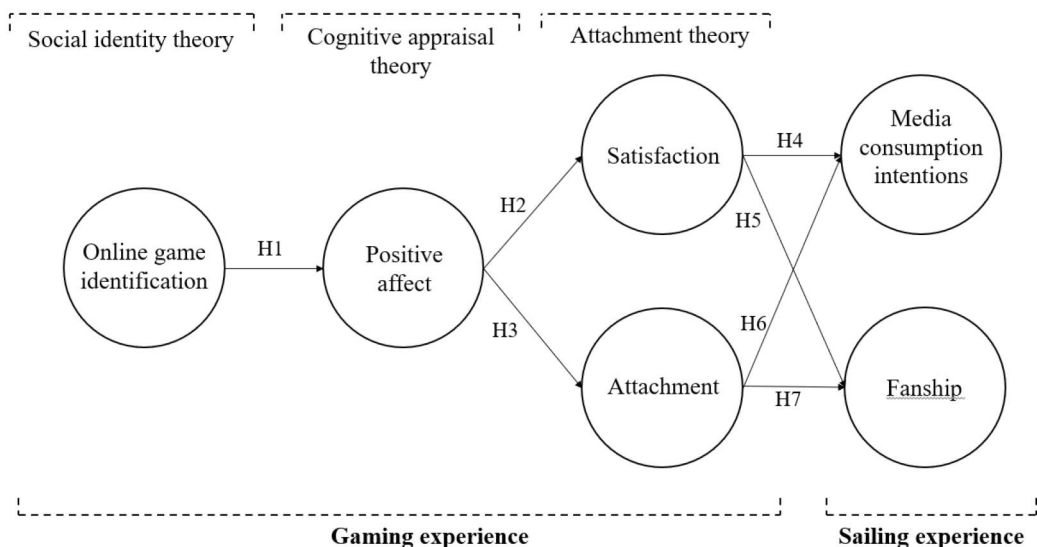

Figure 1. Hypothetical research model.

emotional responses. Attachment theory extends these ideas by linking the emotional responses to lasting bonds with the game. Unlike previous literature that either treated identification and attachment as conceptually similar (e.g. Gray & Wert-Gray, 2012) or examined the direct effects of identification on behavioural intentions (e.g. Kim & Manoli, 2023), the underlying theories that established hypotheses indicate these constructs are distinct yet interlinked.

Methods

Instrument development

The survey questionnaire employed in this study is divided into three sections: (a) a comprehensive introduction outlining the survey's objectives and instructions for completion; (b) questions designed to assess six latent constructs; and (c) inquiries pertaining to participants' sociodemographic characteristics. A 5-point Likert scale was utilised for item measurement ("Strongly disagree [1]" – "Strongly agree [5]"). To evaluate game identification, the present study adopted five items used by Mael and Ashforth (1992). Positive affect and satisfaction were measured using the instruments from Park et al. (2019) and Yoshida and James (2010) respectively. Attachment was measured using Trail et al.'s (2003) items. For the assessment of sailing fanship, the study drew upon the four items devised by Bettencourt (1997). Lastly, media consumption was gauged using three measurement items derived from Paek et al. (2021). The latent constructs are treated as unidimensional. The decision to use unidimensional constructs over multidimensional constructs is based on their original design, and these constructs have been widely used in well-established studies with strong psychometric support. Our rigorous tests, in addition, including preliminary analysis and confirmatory factor analyses, confirm their robustness in this context. This study also incorporated a question regarding sailing experience to control for the confounding effects of experience on the two dependent variables. Subsequently, the questionnaire was back-translated and checked for discrepancies by research team members (Brislin, 1970).

Participants and data collection

Data were obtained from the Virtual Regatta online community by conducting a purposive sampling technique with the assistance of the National Sailing Federations (Poland, Sweden, and Turkey) and Virtual Regatta company. The data collection method involved the dissemination of web-based questionnaire surveys with the use of Qualtrics software, with the data gathering period spanning from January 2023 to March 2023.

The usable sample consisted of 593 participants, with the majority being male (93.4%, $N = 554$), while females made up a smaller portion of the sample (6.6%, $N = 39$). Regarding educational background, the largest proportion of participants had completed postgraduate studies (34.2%, $N = 203$), followed by those with a bachelor's degree (25.3%, $N = 150$). In terms of age distribution, participants were predominantly between 55 and 64 years old (28.7%, $N = 170$), followed by those aged 45–54 (24.6%, $N = 146$) and 65 years or older (19.7%, $N = 117$). Younger age groups were less represented, with participants aged 35–44 making up 13.7% ($N = 81$) and those aged 25–34 accounting for 6.9% (N = 41). Participants' weekly gaming time also varied, with 25% ($N = 148$) reporting more than 4 h of gaming per week. The second largest group played for 1–2 h weekly (26.8%, $N = 159$), followed by those playing for 1 h or less (21.2%, $N = 126$). Participants who played for 2–3 h constituted 15.5% ($N = 92$), while those playing for 3–4 h made up 11.5% ($N = 68$).

Data analysis

The data were analysed in three phases: preliminary analysis, confirmatory factor analysis (CFA),

and structural equation modelling (SEM). SPSS 27.0 and AMOS 27.0 were used to perform the data analysis. A two-step procedure (Anderson & Gerbing, 1988) using structural equation modelling was employed to assess the quality of the measurement model and to examine the established hypotheses in the structural model.

For the measurement model, reliability was evaluated using McDonald's Omega and Composite Reliability (CR) for each construct. Convergent validity was assessed through standardised factor loadings, t-values of the measurement items, and the Average Variance Extracted (AVE) for each construct. Discriminant validity was also examined to ensure that the constructs were distinct from one another.

An a priori power analysis was conducted using G*Power 3.1.9.7 (Faul et al., 2009) to determine the minimum sample size required for the current study. Using a power level of .80, a medium effect size ($f^2 = 0.15$), and an alpha level of .05, the power analysis indicated that a minimum sample size of 137 participants was necessary. Thus, the current sample size has sufficient power to detect statistical significance.

Table 1. Summary of observed items and normality test.

Observed items (labels)	Mean	SD	Skewness	Kurtosis
Game identification				
OGI1	3.20	1.18	−0.41	−0.54
OGI2	2.79	1.25	−0.01	−0.99
OGI3	2.74	1.16	−0.05	−0.72
OGI4	2.50	1.19	0.21	−0.84
OGI5	2.25	1.17	0.46	−0.79
Positive affective				
PA1	4.02	0.80	−1.06	**2.21**
PA2	3.47	1.01	−0.36	−0.04
PA3	3.93	0.89	−0.91	1.01
PA4	3.74	0.95	−0.75	0.53
Satisfaction (to the game)				
Sat1	3.78	0.98	−1.10	0.96
Sat2	3.55	0.97	−0.51	0.27
Sat3	3.69	0.96	−0.95	0.74
Sat4	3.66	0.97	−0.95	0.64
Attachment (to the game)				
Attach1	3.23	0.96	−0.35	0.13
Attach2	3.58	1.03	−0.78	0.29
Attach3	2.97	1.05	−0.16	−0.33
Attach4	3.70	1.19	−0.77	−0.21
Fanship (to the sport)				
Fan1	3.84	1.04	−0.96	0.78
Fan2	4.28	0.77	−1.31	**2.84**
Fan3	3.40	1.29	−0.41	−0.79
Fan4	3.45	1.31	−0.39	−0.89
Media consumption intentions (about the sport)				
Media1	4.05	0.89	−0.97	1.10
Media2	4.11	0.88	−1.17	1.65
Media3	4.04	0.93	−1.03	1.16

Note: PA1 and Fan2 were eliminated before moving on to the next analysis.
SD = Standard deviation.

Results

Preliminary analysis

The collected data were initially subjected to an examination of normality assumptions and the presence of outliers by evaluating skewness, kurtosis, and Z-scores. Skewness values ranged between −1.17 and 0.46, while kurtosis values spanned from −0.99 to 2.84 (see Table 1). The skewness values adhered to the established criterion for normal univariate distribution (±2.00), as suggested by Goerge and Mallery (2010). However, two items (i.e. PA1 and Fan2) exhibited kurtosis values exceeding the 2.00 threshold and were consequently removed prior to proceeding with further analyses. Z-scores were calculated to determine each sample's deviation from the mean, measured in terms of standard deviations. Out of the 650 valid samples, 57 respondents displayed a Z-score exceeding +2 or falling below −2 and were identified as outliers. To ensure the robustness of subsequent analyses, these outliers were removed from the dataset prior to further examination ($N = 593$).

Common method bias

Given the cross-sectional nature of data collection for all constructs using a 5-point Likert scale, the possibility of common method bias is acknowledged in the current study (Podsakoff et al., 2024). To minimise this potential bias, we adopted procedural methods recommended by Podsakoff et al. (2003), such as ensuring respondent anonymity to reduce social desirability, minimising evaluation

apprehension, and refining item wording for clarity and comprehension. As a confirmatory technique to assess common method bias, moreover, a common latent factor (CLF) was incorporated into the AMOS model (Podsakoff et al., 2003). The CLF was linked to all latent constructs in the model to capture any common variance shared across the variables. To evaluate the presence of common method bias, the standardised regression weights were compared between the models with and without the inclusion of the CLF. The differences in these weights were minimal less than .25, indicating that common method bias did not significantly affect the results.

Psychometric properties: confirmative factor analysis

The psychometric properties of the measurements were assessed using Confirmatory Factor Analysis (CFA). The fit indices of the overall measurement model align well with the data and satisfy the benchmarks established by Hair et al. (2010) (χ^2/df = 3.00, RMR = .06, SRMR = .05, GFI = .92, AGFI = .89, NFI = .93, RFI = .92, IFI = .96, TLI = .95, CFI = .95, RMSEA = .06). To assess reliability, two indicators were utilised: McDonald's Omega and CR. The McDonald's Omega coefficients for the latent variables, which ranged between .80 and .92, surpassed the minimum threshold of .70 (Peters, 2014), indicating satisfactory internal consistency across all variables. Similarly, the CR values, spanning from .80 to .94, exceeded the suggested .70 cut-off (Bagozzi & Yi, 1988), thus affirming the internal consistency of the proposed constructs (see Table 2).

The establishment of convergent and discriminant validity was performed through the assessment of AVE and Maximum Shared Variance (MSV). AVE values for the latent variables, ranging from .58 to .85, satisfied the threshold of .50 (Hair et al., 2010), indicating adequate convergent validity. Moreover, most of the standardised factor loadings of the measurement items

were significant at $p < .001$ and surpassed the .707 threshold (Hair et al., 2010), with the exception of three items (i.e. OCI1, Sat2, Attach4), which were subsequently omitted from the analysis (see Table 2).

In terms of discriminant validity, the square root of the AVE values for each construct was found to be greater than the correlation coefficients between the construct and all other related constructs (Fornell & Larcker, 1981), thus demonstrating that the latent variables can be considered as distinct constructs (see Table 3). Furthermore, this study ascertained that all AVE values exceeded the MSV for each respective latent construct, thereby fulfilling an additional condition for discriminant validity (Hair et al., 2010).

Hypotheses testing

The model fit indices for the structural model provided empirical support for a well-fitted model (χ^2/df = 4.40, RMR = .05, SRMR = .04, GFI = .97, AGFI = .93, NFI = .96, RFI = .92, IFI = .97, TLI = .93, CFI = .97, RMSEA = .08). The results derived from the path analysis of SEM provide substantial support for most of the proposed hypotheses. Hypothesis 1, which suggested a positive relationship between gaming identification and positive affect, was supported ($\beta = .55$, $t = 16.20$, $p < .001$). Similarly, Hypotheses 2 and 3, which hypothesised associations between positive affect and satisfaction ($\beta = .55$, $t = 16.20$, $p < .001$), and positive affect and attachment ($\beta = .55$, $t = 16.20$, $p < .001$), respectively, were both substantiated. The study also proposed that satisfaction towards the game would exhibit a positive relationship with media consumption intentions (Hypothesis 4) and fanship (Hypothesis 5). Results indicated that satisfaction positively influenced media consumption intentions ($\beta = .55$, $t = 16.20$, $p < .001$); however, the proposed association between satisfaction and fanship was not corroborated. Lastly, Hypotheses 6 and 7, positing that attachment towards the sailing game

Table 2. Result of reliability and convergent validity.

Measurement items	Reliability		Convergent validity		
	Omega	CR	Standardised factor loading	t-value	AVE
Game identification					
OGI1	.87	.88	**.56***	13.43	.64
OGI2			.74*	18.24	
OGI3			.85*	21.42	
OGI4			.84*	21.02	
OGI5			.77*	–	
Positive affective					
PA2	.81	.82	.71*	17.25	.60
PA3			.82*	19.95	
PA4			.79*	–	
Satisfaction (to the game)					
Sat1	.91	.94	.84*	33.34	.85
Sat2			**.60***	17.14	
Sat3			.96*	50.08	
Sat4			.95*	–	
Attachment (to the game)					
Attach1	.83	.86	.79*	20.98	.67
Attach2			.81*	21.30	
Attach3			.86*	23.09	
Attach4			**.56***	–	
Fanship (to the sport)					
Fan1	.80	.80	.78*	14.55	.58
Fan3			.79*	14.66	
Fan4			.70*	–	
Media consumption intentions (about the sport)					
Media1	.92	.92	.84*	27.29	.79
Media2			.94*	32.64	
Media3			.88*	–	

Notes: PA1 and Fan2 were removed as a result of the normality test.
OCI1, Sat2 and Attach4 were removed before moving on to the next analysis.
AVE: average variance extracted; CR: composite reliability.
$p < .001$*.
$\chi 2/df = 3.00$, RMR = .06, SRMR = .05, GFI = .92, AGFI = .89, NFI = .93, RFI = .92, IFI = .96, TLI = .95, CFI = .95 RMSEA = .06.

Table 3. Result of discriminant validity.

	OGI	Positive Affect	Sat	Attach	Fanship	Media	MSV
OGI	**.80**						.56
Positive Affect	.62	**.78**					.58
Sat	.43	.63	**.92**				.40
Attach	.75	.75	.50	**.82**			.58
Fanship	.36	.26	.23	.38	**.75**		.35
Media	.29	.40	.30	.41	.59	**.89**	.35

Note: The values on the diagonal in bold and italicised type indicate the square root of the AVE value.
Attach: attachment; Media: media consumption intentions; MSV: maximum shared variance; OCI: online community identification; Sat: satisfaction.

would significantly relate to media consumption intentions and fanship towards sailing, were both confirmed. The findings affirmed that attachment was positively associated with both media consumption intentions ($\beta = .55$, $t = 16.20$, $p < .001$) and fanship ($\beta = .55$, $t = 16.20$, $p < .001$). The current research also controlled sailing experience as a covariate in the analysis that may influence two dependent variables to avoid the effect of previous experience with sailing ($\beta = .16$, $t = 4.12$, $p < .001$; $\beta = .43$, $t = 12.44$, $p < .001$; Figure 2).

Discussion

Drawing on our hypothetical research model (see Figure 1), we tested seven hypotheses to address our research questions and bridge the
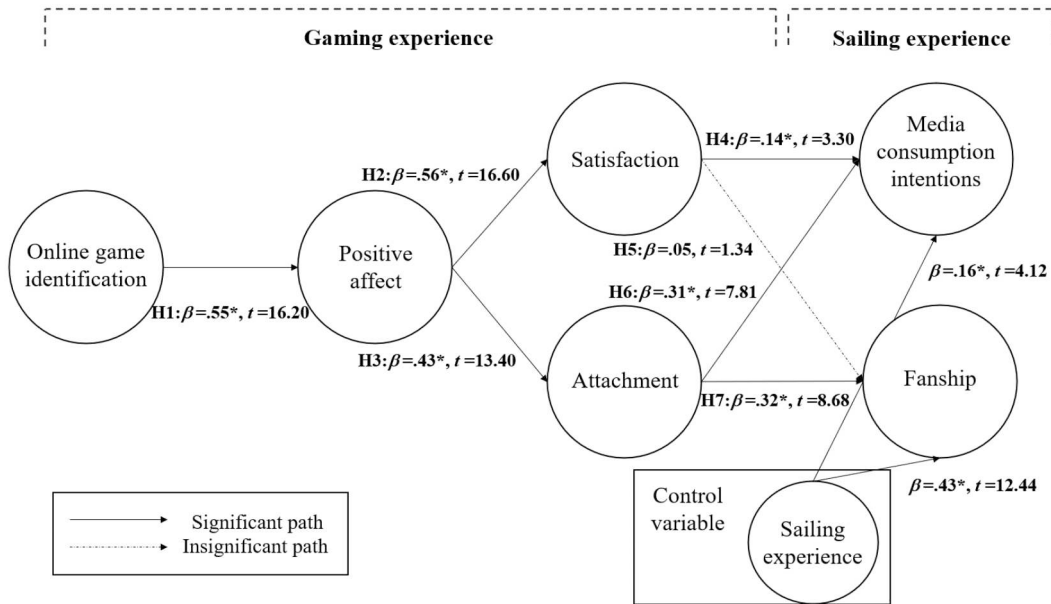
Figure 2. Results of hypotheses testing.

research gaps identified through the literature review. First, Hypothesis 1, which demonstrated a positive relationship between users' identification with the game and positive affect, was supported. This finding confirms the critical role of activity-based social identity in influencing users' emotional engagement with e-sailing. This finding also aligns with previous research (e.g. Badrinarayanan et al., 2015; Liao et al., 2020a; Qu & Lee, 2011), and more importantly, highlights the significance of self-concept through the engagement with the gaming domain in fostering positive emotional responses towards the e-sailing game. In this context, it becomes imperative to highlight the importance of elements that facilitate game identification, such as online communities, characters, and in-game items, within e-sailing as a virtual sport, similar to their role in esports. From the perspective of social identity theory, such engaging with in-game components nurtures a sense of belonging and inclusion, thereby enhancing positive emotional responses. In virtual sports such as e-sailing, building these emotional connections

is crucial for long-term engagement. Attachment theory also complements this interpretation, highlighting the impact of repeated positive experiences that may develop into a strong emotional bond. This can contribute to both emotional satisfaction and sustained loyalty to the virtual sport.

Hypothesis 2 and Hypothesis 3 were both confirmed in this study, highlighting significant aspects of how positive affect influences fans' satisfaction and attachment. The finding emphasises the role of emotion in the positive gaming experience, consistent with cognitive appraisal theory (Roseman, 1984). As proposed by cognitive appraisal theory (Roseman, 1984; Roseman et al., 1990), users' emotional responses are influenced by how they perceive their in-game experiences as enjoyable and meaningful, leading to greater satisfaction and attachment. When users perceive these experiences as fulfilling and in line with their expectations, positive affect arises, enhancing their overall satisfaction. The significant impact of positive affect on satisfaction within the e-sailing context not only corroborates findings

from other contexts (e.g. sport fans, sport custo-mers, and university students; Busser et al., 2022; Calvo-Porral et al., 2018; Lee et al., 2021; Park et al., 2019; Prayag et al., 2020) but also emphasises the potential for e-sailing's sustain-able growth through fostering positive affect among its users. The findings also bridge a research gap by focusing on e-sailing users rather than esports players (Behnke et al., 2022) or spectators (Yu et al., 2022), highlight-ing the importance of positive affect in enhan-cing satisfaction and attachment among e-sailing users.

Recognised as a crucial antecedent to behav-ioural intentions among both sport fans and online gamers (Koo et al., 2014; Lee & Kang, 2015; Liao et al., 2020b; Teng, 2010), the findings of this study demonstrate that satisfac-tion with the e-sailing game is positively associ-ated with both media consumption intentions (Hypothesis 4) and fanship (Hypothesis 5). This indicates that satisfaction among e-sailing users has a critical part in media consumption intentions, serving as key determinant of consu-mer behaviours and fanship. Moreover, fanship, which is influenced by psychosocial factors, suggests a strong potential for the on-going use of the relevant platform (i.e. Virtual Regatta; Pentecost & Andrews, 2010) and the maintenance of social bonds within e-sailing communities (Chadborn et al., 2018).

Our findings also indicate that e-saining users find their experiences to exceed their initial expectations, which resulted in satisfac-tion. Importantly, this level of satisfaction can be served as an indicator of sustained engage-ment with the e-sailing platform and active involvement in e-sailing communities. Such engagement is critical in contributing to the expansion and growth of the game and its com-munities. In line with the findings related to Hypotheses 4 and 5, attachment to the e-sailing game was also found to be positively associated with both media consumption intentions (Hypothesis 6) and fanship (Hypoth-esis 7). Thus, both satisfaction and attachment

play a critical role in the intentions to engage with e-sailing related media and user's dedica-tion and commitment to e-sailing. This addresses a gap in in the literature, which has lacked evidence of the relationship between these factors and aligns with findings in the context of traditional sport (e.g. Levental et al., 2021).

Implications

Theoretical implications

This study offers significant contributions by addressing two main research objectives: first, to explore the potential of e-sailing as a market-ing tool for promoting participation in real-life sailing from an organisational perspective; and second, to examine how psychological vari-ables related to e-sailing experiences influence consumers' intentions to engage in real-world sailing-related behaviours. The theoretical implications were made by answering the second research objective.

The study extends social identity theory by demonstrating that identification with virtual sports, triggers emotional engagement and promotes behavioural intentions related to real-world sport participation. This suggests that e-sailing can serve as an effective market-ing tool for organisations aiming to boost engagement with traditional sailing. The findings indicate that virtual sport com-ponents, such as in-game communities and features, contribute significantly to users' emotional connection, which reinforces the applicability of social identity theory in virtual sport contexts. This highlights the applicability of social identity theory within the context of virtual sports.

In addition, this study provides empirical support for the relationship between cognitive appraisal theory and its outcome variables (i.e. attachment and satisfaction). The findings in this study are consistent with cognitive apprai-sal theory as they demonstrated that emotional

engagement in virtual sports is influenced by users' perspectives of their gaming experiences as enjoyable and meaningful. This indicates that users' positive affect and satisfaction may rely on their assessment of whether the game meets their expectations and goals. This shows the broader relevance of cognitive appraisal theory in highlighting the role of emotional and cognitive processes, which influences users' satisfaction and behaviour intentions in not only in traditional sport but only in virtual sports. The current study also broadens the application of attachment theory by indicating that repeated positive experiences with e-sailing contribute to building strong emotional connections, which in turn enhance users' fanship and loyalty.

By providing valuable insights into the formation of positive behavioural intentions, except for Hypothesis 5, the current study extends the sport marketing literature by illustrating how the esport experiences influence fans' intention to consume media and be loyal to the traditional sport. Hence, one of the significant contributions of the present study is the development of our hypothetical research model (see Figure 1), which can be replicated and utilised in future studies examining the relationship between experiences of virtual sport and intentions to participate in traditional sport. By confirming all hypotheses proposed by the present study, theories used in establishing hypotheses revealed the interconnected pathways from identification to emotional responses and long-term behavioural intentions, demonstrating their collective utility in explaining user engagement in virtual and traditional sport contexts.

Managerial implications

The managerial implications are the answer to the first research objective. The results highlight the potential of virtual sport (e-sailing in this context) to serve not only as leisure facilitator but also as significant a marketing tool for fostering and encouraging involvement in traditional sport. Given that the global concerns about physical inactivity and declining sport participation among young people (e.g. Eime et al., 2015) in combination with their significant increase in participation in virtual worlds (e.g. esports, virtual sport, video gaming) have significantly increased (Helsen et al., 2022), the findings in this study provide critical insights into how sport governing bodies and organisations can create opportunities to promote sport participation through virtual sport. By exploring how psychological engagement operates in virtual contexts, stakeholders in the sport industry can optimise strategies to convert this interest in virtual sport into actual sport involvement, thereby increasing sport participation as evidenced in this study.

Considering that attachment plays a critical role in enhancing fanship and media consumption, sport governing bodies and organisations can develop strategies to foster interactions between virtual and traditional sport communities. This interaction can facilitate the transition of virtual sport participants into active roles within traditional sport communities, promoting sport participation in the end. To enhance such interaction and communications, stakeholders could organise joint events and competitions. These events would offer participants from both domains the opportunity to experience the other's activities, promoting a mutual understanding of each activity's nature and features and encouraging engagement in both virtual and traditional sport.

Limitations and directions for future research

While the present study provides significant insights and valuable empirical evidence on the topic, it is also subject to limitations. First, the sample of the current study was drawn from the sailing context. Thus, generalising the findings of this research to other leisure

and sport activities and their online game needs to be cautiously done. For future directions, examining the theoretical framework in other leisure and online game contexts using a broader range of populations is therefore necessary. For example, the study design can be applied in other virtual and traditional sport contexts, such as cycling and eCycling on digital platforms (e.g. Zwift, Bkool), to broaden our understanding and knowledge while providing more empirical evidence for practice.

Second, the dependent variable could be strengthened by examining the actual behaviour formation. Whilst the two variables, fanship and media consumption behaviour are identified as significant indicators of intentions to engage in traditional sport, future studies can further explore whether these intentions lead to actual behaviour. Accordingly, examining the contributing factors and motivation of such behaviour through a qualitative approach could provide in-depth narratives from participants. Third, a longitudinal study would be beneficial to examine the changes and transitions in participants' behaviour rather than having a cross-sectional design. Lastly, the structural model in this study does not capture and incorporate antecedents of game identification. Hence, future studies can aim to uncover the predictors of game identification (e.g. Kim et al., 2022).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix

Measurement Items

Constructs	Measurement items
Online game identification	I am very interested in what others think about this game
	When I talk about this game, I usually say "we" rather than "they"
	When someone praises this game, it feels like a personal compliment
	I consider the success of this game is my success
	When someone criticises this game, it feels like a personal insult
Positive affect	I feel happy playing the game (game name)
	I feel proud to play the game (game name)
	I am excited to play the game (game name)
	The game is full of enjoyment (game name)
Satisfaction	I am happy with the gaming experience
	I am delighted to be associated with the game
	I am content with the gaming experience
	I am satisfied with the gaming experience
Attachment	This game has a lot of meaning for me
	I consider myself a (game name) fan
	I have strong ties with this game
	(game name) is my favourite sport game
Sailing Fanship	I will encourage friends and relatives to try sailing
	I will say positive things about sailing
	I intend to purchase products associated with sailing
	I prefer sailing rather than other sports
Media consumption intentions	I will track the news on sailing competitions and events through the media (e.g. TV, Internet, social media etc.)
	I will watch or listen on sailing competitions and events through the media (e.g. TV, Internet, social media etc.)
	I will support the sailing by watching or listening to the competitions and events through the media (e.g. TV, Internet, social media etc.)