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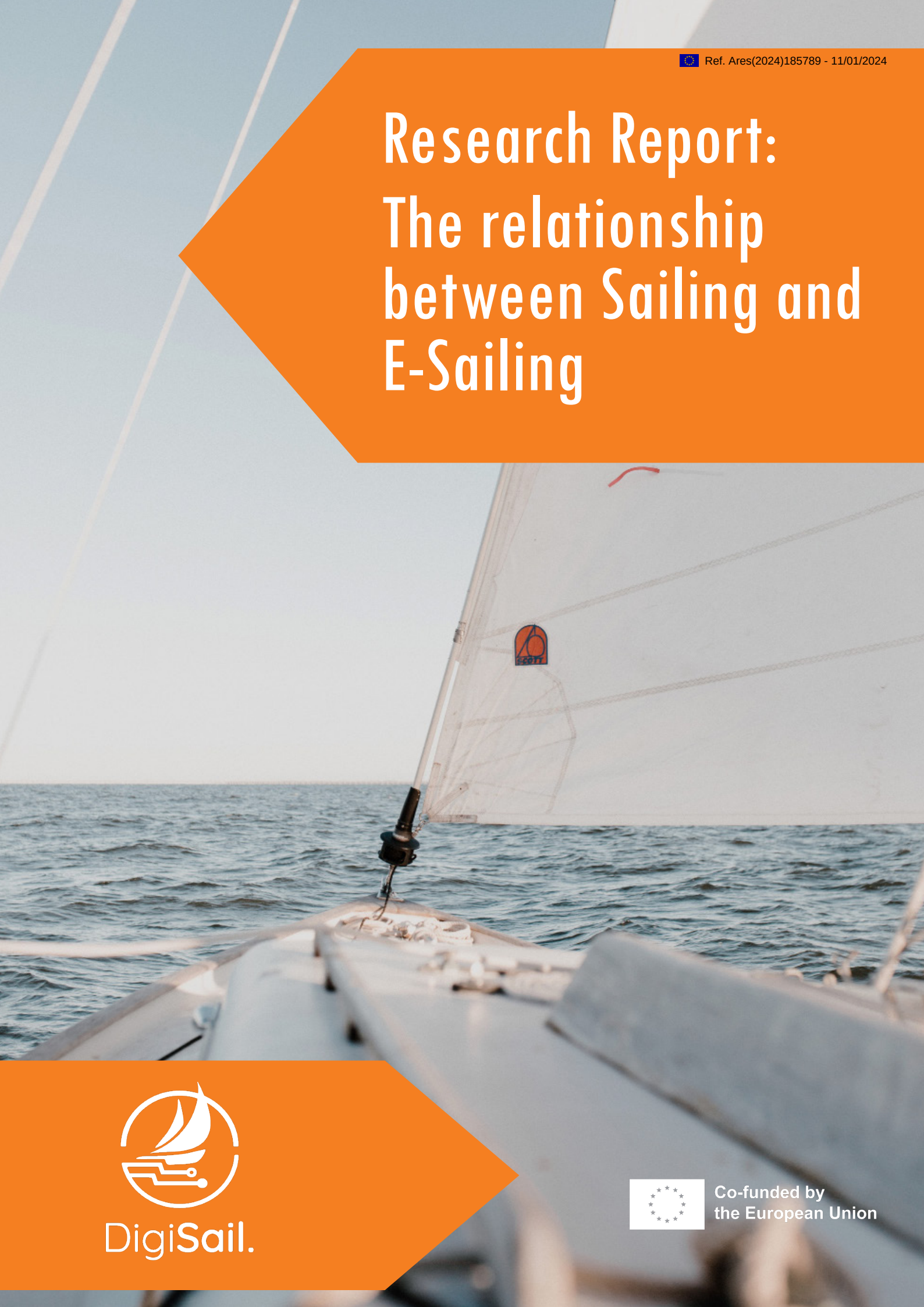
# Research Report: The relationship between Sailing and E-Sailing



DigiSail.

Co-funded by the European Union

DigiSail.

# Research Report:

## The relationship between Sailing and E-Sailing

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## Project Information

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# What is DigiSail?

Digital innovation in sailing – Gaming as a tool for enhancing sport participation (DigiSail) is a project focused on the use of videogames to promote physical activity. Particularly, it is focused on the use of Virtual Regatta, a sailing simulator videogame, and how it can be used to promote the sport of sailing.

Sport video games have been proven to work as a tool for enhancing physical activity and increasing sport participation. In the time of COVID-19 pandemic, the issue of sport participation has become even more apparent as sport facilities were forced to close; and the role of digital solutions has become a key point of interest. Following this development, the DigiSail project intends to explore the relationship between sport videogames and sport practice in the case of sailing.

The project objectives, hence, are the following:

1. Understanding the link between participation in Virtual Regatta and sailing – based on research.
2. Implementing Virtual Regatta as a tool for enhancing participation in sailing in 3 countries.
3. Creating roadmap for National Sailing Federations to implement VIRTUAL REGATTA as a tool to enhance participation in sailing.

The intended outcome of the project is a model of successful diffusion of gaming as a tool for enhancing physical activity and increasing sport participation in sailing.

The successful implementation of the project will allow the creation of a roadmap and guidelines based on the pilot implementation in 3 countries by National Sailing Federations, which are part of the project's consortium.

This document is part of the research phase of the project. It aims to comprehend the nature and influence of gaming on sailing participation and to inform the implementation and educational aspects of this project. It is comprised of two main parts: a literature review, and the discussion and interpretation of results of the survey implemented in the project.


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# Project Consortium

POLSKI ZWIĄZEK ŻEGLARSKI
POLISH YACHTING ASSOCIATION

The Polish Yachting Association was funded in 1925. It is a member of the Polish Olympic Committee and both the European and International Sailing Federations.

World Sailing

World Sailing is the world governing body for the sport of sailing, officially recognized by the International Olympic Committee (IOC). It is reponsible for the worldwide governance of the sport.

Svenska Seglarförbundet

The Swedish Sailing Federation was funded in 1905. It is linked to the Swedish Olympic committee (IOK) and the International Sailing Federation (World Sailing).

1957 TYF

The Turkish Sailing Federation is the national governing body of the sport of Sailing in Turkey, recognised by the International Sailing Federation (World Sailing).

AZS AWFiS GDAŃSK
SPORT CLUB AZS AWFiS GDANSK

Sport Club AZS AWFiS Gdańsk is a multisport club based in Gdansk, Poland, and linked to the Gdansk University of Physical Education and Sport. Its sport activities include sailing.

EUNIK

The European Network for Innovation and Knowledge is a Foundation based in the Netherlands, formed by higher education and R&D experts working internationally.

# Connecting the Worlds of Sailing and E-sailing

## Introduction

Technological advancement and digitization continually open new opportunities for meeting human needs, often inspired by their traditional counterparts. One area gaining significant societal interest is e-sports, including e-sailing, where the rules of traditional sports are transferred to a virtual environment. As suggested by various researchers, many of the elements of traditional sport are present in e-sport, including athletes, teams, leagues, contests, and marquee events as well as marketing activities and management processes. There are also sponsorship deals, player transfer fees, college scholarships, and competitions. However, an adverse aspect can be also mention like matchmaking, doping, and gender-related issues (Jenny et al. 2017; Gies 2016; Pizzo et al. 2018).

As the boundaries between reality and virtuality become increasingly fluid, understanding the relationship between e-sports and traditional sports becomes critically important. The specific nature of this phenomenon and its consequences thus represent an intriguing area of research. The aim of this report is to present existing research directions related to e-sports (particularly e-sailing), key findings, and to confirm the existence of a research gap in both the context of studies dedicated to e-sailing and the mechanism by which e-sailing influences motivation and intent to engage in traditional sporting activities.

## Research Directions in E-Sports and Identification of Research Questions

As of the end of 2022, the Scopus database contained 19,178 English-language scientific articles in the fields of business science, social science, and psychology dedicated to sports (inclusion phrase: TITLE: sport). It is important to note that a significant growth in publications is observable after around 2010. Using the inclusion phrase e-sport (TITLE: e*sport), only 33 articles were found, with a growing interest from researchers evident since 2017. Therefore, a literature review was conducted, utilizing various databases and employing the snowball method for selecting subsequent articles.

Photo by Daniel Stenholm

What is noticeable from the analysis of research objectives set by scientists in articles dedicated to e-sports is that the field is both diverse and multidisciplinary, covering a broad spectrum of topics. One area of focus is the business aspect. In this context, Kovács and Szabó examined how the COVID-19 pandemic affects the e-sports and simracing industries, concluding that economic sustainability is essential for these sectors (Kovács and Szabó 2022). Other researchers explored the potential of e-sports to contribute to new subsectors of tourism (Thompson, Taheri, and Scheuring 2022). Pumsanguan and Thithathan identified factors related to the management of e-sports clubs in Thailand, pinpointing several variables significantly associated with effective management (Pumsanguan and Thithathan 2022). The necessity of public relations approaches in e-sports has also been discussed. Researchers argued that good management and lasting relationships can be achieved through effective public relations strategies (S. Kim and Manoli 2022).

Another interesting research direction is in the socio-cultural context. Yu and Jeong investigated the career intentions and motivations of aspiring e-sports athletes, finding a positive influence of attitudes, subjective norms, and perceived behavioral control on career intentions (Yu and Jeong 2022). Thompson, Taheri, and Scheuring on the other hand examined factors influencing both players and spectators to participate in physical e-sports events. They confirmed that star players, team loyalty, and flow experience as key motivating factors (Thompson, Taheri, and Scheuring 2022).

Many researchers also delve into cognitive and psychological issues. For example, Valls-Serrano et al. explored the relationship between cognitive performance and game outcomes, finding a positive correlation between cognitive flexibility and percentile rank (Valls-Serrano et al. 2022). Luo et al. studied the impact of e-sports participation on mental fatigue, determining that a high percentage of respondents who engaged more in e-sports experienced increased mental fatigue (Luo et al. 2022). Billings and Mikkilineni, in turn, investigated how viewers derived satisfaction from e-sports during the COVID-19 pandemic, concluding that traditional sports satisfaction was higher than that for e-sports (A. Billings and Mikkilineni 2022).

There is also a context of human physiological

needs and the impact of e-sports on health. Moen et al. focused on the sleep characteristics of e-sports players and the impact of game performance on sleep quality (Moen et al. 2022). Voisin (Voisin, Nicolas, Besombes, and Laffage-Cosnier 2022) in turn reviewed several scientific studies on links between e-sport and physical activities. Main conclusions are presented in the next section.

In summary, the field of e-sports research is rich and continually evolving, offering valuable insights that have implications not only for the e-sports community but also for broader audiences and businesses. However, it was observed that among the analyzed articles, few were dedicated to the relationship between e-sports and traditional sports. Some discussion on this topic was initiated by Pato and Remillard, considering the possibility of regarding active e-sports video games as actual sports and concluding that e-sports are the ultimate goal of a utopian humanization process developed through play (Pato and Remilllard 2018). Pizzo et al. focused on explaining the extent to which e-sports operate similarly to traditional sports in terms of spectator motives. As a result of their research, they determined that traditional sports and e-sports are similarly consumed, however spectators across contexts (e-sport and traditional sport) have distinct sets of motives influencing their game attendance frequency. Finally the authors concluded that sport industry professionals can manage e-sport events in a manner similar to traditional sport events (Pizzo et al. 2018).

As indicated by (Koo 2009), cognitive elements shaping the attitudes and behaviors of online game users are one of the key research directions. At the same time, the conclusion from the literature analysis leads to the identification of a poorly researched phenomenon of the impact of e-sports on motivation and intentions to engage in traditional sporting activities, constituting a research gap. Two fundamental research questions were identified in the context of e-sailing: (RQ1) Are gaming experiences associated with sailing-related behavior intentions? (RQ2) What factors enhance sailing-related behavior intentions?

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## Factors Stimulating Motivation for e-Sports and Sport activities (RQ2)

The issue of sport is related to its practice or passive consumption as a spectator. In the literature, one can find studies on the factors influencing the intentions to practice traditional sports, e-sports, as well as to support as fans.

As mentioned in the previous section, traditional sport and e-sports are similarly consumed in terms of spectator motives however some differences may be also observed. Pizzo at al confirmed a set of 11 similar sport consumption motives (out of 15) on the example of soccer (as traditional sport) and FIFA Online 3 and StarCraft II (as e-sport) (Pizzo et al. 2018). Among differences they indicated vicarious achievement, excitement, physical attractiveness, and family bonding between traditional sports and e-sports. Traditional soccer fans rated vicarious achievement higher than e-sport spectators probably, as authors suggest, due to the direct visibility of players and the field in traditional sports. Also players' physical attractiveness occurred to be a more significant motive for spectators in reality in comparison to virtual world. Family bonding as a motive is more visible for traditional sports, possibly because e-sport spectators tend to be younger and less likely to be parents. In turn, among motives that play higher role for e-sport spectators is excitement. Authors explain this result, indicating that e-sports might offer a more immersive experience. Surprisingly athlete skills were rated higher for e-sports, than traditional sports what actually may challenge the notion that e-sports lack the skill requirements. Additionally Pizzo at all (2018) discovered that there is a distinct sets of motives influencing game attendance decision. How frequently individuals attended games in traditional sports was significantly influenced by elements like interest in sport, interest in player, drama, and wholesome environment. In the case of sports-themed e-sports, elements like interest in sport, excitement, interest in player, role model, and enjoyment of aggression all had an impact on how frequently people attended the games. The factors that most significantly influenced game attendance rates for RTS e-sports included vicarious achievement, entertainment value, family bonding, and physical skill of the athletes.

Photo by the Polish Yachting Association

According to prior studies, there is a personal and social element to game playing, and specific features of a game positively influence an individual's interest in e-sports game playing. Three motives were identified by Lee and to have a statistically significant impact on the amount of time spent on e-sports game playing. Two of the three; competition and peer pressure had a positive impact, however, the third, skill building for actual playing of sport negatively influenced the length of gaming e-sport (Lee and Schoenstedt 2011). Authors suggest that there may be a discrepancy in the perception of skill building by game playing in a virtual environment versus real game settings but they could not find any other research confirmation for it.

Other research shows that competitiveness, challenges, escapism, are what motivate people to participate in e-sports (Weiss and Schiele 2013). Kim and Ross discovered that the pursuit of personal fulfillment is correlated with users' capacity to apply their knowledge about real gamers, statistics, and gaming methods, as well as their capacity to contrast their decisions when playing e-sports (video games) with the players' choices in real life. Researchers also confirmed motives like social interaction, competition, entertainment, diversion for video game sports that are align with previously identified motives for traditional sports consumption (Y. Kim and Ross 2006).

Referring to study conducted during the COVID period by Billings and Mikkilineni, both conventional sports and e-sports provide its fans with a variety of gratification. Social engagement emerged as a crucial driving force in both spheres. This common benefit of camaraderie, virtual community, relationship-building, and companionship highlights the ways in which sports, whether they are performed on actual fields or on screens, may satisfy people's innate need for social connection. Fans flocked to e-sports to connect with peers, particularly during the pandemic when face-to-face interactions became rare, highlighting the platform's value in encouraging communication and upholding relationships. There are subtle variations in how these gratifications present themselves, though. This study's findings typically indicated that traditional sports were more satisfying than e-sports. The only instance in which e-sports outperformed conventional sports was for "passing time", suggesting that some fans of traditional sports may consider e-sports as a temporary solution rather than a full replacement (A. Billings and Mikkilineni 2022).

## Existing Research Findings on the Relationship Between E-sports and Traditional Sporting Activities

### *Consequences of Gaming Experiences for Traditional Sporting Activities (RQ1)*

Online games, including e-sports, are often stereotypically perceived with skepticism, especially concerning their impact on traditional sports and physical activity. However, an increasing body of research suggests that e-sports and traditional sports not only coexist but can also complement each other in various ways.

Voisin et al. (Voisin, Nicolas, Besombes, and Laffage-Cosnier 2022) provides a comprehensive literature review of various studies examining the physical activity levels among e-sports players. In 13 out of 18 studies, the majority of e-sports players were found to be active (according to the WHO guidelines for physical activity). It was also found across these studies that virtual footballers were generally more active than players of other e-sports. Interestingly, the literature review concluded that high-level e-sports athletes were usually more active than lower-level players. The motivations for engaging in physical activities vary, from intrinsic pleasure to utilitarian purposes like improving e-sports performance or health. The authors suggest that more nuanced data is needed to understand the impact of various factors like the type of game, level of expertise, and geographical location on the physical activity levels of e-sports players.

Research conducted by Ballard at on conventional video game play like games operated via standard hand-held controllers or keyboards, confirmed a correlation between playing sports-themed video games and engaging in intense physical activity (Ballard et al. 2009). According to a study conducted by Kane, sports video games have a positive impact on participants' understanding of real sports rules, teams, and players. The study showed that these games serve as an effective educational tool, particularly for college students. Moreover, playing sports video games increased participants' interest in real sports, challenging the negative stereotypes often associated with video games (Kane 2020). These findings are corroborated by a study by Adachi and Willoughby, which demonstrated a long-term relationship between playing sports video games and youth engagement in real-life sports (Adachi and Willoughby 2016).

According to Kim and Ross, sports video game players are more inclined to connect their digital experiences with actual sporting events. It can be assumed that those who play sport video games are more interested in the sport itself than in just entertaining themselves because of the nature of the activity (Y. Kim and Ross 2006).

Self-esteem appears to be a significant mechanism through which playing sports video games influences engagement in real-life sports. This was emphasized in studies by Adachi and Willoughby (Adachi and Willoughby 2016, 2015). The study highlighted that playing sports video games

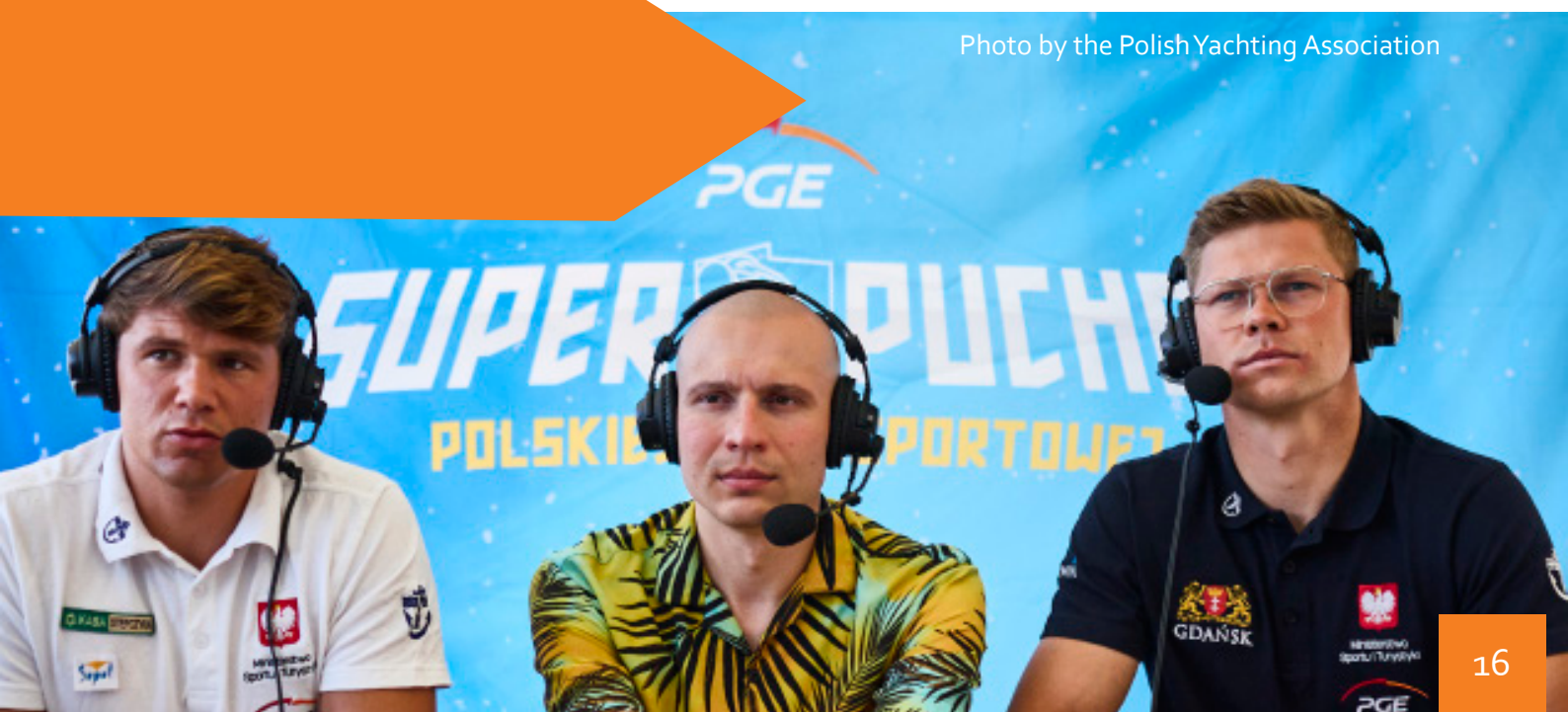
predicted higher levels of self-esteem, which in turn predicted higher levels of teenage engagement in real sports. Authors explain this phenomena suggesting that playing sports video games triggers thrill of victory, creates opportunity to gain knowledge or developing strategy-related skills connected to sports, and finally it provides fun, which, in turn, may enhance player's self-esteem.

Similar reasons for watching e-sports online were discovered in Qian's investigation into the motivations behind the activity: skill development and vicarious sensation. E-sports spectators frequently tune in to sharpen their gaming skills and get completely immersed into the action. The study emphasized how first-person views in particular might improve the spectator experience thanks to modern technology. Socialization was discovered to be important inside the online e-sports community (Qian et al. 2020).

García and Murillo provided valuable insights into the profile of individuals interested in sports video games. The study revealed significant gender differences, confirming a phenomenon of hypermasculinity since females show a lower interest in e-sport and lower probability of engaging in it. Age had a negative impact on both participation and intensity for both genders. Understanding these demographic factors is crucial for both e-sports and traditional sports organizations, especially in the context of marketing strategies and fan engagement (García and Murillo 2020).

Adachi and Willoughby, referred to Self-Determination Theory to examine the positive effects of video gaming among youth. The study showed that video games satisfy psychological needs such as competence, autonomy, and relatedness, thereby improving well-being and intrinsic motivation. This suggests that the benefits of e-sports extend beyond sports engagement and encompass broader aspects of psychological well-being and may be used as a measure for developing skills like problem solving, and promoting intergroup relations, as well as physical activity (Adachi and Willoughby 2017).

Photo by the Polish Yachting Association



### *Research Theories Explaining the Attitudes, Motivations, and Behavioral Intentions of e-Sports Users*

From the perspective of game users, e-sports encapsulates many attributes of traditional sports, including interpersonal competition, rigorous skill training, adherence to established rules, and the demonstration of coordination and agility (Crawford and Gosling 2009; Holt 2016; Pizzo et al. 2018), however the context is different and additionally the physical skill application is not included (Jenny et al. 2017). Since then, there is a need for delving into similarities and differences in attitudes and behavioural intentions among both, sport and e-sport players.

In analyzing the attitudes, motivations, and behavioral intentions of athletes and online game users (e-sports), researchers have employed several theoretical frameworks and concepts. Among these, the theories presented in Table 1 are particularly noteworthy.

| Theory | Creators/ promoters | Description | Exemplary work |
|---|---|---|---|
| Self-determination theory | (Deci and Ryan 200) | The theory explains what influences motivation. It asserts that environments that value competence, autonomy, and relatedness for human beings make it easier for people to function at their best and experience good well-being, including self-esteem. | (Adachi and Willoughby 2016, 2017) |
| Uses and Gratifications theory | (Rubin 1994) | A media theory, developed from several prior communication theories and research conducted by fellow theorists. That places more emphasis on comprehending the causes behind audiences' active use of particular media than it does on looking at how audiences are affected by it. | Y. Kim and Ross 2006; Lee and Schoenstedt 2011; A. Billings and Mikkilineni 2022) |
| Media Dependency Theory | (Ball-Rokeach 1985) | The core concept of the theory, which connects communication phenomena between media and audiences, is that one's dependence on a medium positively corresponds with the amount of social functions that medium performs for that audience. | (A. Billings and Mikkilineni 2022) |

***Conclusion from the literature review and hypothesis development – model 1***

The literature review led to the following conclusions:

- E-sports user behaviors are poorly researched.
- The link between e-sports and traditional sports is particularly under-researched.
- Similar themes are repeated in existing studies, especially motives like competition.
- There is a lack of detailed explanation regarding motives connected to the issues of social contact (no theory used as a research framework refers to this aspect).
- There is a lack of detailed explanation regarding the links between perception (image) of e-sport, sport and bahaviour intention.
- There is no detailed explanation on the role of familiarity in the context of sport.
- No research has been identified regarding the relationship between e-sports and traditional sporting activities in the context of sailing.

Among confirmed motives for participating in traditional sports, social contact and engagement stand out. As demonstrated by Shi at. al., social presence and knowledge sharing enhance the authenticity of experiences (Shi, Gursoy, and Chen 2019). These reasons extend beyond just physically playing the sport and act as platforms for relationship building, knowledge sharing, and social interaction. This, in turn, directs the discussion towards the intimacy theory, where the concept of intimacy refers to a broad spectrum of words and actions, sharing feelings (such as happiness and sadness), humor, experiences or hard work (Jain 2022). All of these may be observed in sport. It is also worth noting that in service relationships, intimacy is especially crucial and has a big impact on commitment. (Ponder, Bugg Holloway, and Hansen 2016).

According to the literature, a fundamental human motive is the inherent desire for social contact (Kenrick et al. 2010). Intimacy includes a wide range of shared experiences, from behavioral to cognitive and emotional aspects (Reis et al. 1988). It is characterized by a deep psychological connection, fostering a shared emotional and physiological bond with others (Cwir et al. 2011). In the context of sports, closeness is expressed via shared experiences of practice, competition, success, and failure. Along with sharing a physical space, participants engage in the exchange of knowledge, strategies, and affective responses associated with the activity what constitutes one of the dimension of intimacy, namely intellectual intimacy (Shi, Gursoy, and Chen 2019).

Referring the "inclusion-of-other-in-the-self" theoretical framework (Aron et al. 1991), it may be assumed that athletes come to view their teammates as essential parts of their own self-concept through repeated and meaningful contacts (interaction intimacy). The result of this

interconnection is overlapping cognitive representations (intellectual intimacy), where the skills and knowledge of one person are useful for the cognitive development of another. For instance, sharing approaches and strategies with a novice athlete can help the latter develop a thorough knowledge of and expertise in the sport. The cognitive implications and effects of closeness in sporting activities should be highlighted by this symbiotic interplay.

Furthermore, sports provide a consistent outlet for the innate human propensity for social interaction, which has been shown in the literature review. In addition to their passion for the sport, participants are drawn to these activities for the extensive web of social contacts they foster. Relationships between sports participants foster a stronger sense of connection and dedication to the team and the overall sport, similar to the findings of Islam and Rahman who discussed consumer relationships within communities (Islam and Rahman 2017).

Additionally, self-disclosure is a common practice in the sports environment, similar to the phenomenon identified in the tourism industry (Lin et al. 2019). Athletes provide mutually revealing information about their weaknesses, potential, goals, and concerns, which deepens mutual understanding and strengthens interpersonal ties.

In conclusion, the interpersonal communication and participation in traditional sporting activities seem to be closely linked to the idea of intimacy. Sports participation is not only a physical endeavor but also a cognitive and social one that fosters relationship building, knowledge sharing, and experiential learning. The relationship between intimacy and the intention to experience traditional sport can be influenced by how individuals perceive both e-sport (gaming) and traditional sport disciplines. E-sport offers a unique form of intimacy. Players often interact in virtual environments, sharing experiences, strategies, and emotions without physical presence. The perception of e-sport can influence how individuals view traditional sports. The traditional sport image in turn can enhance their intention to engage in or experience traditional sports, given the direct, tangible nature of interactions and experiences.

Photo by the Polish Yachting Association

Thus, referring to the context of sailing, which meets the condition of team sport, several hypothesis are set as follows:

*H1. Intellectual intimacy has a significant influence on the image of the game.*

*H2. Intellectual intimacy has a significant influence on the image of sailing.*

*H3. Interaction intimacy has a significant impact on the image of the game.*

*H4. Interaction intimacy has a significant impact on the image of sailing.*

*H5. Game image has a significant impact on sailing image.*

*H6. Game image has a significant impact on behaviour intentions.*

*H7. Sailing image has a significant impact on behaviour intentions.*

In the context of e-sports and traditional sports, the image of a game or sport can be likened to experience. As consumers (players or spectators) engage more with a particular game or sport, their familiarity with it grows. This familiarity provides a distinct frame of reference for evaluations (Söderlund 2002). The concept of familiarity, as defined by Alba and Hutchinson is rooted in the accumulation of product-related experiences by the consumer (Alba and Hutchinson 1987). As these experiences increase, consumers become more familiar with a product, leading to reduced uncertainty in future engagements (Flavián, Guinalíu, and Gurrea 2006). This familiarity can significantly influence perceived value based on personal relativity (Holbrook 1998) and is closely tied to customer satisfaction and behavioral intentions (Söderlund 2002).

In light of these insights, it becomes imperative to consider familiarity as a potential moderator in the relationship between game image and sport image. Such consideration would not only provide a more holistic understanding of consumer behavior but also offer actionable insights for stakeholders in both the e-sports and traditional sports sectors. Thus, referring to the context of sailing, another two hypothesis are set as follows.

*H8. Familiarity with the game moderates the relationship between game image and behaviour intentions*

*H9. Familiarity with the game moderates the relationship between sailing image and behaviour intentions*

In summarizing the literature review, it should be emphasized that the intimacy theory is used to explain various consumer phenomena such as engagement, experience, and perception. However, none of them pertain to sports, let alone verify the relationship between e-sports and traditional sports. In this context, the research is innovative.

## Existing Research Findings on the Relationship Between Gaming Experience, Media Consumption and Sport Experience

### *Relationship between Gaming Experiences, Media Consumption and Sport Fanship (RQ1)*

In recent years, interest in the development of e-sports and its effects on media consumption and traditional sports fanship has grown. As highlighted in previous sections, numerous studies have been dedicated to exploring motives related to e-sports and traditional sports spectating. Thompson, Taheri, and Scheuring's study on the factors influencing participation in physical e-sports events (Thompson, Taheri, and Scheuring 2022) stressed the importance of great players, team loyalty, and the flow experience. Similar to this, Pizzo et al. (Pizzo et al. 2018) examined the similarities and differences between e-sports and conventional sports and came to the conclusion that while there are some parallels in the motivations of spectators, there are also clear variations in the elements that influence attendance. For instance, while e-sports offer a more immersive experience with excitement playing a crucial part, traditional sports stress vicarious achievement and family togetherness. The role of media representations in shaping consumer perceptions of e-sports as a legitimate sport was underscored. Lee and Schoenstedt (Lee and Schoenstedt 2011) looked more closely at the social and psychological aspects of gaming, noting peer pressure and competition as good influences but skill development for genuine sports play as a deterrent to the length of time spent playing e-sports games. For both professionals in the field and enthusiasts, it is more important to comprehend these distinctions as the landscape of sports and media consumption changes.

Brown et al. (Brown et al. 2018) discovered some slight discrepancies between the reasons behind traditional sports media consumption and e-sports when comparing e-sports fanship to traditional sports passion. In their investigation, e-sports had a more noticeable mean score than traditional sports, even for competition. This tendency was also present in other items, such as self-esteem, camaraderie, and social sport. It occurs that self-esteem is an important distinction between e-sports and conventional sports. Researchers also note that the pervasive nature of fanship may

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Photo by Robert Hajduk

cause unfavorable associations between traditional sports consumption, self-esteem and leisure time. Basically, because of their affection for e-sport, fans of e-sport may not have the desire or interest to engage with traditional sports content to pass the time. Competition, social sport, fandom, and Schwabism are found to be significant, direct predictors of conventional sports-related media consumption when examining the factors that influence how e-sports spectators consume traditional sports-related media. Self-esteem had a crucial role in this situation as well. According to authors, e-sports spectators' media consumption reasons are more passionate and complex than those of supporters of traditional sports.

Several studies have revealed distinctions in the motivations behind e-sports spectating, particularly when comparing online and live event contexts. Examining the insights derived from Sjöblom, Macey and Hamari's research, it becomes evident that while factors such as player skills, drama, and knowledge acquisition are common motivations shared by both types of spectators, certain distinct preferences emerge (Sjöblom, Macey, and Hamari 2020). Online viewers tend to be more interested in novelty, but live attendees are more focused on interpersonal contact and physical attractiveness. The spectator experience is greatly influenced by the medium of consumption, with online broadcasts bringing special components that affect motives. Drama is particularly effective in inspiring both groups. The study's suggestions for event planners place a strong emphasis on the significance of taking audience engagement into account, showcasing new players and teams, and utilizing actual player presence to convey emotions. In essence, the study highlights the complex interactions between gaming, media consumption, and e-sports popularity.

Also the study by Jang et al. (Jang et al. 2021) sheds important light on how e-sports-related gaming experiences, media consumption, and sports fanship interact. Their research shows that live streaming of


e-sports content has a full mediating effect, linking e-sports spectator consumption to e-sports spectator gameplay. This emphasizes how crucial it is for individual streams' content to connect games and event viewing, indicating that marketing efforts might be improved by utilizing well-known streamers. The study also shows how this model can be applied to many e-sports genre categories, which helps to understand how e-sports spectators behave. Furthermore, their research confirms the incorporation of live streaming of e-sports content as an important mediator, thus enhancing the general comprehension of the sequential process through which e-sports enthusiasts participate in online media consumption.

The results of Billings' study (Andrew Billings and Mikkilineni 2023) show that traditional sports fans showed a wider range of reasons, whereas e-sports participants were mostly driven by a desire to pass the time. Although, both groups had also comparable motives like entertainment and camaraderie. In addition to highlighting the effects of media dependence, particularly on social dimensions, the study underscored the importance of individual variability in media consuming behavior. This dependence increased during the COVID-19 pandemic, when traditional social participation was constrained, demonstrating the tenacity of traditional sports loyalty among viewers who also watched e-sports content.

Sturm's research examined the changing connections among video games, media consumption, and sports fandom, establishing the idea of the "fan-as-immersed e-participant" (Sturm 2020). This idea demonstrates how the boundaries between traditional sports and digital experiences have been broken through playing sports video games and participating in e-sports, giving fans immersive opportunity to play as and with their favorite teams and players. Commercializing and simulating actual sports in computer games has grown, and e-sports has attracted a sizeable internet audience. The incorporation of technology, particularly virtual and augmented reality, is anticipated to increase in the future in order to improve fan experiences.

***Research Theories Explaining Gaming Experience, Media Consumption and Sport Experience***

When attempting to clarify the complex relationship between e-sport gaming experience, media consumption, and involvement in sports, it is helpful to use fundamental theoretical frameworks and concepts. In this regard, the theories indicated in Table 2 have particular significance.

| Theory | Creators/ Promoters | Description | Exemplary work |
|---|---|---|---|
| Social Identity Theory | (Tajfel and Turner 2004) | The theory posits that people shape their self-concept through their association with social groups, such as sports teams or sports fans. It aims to explain how mental processes and social circumstances affect intergroup behaviors, particularly with regard to prejudice, bias, and discrimination, with social identity playing a significant role in boosting a person's sense of pride and self-worth. | (Rees et al. 2015) |
| Cognitive Appraisal Theory | (Lazarus 1966) | The theory posits that people's perceptions and interpretations of events have an impact on how they feel about things. It emphasizes how cognitive assessments—including whether people see the situation as favorable or negative and whether they feel prepared to cope—have an impact on their emotional responses. This theory emphasizes how people actively make sense of their experiences and provides a thorough understanding of how emotions are evoked and influence behavior in a variety of contexts. | (Behnke, Kosakowski, and Kaczmarek 2020) |
| Attachment theory | (Bowlby 1979) | The theory posits that humans have an innate need to form strong emotional bonds or attachments with others. These attachments can significantly impact an individual's emotional well-being, self-esteem, and relationships. | (Felton and Jowett 2013) |
| Cognitive Dissonance Theory | (Festinger 1997) | The theory posits that people experience discomfort when they have competing beliefs, values, or attitudes, especially ones that have to do with their conduct. People who respect their health but smoke could feel this discomfort, for example. People are compelled to modify their incongruous beliefs or actions in order to lessen it and reestablish consistency and harmony. This idea is essential for comprehending how individuals look for internal coherence and react to contradictory information. | (Lavallee David 2019) |

### *5.3. Conclusion from the literature review and hypothesis development – model 2*

The literature review led to several conclusions regarding links between online game experience, media consumption, and sports fanship, i.a:

- Traditional sports fans showed a wider range of reasons, while e-sports participants were primarily driven by a desire to pass the time.
- Factors influencing participation in physical e-sports events include great players, team loyalty, and the flow experience.
- E-sports offer an immersive and exciting experience.
- Media representations play a significant role in shaping consumer perceptions of e-sports as a legitimate sport.
- Peer pressure and competition positively influence gaming, but skill development for traditional sports play can be a deterrent to spending time on e-sports games.
- Self-esteem is one of the key distinctions between sport and e-sport fanship, with e-sports fans showing a more passionate and complex relationship with media consumption.
- Online viewers are more interested in novelty, while live attendees focus on interpersonal contact and physical attractiveness.
- Drama is effective in inspiring both groups, and event planners should consider audience engagement and player presence.
- Live streaming of e-sports content has a mediating effect, linking e-sports spectator consumption to gameplay.
- Media consumption behavior increased during the pandemic, highlighting the importance of individual variability in media consumption.
- The concept of the "fan-as-immersed e-participant" highlights how video games and e-sports have broken the boundaries between traditional sports and digital experiences.
- Technology, especially virtual and augmented reality, is expected to further enhance fan experiences in the future.
- No research has been identified regarding the connections between gaming experience, media consumption, and sports fandom in the context of sailing.

According to the Social Identity Theory, those who have a strong sense of identification with online gaming communities or groups frequently have stronger feelings of social identity. This can then lead to more intense positive emotions by enhancing their sense of pride and self-worth within

the relevant social environment. Thus, we propose the first hypothesis as follows:

*H1. Online game identification has a significant impact on positive affect.*

According to Han and Back's study, positive consumption emotions have a significant impact on customer satisfaction and the propensity to return. The importance of creating positive emotional experiences for long-term customer loyalty and business success is highlighted when customers feel good during their interactions with a product or service. This not only increases their satisfaction but also motivates them to return for subsequent visits (Han and Back 2007). In line with the Cognitive Appraisal Theory, the way fans interpret events influences their emotions and subsequent behaviors. In the context of gaming, if positive affect is generated through a satisfying gaming experience, it can be attributed to the cognitive appraisal of the game, leading to increased satisfaction. Similarly, if positive affect is linked to attachment to the game, it implies that individuals appraise the game as emotionally rewarding, which enhances their attachment and engagement with it, aligning with the principles of the Cognitive Appraisal Theory. Thus the following hypotheses are proposed:

*H2. Positive affect has a significant impact on the satisfaction of the gaming experience*

*H3. Positive affect has a significant impact on the attachment to the game*

According to the Cognitive Dissonance Theory, people experience discomfort when their behaviors or decisions conflict with their beliefs or attitudes. This suggests that individuals may seek media content that aligns with their positive gaming

experiences to reduce cognitive dissonance. The likelihood that spectators would return for future events is one behavioral intention that satisfaction, especially in the context of sporting events, may influence (Yoshida and James 2010). Satisfaction with the game or attachment to the game may lead to intentions for media consumption (Paek et al. 2021). Drawing from Attachment Theory, which underscores the significance of emotional connections and attachments in a person's well-being and interpersonal interactions, if satisfaction with the gaming experience or attachment to the game results in sailing fanship, it is plausible that these emotional bonds extend beyond the game and impact fanship in the sailing industry. Consequently, the following hypotheses are put forth:

*H4: Satisfaction with the game has a significant impact on media consumption intentions.*

*H5. Satisfaction with the gaming experience has a significant impact on sailing fanship.*

*H6. Attachment with the game has a significant impact on media consumption intentions.*

*H7. Attachment to the game has a significant impact on sailing fanship.*


Photo by the Polish Yachting Association

# Survey Data Collected


Photo by Daniel Stenholm

Behavior research on online games can be divided into three categories according to the academic disciplines employed: (a) the attractive features of virtual environments, (b) the psychology of players, and (c) the cognitive element that shape gaming user attitude and behaviour. Concerning the third category, it is intuitive that sport video gaming (i.e., e-sailing in this study) can affect user experiences toward sport (i.e., sailing in this study). However, the underlying mechanism explaining how sport gaming experience (e.g., emotion, satisfaction, image, and intimacy) can translate into sport-related behaviour intentions (e.g., fanship and media consumption intentions) remains to be understood. This lack of understanding led to two major research questions: First, are gaming experiences associated with sailing-related behaviour intentions? Second, what factors enhance sailing-related behaviour intentions? To answer these questions, we established hypotheses that incorporated key variables that can produce important implications for the sailing stakeholders and tested the hypotheses by collecting data from Virtual Regatta online communities using convenience sampling.

## Characteristics of sample

### *Gender*

In the sample population, a clear majority of participants identifying as male represented 554 participants and 93.4% of the total. In contrast, females accounted for a smaller proportion with 39 participants or 6.6% (see Table 1 and Figure 1 below). Historically, sailing has been perceived as a predominantly male-dominated activity, influenced by traditional maritime roles, occupations, and cultural stereotypes. While recent decades have seen a steady increase in female participation in various sailing disciplines, ranging from recreational to competitive, the overarching male dominance remains evident. The figures from our sample seem to echo this trend. While the sample does appear to reflect some of the gender imbalances present in the wider sailing community, the nuances of virtual gaming and potential sampling biases warrant careful consideration when drawing broader conclusions since the study adopted convenience sampling.

*Table 1. Frequencies of gender*

| Gender | Frequency (*n*) | % of total | Cumulative & |
|---|---|---|---|
| Male | 554 | 93.4% | 93.4% |
| Female | 39 | 6.6% | 100.0% |

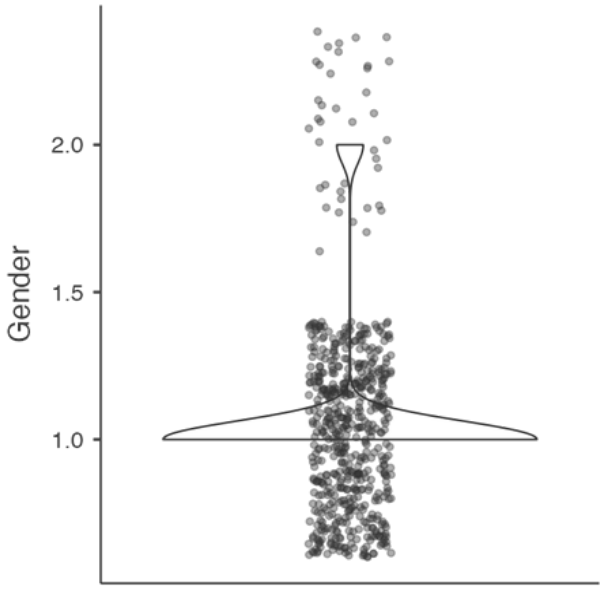



*Figure 1. Violin box plot of gender (1=Male; 2=Female)*

### *Education*

When it comes to education, postgraduate degree holders represent the largest group at 34.2% (n = 203) of the total. This is closely followed by those with a Bachelor's degree, constituting 25.3% (n = 150). Together, individuals with Bachelor's and postgraduate levels make up a remarkable 59.5% of the sample. High school graduates account for 141 participants or 23.8%, while the category labelled 'Other' comprises 16.7% (n = 99), culminating in a 100% representation of the sample (see Table 2 and Figure 2 below).

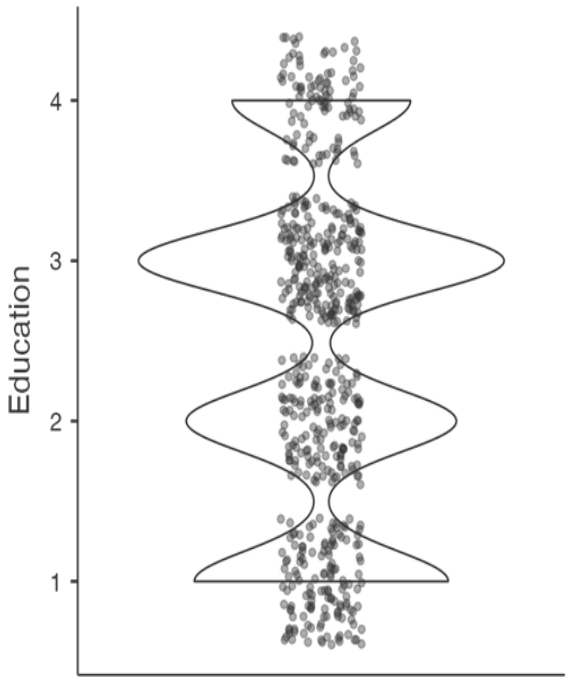
From this education frequency, it is worth noting the relationship between sailing and education. Even though the sample population is online sailing game users, the considerable proportion of participants with advanced degrees might reflect the financial and intellectual accessibility that sailing, as both a hobby and sport, presents. The financial commitments associated with

sailing, from equipment to membership fees in sailing clubs, might be more feasible for those in higher-paying jobs, which often correlate with higher educational attainment. In conclusion, the pronounced representation of highly educated responses within our sample offers a fascinating lens through which we can view and appreciate the broader dynamics of the sailing community.

*Table 2. Frequencies of education*

| Education | Frequency (*n*) | % of total | Cumulative % |
|---|---|---|---|
| High school | 141 | 23.8% | 23.8% |
| Bachelor | 150 | 25.3% | 49.1% |
| Postgraduate | 203 | 34.2% | 83.3% |
| Other | 99 | 16.7% | 100.0% |

*Figure 2. Violin box plot of education (1=High school; 2=Bachelor; 3=Postgraduate; 4=other)*




***Age***

Age distribution among participants presents an intriguing portrait of the demographics within the online sailing game community. It is evident that there is a significant representation from older age brackets. Specifically, the largest age cohort is the 55-64 age group, encompassing 28.7% (n = 170) of the total. This is closely followed by the 45-54 age range, which accounts for 146 participants or 24.6%. Individuals aged 65 and over are also notably represented with 117 participants or 19.7%. Cumulatively, individuals aged 45 and above form a staggering 73% of the total sample (see Table 3 and Figure 3 below).

Contrary to many prevailing assumptions about online gaming communities — often stereotyped as younger demographics — the online sailing game community appears to have a considerable representation from an older and, likely, more financially stable demographic. This trend is consistent with broader observations within the sailing community. Sailing, traditionally, has been a pursuit associated with individuals in higher socioeconomic brackets, often those who have enough time and financial resources. Translating this into the realm of online sailing games, it is plausible to suggest that older individuals, having nurtured a passion or interest in sailing throughout their lives, might be seeking virtual avenues to explore this interest, especially if real-world sailing becomes less feasible due to health concerns and other barriers (e.g., long travel distance). In summary, the frequency of age shows

that the online sailing game community leans towards an older, potentially more affluent user base.

*Table 3. Frequencies of age*

| Age | Frequency (*n*) | % of total | Cumulative % |
|---|---|---|---|
| < 18 | 21 | 3.5% | 3.5% |
| 18-24 | 17 | 2.9% | 6.4% |
| 25-34 | 41 | 6.9% | 13.3% |
| 35-44 | 81 | 13.7% | 27.0% |
| 45-54 | 146 | 24.6% | 51.6% |
| 55-64 | 170 | 28.7% | 80.3% |
| over 65 | 117 | 19.7% | 100.0% |

*Figure 3. Violin box plot of age (1=<18; 2=18-24; 3=25-34; 4=35-44; 5=45-54; 6=55-64; 7=over 65)*

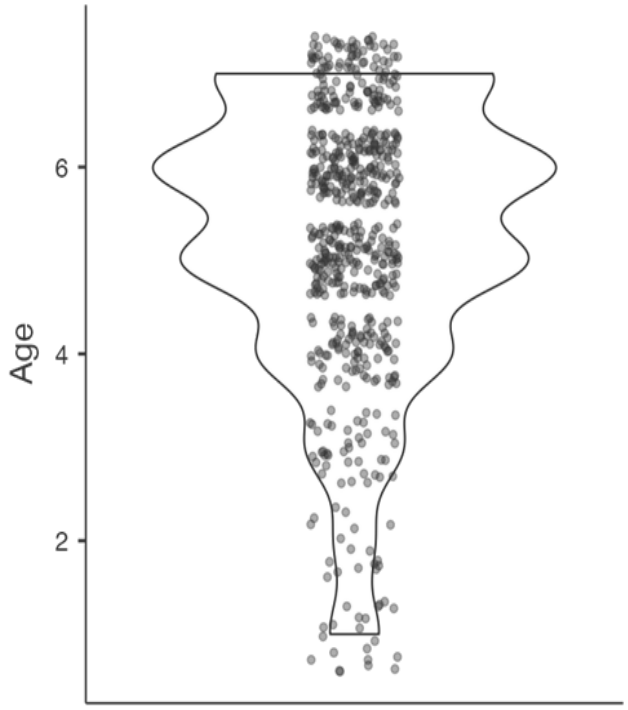



Photo by Markus Spiske on Unsplash

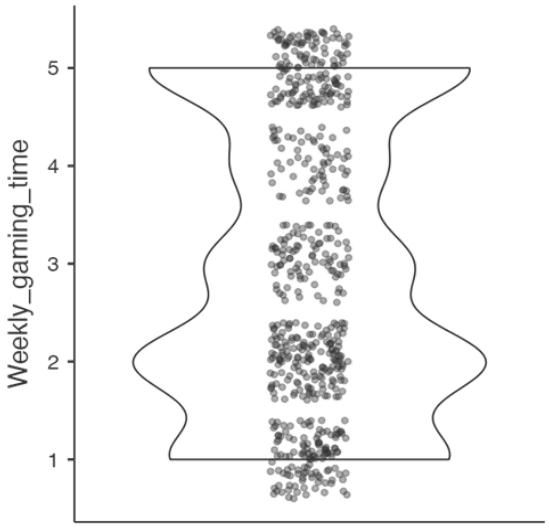
### *Weekly gaming time*

A significant portion of users, 26.8% (n = 159) of the sample, fall into the 1-2 hours per week bracket. This is a typical time commitment for casual gamers or those who integrate gaming as a brief respite within their weekly routines. It suggests a group of individuals who are engaging with the game, but perhaps do not fully immerse themselves in prolonged sessions. However, an interesting point is that the group that dedicates more than 4 hours weekly to the game — they comprise exactly 25.0% (n = 148) of the sample (see Table 4 and Figure 4 below). This is nearly equivalent to the 1-2 hours cohort and indicates a deep engagement level. Such a substantial time commitment weekly suggests that this group sees the virtual sailing game not just as a casual pastime but likely as a core hobby or a significant recreational activity. This level of engagement can be attributed to various factors: the complexity of the game, its immersive nature, or perhaps the nostalgic or emotional connection it brings for those passionate about sailing. Some sailing fans might play the virtual game because they cannot sail in real life due to reasons like where they live, bad weather, or lack of equipment. Another plausible explanation is that older players, especially those in retirement or with more leisure time, might find themselves dedicating more extended periods to the game.

*Table 4. Frequency of weekly gaming (connection) time*

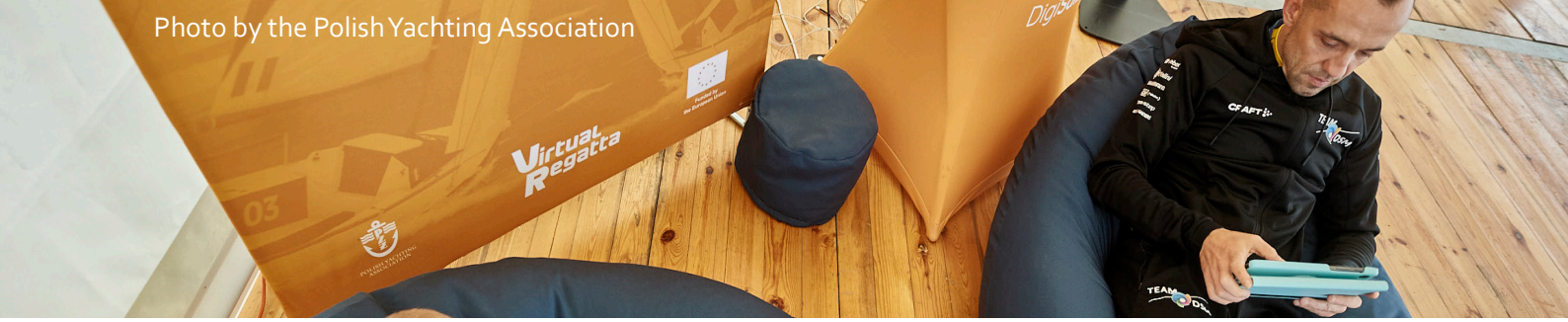
| Gaming time (weekly) | Frequency (*n*) | % of total | Cumulative % |
|---|---|---|---|
| 1 hour or less | 126 | 21.2% | 21.2% |
| 1-2 hours | 159 | 26.8% | 48.1% |
| 2-3 hours | 92 | 15.5% | 63.6% |
| 3-4 hours | 68 | 11.5% | 75.0% |
| More than 4 hours | 148 | 25.0% | 100.0% |

*Figure 4. Violin box plot of weekly gaming time (1=1 hour or less; 2=1-2hours; 3=...)*




### *Sailing experience*

A predominant majority, 78.2% (n = 464) of the sample, indicated prior sailing experience. Conversely, a minority segment, 129 participants (21.8%), reported no prior exposure to sailing (see Table 5 and Figure 5 below). This can be explained by two different perspectives. 78.2% might indicate

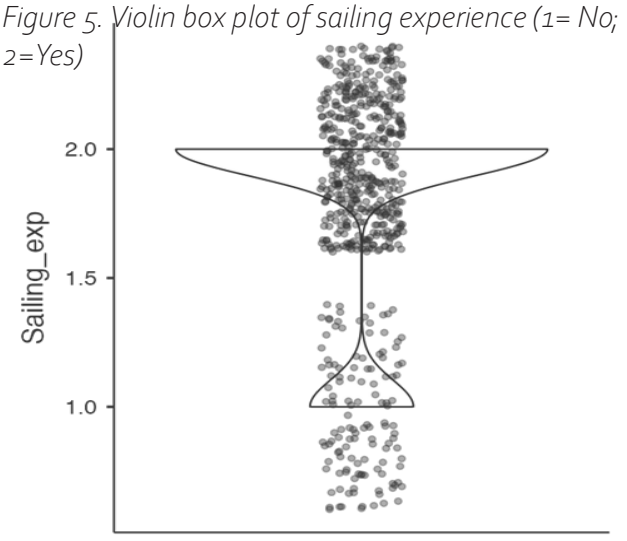



that the game accurately captures the intricacies and nuances of real-world sailing, making it appealing to those familiar with the sport. Such respondents might be using the virtual sailing platform as a complementary experience, possibly to practice their real-world sailing encounters. On the flip side, the presence of a significant 21.8% of users without any sailing background indicates the game's accessibility and its potential role as an introductory platform. Depending on the gaming experience, these respondents might lead to real-world sailing fans, and this could be a point where the importance of the virtual game can be justified.

*Table 5. Frequency of sailing experience*

| Sailing experience | Frequency (*n*) | % of Total | Cumulative % |
|---|---|---|---|
| No | 129 | 21.8% | 21.8% |
| Yes | 464 | 78.2% | 100.0% |

*Figure 5. Violin box plot of sailing experience (1= No; 2=Yes)*



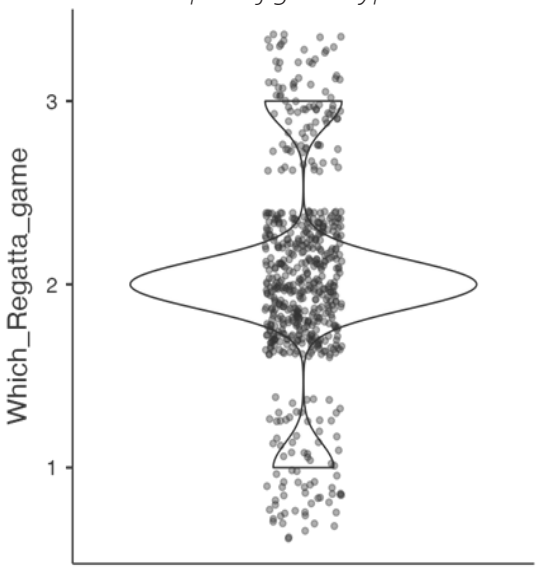

### *Type of game (Virtual Regatta Offshore and Inshore)*

The overwhelming preference leans towards the Offshore game, with 71.7% of the sample (n = 425), selecting this category to play. 12.5% (n = 74) of the respondents play Inshore game, while 15.9% (n = 94) of the sample opt for games encompassing both Inshore and Offshore experiences (see Table 6 and Figure 6 below).

*Table 6. Frequency of game types*

| Type of game | Frequency (*n*) | % of Total | Cumulative % |
|---|---|---|---|
| Inshore | 74 | 12.5% | 12.5% |
| Offshore | 425 | 71.7% | 84.1% |
| Inshore and Offshore | 94 | 15.9% | 100.0% |

*Figure 6. Violin box plot of game types*



# Study results

***Participants and data collection***

Data (N = 650) was obtained from the Virtual Regatta online community by conducting a convenience sampling technique with the assistance of the National Sailing Federations (Poland, Sweden, and Turkey) and Virtual Regatta. The data collection method involved the dissemination of web-based questionnaire surveys.

***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) enquiries pertaining to participants' sociodemographic characteristics. A 5-point Likert scale was utilised for item measurement ("Strongly disagree [1] – "Strongly agree [5]"). To evaluate online community 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), Han and Back (2007), Oliver (1997), and Yoshida and James (2010). 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).

***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 (please see Appendix 1 for the result of the measurement model).

Photo by Daniel Stenholm

## Results of hypotheses testing: Study Number One

The results from the structural equation modelling offered insights into the influence of two types of intimacy (i.e., intellectual intimacy and interaction intimacy) on game and sport image and subsequent behavioural intentions toward sailing. It is worth noting that modifications to the initial research model were necessitated due to the fact that the game image did not satisfy established reliability and validity thresholds. The revised and finalised research model can be viewed in Figure 8. Intellectual intimacy was found to have a significant positive relationship with game image (H1: $\beta$ =.22, t =4.89, p < .001). This suggests that individuals who experience a deeper cognitive connection or understanding of the game tend to perceive it more favourably. Our data also supported the direct relationship between interaction intimacy—how players interact and connect with the game—and game image (H2: $\beta$ =.41, t =10.20, p < .001). This indicates that a rich, immersive interaction can elevate a user's overall perception of the game. The results also confirmed that both intellectual and interaction intimacy are positively associated with behavioural intention toward sailing (H3: $\beta$ =.15, t =3.10, p < .01; H4: $\beta$ =.10, t =2.01, p < .05). There was a notable effect of game image on behavioural intention toward sailing (H5: $\beta$ =.16, t =2.90, p < .001). This result emphasises that the idea that positive perceptions of the game can foster an interest in related real-world activities, in this case, sailing.

These findings bridge the gap between gaming experience-related variables and sailing experience-related outcomes. In doing so, they not only validate previous theoretical assertions but also push the boundaries by introducing new paradigms of understanding. This research makes a pivotal contribution to the sport game marketing literature. It demonstrates the significant influence of intimacy and game image in shaping behavioural intentions

toward the actual sport. Furthermore, it heralds an innovative application of intimacy theory to the domain of online sport gaming customers—a context where this theory had not previously been explored. The implications of this are profound, suggesting that marketers and game developers can leverage the principles of intimacy to cultivate stronger player engagement and foster interest in related real-life activities.

While it was not the main goal of this study, our results did show that game image has a partial mediating effect on the relationship between intimacy—with the sailing game and its community—and the intention to participate in actual sailing (please see Table 7 below). This highlights the critical importance of game image in bridging the divide between virtual game experiences and tangible sport engagements. The mediating role of game image suggests that it can act as a conduit, ensuring that positive feelings and attachments formed within the game environment, including interaction with other uses, can be transitioned effectively to real-life sporting contexts. Recognising this intermediary function, practitioners and researchers may find new avenues to explore in understanding how virtual gaming can serve as an influential platform for broader sporting activities.

*Figure 7. The research framework of Study 1*

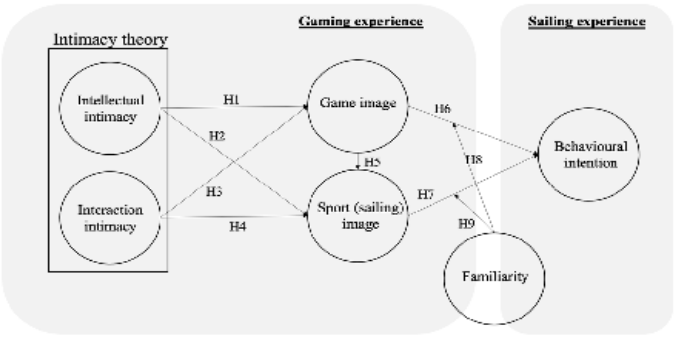
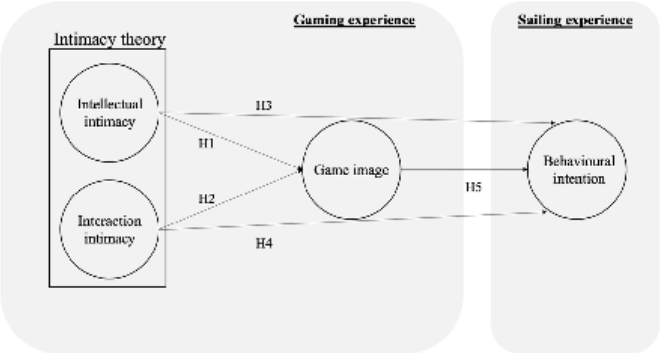



*Figure 8. The final research framework of Study 1*




*Tbale 7. Results of the hypotheses testing: Study 1*

| Hypothesised paths | Direct effects | | Results |
|---|---|---|---|
| | β | *t*-value | |
| H1: Intellectual→ GI | .22 | 4.89*** | Supported |
| H2: Interaction → GI | .41 | 10.20*** | Supported |
| H3: Intellectual → BI | .15 | 3.10** | Supported |
| H4: Interaction →BI | .10 | 2.01* | Supported |
| H5: GI → BI | .16 | 2.90*** | Supported |
| | Indirect effects | | |
| Intellectual → GI → BI | .03 | 2.65** | |
| Interaction → GI → BI | .06 | 2.78** | |

Note 1. β = *S*tandardized factor loading; Intellectual = intellectual intimacy; Interaction = interaction intimacy; GI = game image; BI = behavioural intentions

Note 2: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (two-tailed significance for standardised indirect effects).

## Results of hypotheses testing: Study Number Two

The results derived from the path analysis of structural equation modelling provide substantial support for most of the proposed hypotheses. Hypothesis 1, which suggested a positive relationship between game identification (users' identification with Regatta) and positive affect, was supported ($\beta = .55$, $t = 16.20$, $p < .001$). A significant positive association exists between the degree of identification users feel with the sailing game and their positive affect towards the game. In simpler terms, as users feel a stronger sense of belonging to the game, their positive emotions or feelings about the game increase. This suggests that fostering a sense of community can boost player's emotional engagement with the game.

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. Positive emotions towards the game translate directly into user satisfaction. This implies that the game's ability to evoke positive feelings among its players is crucial in ensuring overall satisfaction. A satisfied player is likely to have a more extended engagement and perhaps even advocate for the game. A heightened positive affect also intensifies a user's attachment to the game. This is a vital insight as attachment goes beyond mere satisfaction.

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.


Photo by the Polish Yachting Association

Photo by Daniel Stenholm

Game fans who derive satisfaction from the game exhibit a greater inclination towards consuming media related to sailing. This suggests that the virtual game experience can cultivate a broader interest in the world of sailing, extending beyond the game itself. Interestingly, while satisfaction drives media consumption intentions, it does not necessarily translate into fanship towards real sailing. This suggests that while players may enjoy the game, it does not always mean they become fans of the actual sport – sailing. There may be other factors at play influencing the transition from game satisfaction to real-world fanship.

Lastly, Hypotheses 6 and 7, positing that attachment towards the sailing game 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 ($\beta = .55$, $t = 16.20$, $p < .001$). Attachment to the game, unlike mere satisfaction, does influence both media consumption intentions and fanship towards sailing. This is an important finding as it underscores the potency of user-game attachment. The online game players deeply attached to the virtual sailing experience are not only more inclined to consume sailing-related media but also develop a fandom for the actual sport.

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 ($\beta = .16$, $t = 4.12$, $p < .001$; $\beta = .43$, $t = 12.44$, $p < .001$). The inclusion of sailing experience as a covariate in the study is worth mentioning. Those with prior sailing experience might naturally exhibit stronger fanship or media consumption tendencies, and controlling for this variable ensures that the observed effects truly stem from the game-related variables.

Overall, this research provides invaluable insights into the influence of virtual sailing game experiences on real-world sailing engagement. By understanding how game-related emotions, satisfaction, and attachment can bridge the gap between the virtual and real worlds, stakeholders in both the gaming and sailing industries can make informed decisions to foster fanship and engagement.

*Figure 9. Results of hypotheses testing: Study 2*

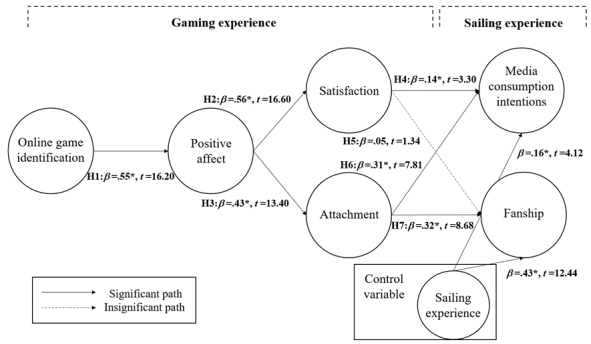



*Table 8. Results of hypotheses testing: Study 2*

| Hypothesised paths | Direct effects | | Results |
|---|---|---|---|
| | β | *t*-value | |
| H1: OGI → PA | .55 | 16.20*** | Supported |
| H2: PA → Satis | .56 | 16.60*** | Supported |
| H3: PA → Attach | .43 | 13.40*** | Supported |
| H4: Satis → MCI | .14 | 3.30*** | Supported |
| H5: Satis → Fanship | .05 | 1.34 | Rejected |
| H6: Attach → MCI | .31 | 7.81*** | Supported |
| H7: Attach → Fanship | .32 | 8.68*** | Supported |
| **Control variable** | | | |
| Sailing experience → MCI | .16 | 4.12*** | |
| Sailing experience → Fanship | .43 | 12.44*** | |

Note 1. β = *S*tandardized factor loading; OGI = online game identification; PA = positive affect; satis = satisfaction; attach = attachment; MCI = media consumption intentions

Note 2: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (two-tailed significance for standardised indirect effects).


Photo by Robert Hajduk


Photo by Robert Hajduk

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Photo by the Polish Yachting Association

# Appendix

**Appendix 1**. *Summary of Observed Items and Normality Test*

| *Observed items (labels)* | *Mean* | *SD* | *Skewness* | *Kurtosis* |
|---|---|---|---|---|
| *Online 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* |

*Note1: SD = Standard deviation*

*Note2: PA1 and Fan2 were eliminated before moving on the next analysis*


Photo by Robert Hajduk

DigiSail.