Application of the Unified Theory of Acceptance and Use of Augmented Reality Technology in the Development and Promotion Sports with the Moderating Role of Consumer Inertia

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ABSTRACT

Purpose: Technological advances have been central to the development of societies in this century. Various countries have increasingly embraced technological innovations to enhance life experiences in different dimensions. However, consumers' widespread adoption of these technologies is crucial for their ongoing success and further expansion. This research explores the Unified Theory of Acceptance and Use of Technology (UTAUT) of augmented reality technology, considering the moderating role of consumer inertia in the advancement and promotion of sports.

Methodology: This research, designed in an applied-descriptive manner, utilized the non-random sampling method, and the data collected through online questionnaires were analyzed using the structural equation modeling method. Although the concept of consumer inertia is not initially incorporated into the framework of the technology acceptance model, evidence suggests that this factor plays a significant role as a key predictor of resistance to adopting new products. This resistance can be more critical than other predictive factors, such as expected performance, required effort, social influences, and facilitating conditions.

Findings: This research has revealed that gaining a deeper understanding of these critical factors and establishing the necessary infrastructure to support them will significantly increase the likelihood of success and the potential benefits of augmented reality technology in sports.

Originality: This research innovatively incorporates consumer inertia into the Unified Theory of Acceptance and Use of Technology framework for augmented reality technology in sports. By highlighting the significance of consumer inertia as a critical predictor of resistance to new products, it addresses potential barriers to adoption. The findings provide valuable insights for researchers and practitioners to enhance technology acceptance in the sports industry.

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1. Introduction

Technological changes significantly impact the sports industry, evident in improvements such as enhancing athletes' performance, enriching spectator experiences, improving sports event management, and enhancing post-event reviews (Amirjan, 2016). One technology that researchers are interested in is augmented reality technology. It involves integrating digital information with the user's environment in real time, enhancing the user experience (Rauschnabel et al., 2022). Unlike virtual reality, which creates an entirely artificial environment, augmented reality technology allows users to experience natural environments with additional perceptual information overlaid onto them (Liao, 2015). Augmented Reality (AR) enhances the physical world by incorporating digital visual elements, sounds, and other sensory stimuli into the user's environment (Dadwal & Hassan, 2016). AR is an emerging technology widely utilized across various industries, including sports and fitness. By leveraging this technology, it offers a new and engaging way to perform exercises and sports activities (Arzani Birgani et al., 2017). Among its main applications, we can highlight the use of virtual reality for teaching and practicing physical activities and fostering motivation to maintain regular exercise routines (Doskarayev et al., 2023; Golabian Moghadam, 2018; Venkatesh et al., 2003). In AR, athletes can engage in specific exercises within virtual environments to enhance their skills (Arzani Birgani et al., 2017; Doskarayev et al., 2023; Venkatesh et al., 2003). Additionally, augmented reality technology can be employed to analyze and improve athletes' performance through artificial intelligence systems. These systems can assist coaches in identifying athletes' strengths and weaknesses, enabling them to create more tailored training programs (Azami & Hasanpoor, 2020; Frevel et al., 2022).

Indeed, using augmented reality technology is crucial for advancing and promoting sports. It can substantially enhance athletes' performance and overall experience, potentially fostering significant growth within the sports industry (Azami & Hasanpoor, 2020; Doskarayev et al., 2023; Frevel et al., 2022). This aspect should be considered: While augmented reality has introduced new perspectives in sports and enriching experiences for athletes and enthusiasts, the effective implementation and increased public acceptance of this technology necessitate a clearer understanding of the influencing factors. The acceptance of technology is crucial (Doskarayev et al., 2023). One of the most prominent models regarding technology acceptance is the UTAUT. He and his colleagues developed a model called the Unified Theory of Technology Acceptance and Use, based on eight models: rational action theory, technology acceptance model, motivation model, theory of planned behavior, combination of technology acceptance model and theory of planned behavior, personal computer use model, theory of diffusion of innovation, and theory of social cognition. These models, all related to information and communication technology, collectively explained 70% of the variance in the behavioral intention variable (Golabian Moghadam, 2018; Venkatesh et al., 2003). This model inherently seeks to understand people's reasons and justifications for rejecting or accepting technology and aims to predict people's behavior by identifying their motivations for using technologies (Azami & Hasanpour, 2020). The UTAUT model identifies four constructs: expected performance, effort, social influence, and facilitating conditions, influencing technology

acceptance and willingness to adopt it. Performance expectancy relates to job performance benefits, effort expectancy to ease of use, social influence to perceived importance, and facilitating conditions to support (Venkatesh et al., 2003).

Many studies have investigated the effects of expected performance, expected effort, social influence, and facilitating conditions on the attitude, acceptance, and use of augmented reality technology, highlighting the importance of this technology (Cossich et al., 2023; Frevel et al., 2022; Joshi, 2019; Pascoal & Guerreiro, 2017; Sawan et al., 2021; Soltani & Morice, 2020; Zollmann et al., 2019). In her research titled "AR in Sports and Physical Education," Zhang & Huang (2023) demonstrated that educational materials based on AR outperform video-based materials, particularly in enhancing the learning outcomes of challenging motor skills. Doskarayev et al. (2023), in a research paper titled "development of AR games with computer vision to increase motivation for sports," asserts that AR games that integrate computer vision and artificial intelligence have emerged as a potential tool to boost motivation for sports participation. Frevel et al. (2022), in a prospective study titled "the impact of technology on sports - a prospective study," asserts that the rapid advancement of augmented reality technology and its integration into the sports industry will enhance how athletes train and compete, along with other similar advancements. Sports managers are expected to lead sports organizations and guide sports consumers' engagement and involvement with sports (Frevel et al., 2022).

In another research titled "Acceptance of Virtual Reality Head-Mounted Displays by Athletes to Enhance Sports Performance," Mascret et al. (2022) asserts that athletes' acceptance of augmented reality technology increases the likelihood of its utilization across various sports and skill levels. This technology enables athletes to leverage its full benefits to enhance their sports performance. Additionally, personalized interventions tailored to athletes' specific needs can be implemented for those who may prefer not to incorporate this technology into their training routine (Mascret et al., 2022). Yu et al. (2023) demonstrated that engaging in physical exercises with AR can enhance physical performance in post-surgery patients. This technology can offer crucial motivation to sustain the activity through real-time feedback, fostering a conducive environment for creating sports (Yu et al., 2023). In a 2019 research study titled " UTAUT to Investigate the Intention to Use Physical Activity Programs," Aulu's findings indicate a semantically solid relationship between the four indicators of expected performance, expected effort, social influence, and conditions facilitating attitude, behavioral intention, and the utilization of augmented reality technology (Liu et al., 2019). In a study by Thérouanne et al. (2023) on women's postbariatric surgery, the aim was to explore the acceptability of technology-based physical activity interventions through qualitative analysis utilizing the theory of acceptance and use of technology. He suggests that due to the strong semantic relationship among the UTAUT indicators, it can be argued that this theory is a suitable theoretical framework for technology acceptance in physical activity (Thérouanne et al., 2023).

Although augmented reality technology offers numerous opportunities to enhance professional objectives and facilitate scientific studies, as indicated by researchers (Goebert, 2020), many studies have demonstrated its impact on user satisfaction (Chiu et

al., 2021), acceptance (Rese et al., 2017), intention to use (Huang, 2021), perceived usefulness (Rese et al., 2017), and purchase intention (Kang et al., 2020). However, it is essential to note that some individuals resist change and are hesitant to embrace new situations. They may prefer to stick to their current products or services (Wang et al., 2021; Zhang & Huang, 2023) even when presented with potentially superior alternatives. This approach, incorporating cognitive and emotional aspects (Barnes et al., 2004), serves as a stable and effective behavioral model, illustrating a solid inclination to maintain the status quo and resist changes, known as consumer inertia (Polites & Karahanna, 2012).

Despite significant progress in acquiring emerging technologies across different facets of the sports field, consumer inertia acts as a moderator in current technology adoption models. Understanding how inertia influences adoption trends can enhance our analysis, as the inclination to maintain the status quo may evolve and drive innovation in the adoption process. Resistance to change can cause disturbances and slow down the adoption of innovations, thereby impeding the development and broader promotion of sports. The current research explores the impact of consumer inertia on sports development and promotion. It aims to mitigate financial risks, facilitate optimal decision-making, and pave the way for more efficient adoption of new technologies in sports. In this study, the researchers aim to investigate the impact of variables within the integrated conceptual model of acceptance and technology on the willingness to adopt augmented reality technology for sports development and promotion. Additionally, they seek to understand the role of consumer inertia as a moderator in this context. Figure 1 illustrates the research hypotheses and the structural relationships among the variables in the research model.
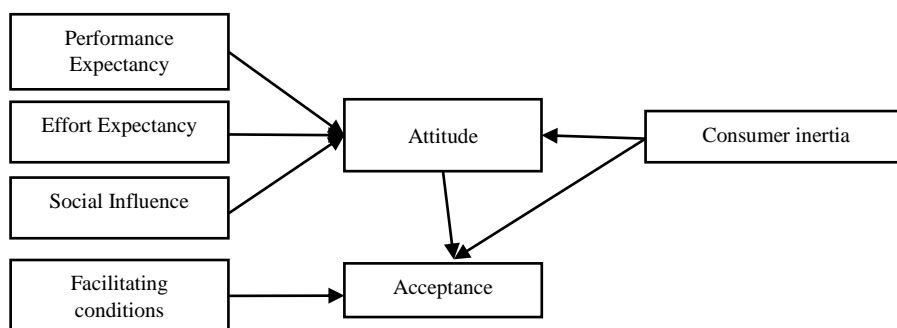
Figure 1. Conceptual Model of the Research.

2. Methodology

The current research aims to utilize augmented reality technology in sports development and promotion, focusing on the moderating role of consumer inertia. Consequently, it is classified as applied-descriptive research. The statistical population of this research includes all athletes and coaches participating in provincial and national sports competitions in 2023. Therefore, a non-permitted sampling method was utilized, and according to the Krejcie-Morgan formula, a research sample of 384 individuals was

deemed necessary. Subsequently, after distributing the online questionnaire, 388 questionnaires were completed. This research comprised a total of 30 questions. Among these, four questions about demographic information, while the remaining 26 covered seven variables: expected performance (4 questions), expected effort (4 questions), facilitating conditions (4 questions), social influence (3 questions), attitude (4 questions), acceptance (3 questions), and consumer inertia (4 questions). The five-choice Likert questionnaire scale ranges from "completely disagree" (1) to "completely agree" (5). The questionnaire's reliability was assessed using Cronbach's alpha. The questionnaire was distributed to 10 sports management professors to determine face validity. The data was analyzed, and research hypotheses were tested using structural equation modeling (SEM) with SmartPLS version 3 and SPSS version 22 software.

3. Results

In table number one, the demographic status of the research samples is reported.

Table 1. Describing the demographic characteristics of the research samples.

Demographic variables of the research		Frequency	Percent relative frequency
Gender	Female	249	64.18
	Male	139	35.82
Age	Below 20 years old	12	3.09
	20-30	182	46.91
	31-41	121	31.19
	41-50	64	16.49
	Above 50 years old	10	2.58
Education	Diploma	26	6.7
	Bachelor	138	35.57
	Master	197	50.77
	Doctoral	26	6.7
Occupation	Coach	201	51.8
	Athlete	187	48.2

The results of the demographic analysis in this research revealed that among the 388 participants, the majority were women (249 individuals) aged between 20 and 30 years (182 individuals) who were pursuing post-graduate studies (197 individuals), with 201 of them serving as mentors in science-related fields. Cronbach's alpha index and composite reliability were utilized to assess the internal consistency of the questionnaire constructs. The extracted average variance index was employed to evaluate convergent validity. According to the researchers, the measurement model is considered homogeneous if the absolute value of the factor loadings of the observable variables is at least 0.7. However, some researchers have accepted a threshold of 0.4 and recommended eliminating variables with factor loadings below that. Based on the results in Table 2, it is evident that the variables demonstrate adequate utility.

Table 2. Reliability and convergent validity coefficients and Cronbach's alpha and factor loadings of research variables.

Variable	Factor loading	Cronbach's alpha Alpha ≥ 0.7	Composite reliability CR ≥ 0.7	Extracted average variance AVE ≥ 0.5
Consumer inertia	0.926	0.908	0.925	0.755
	0.912			
	0.827			
	0.804			
Effort Expectancy	0.784	0.820	0.878	0.644
	0.869			
	0.788			
	0.764			
Facilitating conditions	0.798	0.784	0.858	0.603
	0.761			
	0.780			
	0.766			
Performance Expectancy	0.779	0.874	0.914	0.726
	0.848			
	0.891			
	0.889			
Social influence	0.854	0.827	0.896	0.743
	0.914			
	0.815			
Attitude	0.778	0.818	0.879	0.645
	0.758			
	0.843			
	0.831			
Acceptance	0.864	0.823	0.895	0.739
	0.845			
	0.870			

The Fornell and Larcker indices have also been calculated to assess divergent validity. Fornell and Larcker suggest that divergent validity is satisfactory when the average variance extracted for each construct exceeds the shared variance between that construct and others in the model. The results presented in Table 3 confirm that the divergent validity of the research variables has been established.

Table 3. Divergent validity of research variables.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Consumer inertia	0.869	-	-	-	-	-	-
Effort Expectancy	0.136	0.802	-	-	-	-	-
Facilitating conditions	0.023	0.565	0.776	-	-	-	-
Performance Expectancy	0.278	0.676	0.471	0.852	-	-	-
Social influence	0.005	0.580	0.561	0.577	0.862	-	-
Attitude	0.021	0.143	0.136	0.168	0.173	0.803	-
Acceptance	0.154	0.587	0.581	0.581	0.631	0.137	0.860

The primary measure for evaluating endogenous variables is the coefficient of determination. Values of 0.25, 0.5, and 0.75 represent small, medium, and large magnitudes of one structure compared to another. The coefficient of determination for the variables of attitude toward use and willingness to use are 0.096 and 0.496, respectively, indicating a good fit for the structural model. The quality index of the structural model also assesses its predictive capability. Q2 values above zero indicate the model's predictive strength. The Q2 values obtained for the variables of attitude towards use are 0.194, and willingness to use is 0.338, demonstrating the structural model's good predictive quality.

Table 4. Evaluation indices of the structural model.

Variable	R Square	Q2
Attitude	0.037	0.017
Acceptance	0.369	0.254

Table 4 displays the results of the path coefficient analysis and the significance levels of this research.

Table 5. Structural model evaluation indices.

Path	Path Coefficient	Standard Deviation	T level	Significance Level	Result
Attitude → Acceptance	0.155	0.041	3.329	0.029	Confirmed
Effort Expectancy →Attitude	0.115	0.073	2.211	0.033	Confirmed
Facilitating Conditions → Acceptance	0.578	0.029	19.664	0.000	Confirmed
Social influence →Attitude	0.207	0.053	3.049	0.041	Confirmed
Performance Expectancy →Attitude	0.497	0.078	7.234	0.001	Confirmed
Consumer inertia →Attitude	-0.108	0.058	2.049	0.040	Confirmed
Consumer inertia →Acceptance	-0.166	0.048	3.426	0.001	Confirmed

According to the results listed in Table 5, it can be stated that the variables of expected performance, expected effort, and social influence on the attitude to use exhibit a significant level of acceptability. Additionally, the direct effect of the consumer inertia variable on attitude and acceptance also shows an acceptable level of significance. The positive and direct impact of attitude and facilitating conditions on acceptance were also confirmed.

Figure 2 illustrates the research hypotheses and the structural relationships among the variables in the research model.
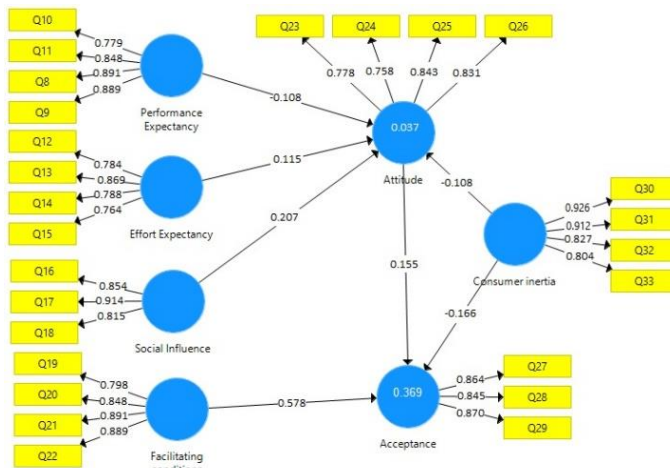
Figure 2. Structural model of the research.

Figure 3 depicts the significance levels of the research hypotheses, and all relationships exhibit an appropriate significance level.
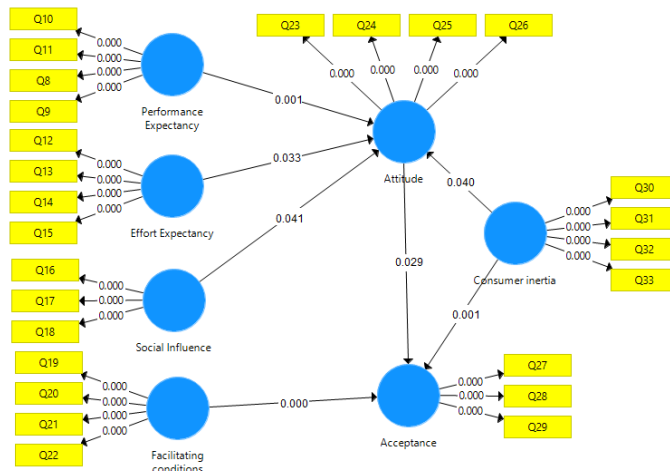

Figure 3. Significance levels of the research.

4. Discussion and conclusion

We have witnessed various technologies' emergence and continuous development in the present era, one of the most prominent being added. This technology has significantly impacted the performance and success of professional athletes, making a substantial contribution to enhancing training quality and improving sports techniques. At the same time, it has exerted further influence and provided an impetus to develop and promote sports as an integral part of a healthy lifestyle among the general public, aiming to foster a dynamic society. This technology can blur the lines between competitive sports and everyday physical activities, solidifying sports' crucial role as a significant and

influential factor in enhancing the quality of life across all social classes. In this research, we investigated the influential factors affecting the adoption of augmented reality technology in sports development and promotion, considering the moderating role of consumer inertia.

The research findings suggest that the expected performance variable significantly impacts attitudes toward augmented reality technology, especially in sports settings where participants anticipate enhanced productivity and improved specialized training opportunities. This aligns with findings from previous studies (Bozyer, 2015; Doskarayev et al., 2023) that emphasize the positive reinforcement of attitudes following initial experiences and tangible benefits users observe (Farahani, 2002). Organizations, coaches, and athletes can leverage these dimensions to enhance service delivery and training processes in sports. Additionally, Shokery et al. (2016) research underscores the significance of societal culture, affordability of technology, collaboration among educators, and suitable technological infrastructure for successful technology adoption, which resonates with recent insights on motivation and conducive conditions for technology integration.

Discussing the research findings elucidates a clear correlation between expected performance and positive attitudes toward augmented reality technology in sports contexts. By leveraging these insights and emphasizing the enhancement of user experiences and concrete benefits, organizations, coaches, and athletes can foster the adoption and effective use of this technology. Collaboration among stakeholders and suitable training is crucial to successfully integrating AR solutions. Additionally, addressing cultural norms and affordability issues and establishing a supportive environment for technology adoption is essential for enhancing overall acceptance and utilization of AR in sports. Integrating these implications based on the unified model will drive technology adoption and improve performance and training outcomes in sports settings.

The study findings highlight the significance of the "expected effort" variable in influencing attitudes toward adopting augmented reality technology in sports. This variable, focusing on users' ease of technology use and understanding, aligns with prior research emphasizing the impact of accessibility and user-friendliness of augmented reality technology on cultivating a positive attitude (Hilken et al., 2017; Mohammadi et al., 2013). The rapid advancements in technology and increased accessibility of platforms have played a crucial role in shaping these conclusions. The continuous evolution of technology, especially in mobile devices, has facilitated the acquisition of skills and knowledge necessary for utilizing AR tools. This increased accessibility within the sports sector has streamlined processes and encouraged the development of positive attitudes (Mohammadi et al., 2013). The rise of smart devices has led to the development of mobile sports applications that use augmented reality technology. These apps offer interactive workouts, guides, and visual feedback, enhancing the exercise experience. These applications are expected to gain popularity and foster positive attitudes towards AR in sports. Training courses and workshops can help users improve their proficiency in utilizing AR, overcoming barriers to adoption, and facilitating a smoother integration of AR in sports practices.

The available findings emphasize the role of social influence in shaping attitudes towards adopting augmented reality technology in sports. Past research indicates that the popularity and dissemination of new technology among individuals and the influence of social companionship significantly impact its acceptance rate. Influential figures in the sports industry, such as professional athletes, coaches, and celebrities, play a crucial role in encouraging the adoption of new technologies (Mohammadi et al., 2013). Convincing individuals, particularly professional athletes, coaches, and celebrities, are often encouraged to adopt new technologies (Doskarayev et al., 2023; Mohammadi et al., 2013; Venkatesh et al., 2012). The study findings suggest that maintaining a positive attitude towards using augmented reality technology in sports is a reliable predictor of its acceptance and actual adoption. This aligns with previous research findings and highlights the importance of fostering positive attitudes to increase the adoption and usage of new technology in sports (Dalili Saleh et al., 2022). Cultivating a positive attitude towards augmented reality technology can increase acceptance and usage. Hence, highlighting the advantages and positive results of utilizing AR in sports can influence attitudes and foster adoption within the sports community. To advance and optimize the use of AR tools in sports training, it is advisable to employ strategies that captivate and involve enthusiasts. Crafting focused and efficient advertising campaigns can boost awareness and promote acceptance of augmented reality technology. Leveraging the influence and endorsements of esteemed athletes who share their favorable experiences with augmented reality technology can allure and convince other users, propelling technological advancements in sports.

Facilitating conditions, such as technical knowledge and technology compatibility with sports activities, play a significant role in boosting the adoption of augmented reality technology. This case, emphasized in previous research (Al-Gahtani et al., 2007; Alalwan et al., 2015), refers to when users have the necessary knowledge and skills to use a new technology and perceive that its use aligns with their typical work routine. Users are generally more willing to adopt the technology when not conflicted. Steps can be taken to promote augmented reality technology in sports and ensure optimal utilization. These measures involve identifying and reducing barriers such as usage costs, technological complexity in deployment, and security concerns. Investing in relevant training and providing necessary instruction to users to ensure they acquire the knowledge and skills essential for using AR are crucial aspects of this process. Furthermore, the adaptability of augmented reality technology to current practices and the promotion of techniques that integrate technology into everyday sports activities can significantly encourage and facilitate adoption. By implementing these strategies, augmented reality technology will serve as an emerging tool and a valuable and complementary component in the advancement and evolution of sports.

The findings of this study also indicate that attitude exerts a positive and notable influence on the acceptance of this technology, a notion supported by previous research (Dwivedi et al., 2022; Venkatesh et al., 2003; Venkatesh et al., 2012). This underscores the pivotal role of users' attitudes in molding the acceptance and utilization of groundbreaking technological solutions. By comprehending the influence of attitudes on technology adoption, organizations and stakeholders in the sports industry can adapt

their approaches to introducing and endorsing AR applications while considering the preferences and perceptions of potential users. This highlights the necessity of evaluating users' attitudes and perceptions in designing and implementing augmented reality technologies to enhance their adoption and efficacy in the sports domain.

The evaluation findings show that resistance to change, often called consumer inertia, significantly impacts attitude formation and the acceptance of emerging technologies such as AR. This concept relates to a constant and inherent element in consumer behavior that reduces the desire and interest in using new technologies and can lead to a decreased willingness to adopt these technologies. This issue is in line with the findings of a previous study (Sadeqi Arani et al., 2023). To overcome consumer inertia and enhance acceptance of AR, it is crucial to inform and raise awareness about the benefits of this technology. Creating educational and communication programs that showcase compelling scientific evidence and positive user experiences can generate interest and enthusiasm for AR. This strategic approach has the potential to shift current attitudes and promote broader acceptance of the technology, especially in various societies and industries like sports.

The research findings demonstrate the potential of augmented reality technology to revolutionize the sports industry by enhancing training quality and promoting healthy lifestyles. However, challenges related to consumer inertia and resistance to new technologies may impede its full adoption. By analyzing the impact of consumer inertia on accepting AR in sports, valuable insights have been gained. These insights can inform intervention tactics to raise awareness, address consumer decision-making factors, and boost technology acceptance. Stakeholders in the sports sector can leverage this information to tailor strategies that facilitate the seamless integration of AR, driving efficiency and prosperity in sports through optimized utilization of this innovative technology.

References

Al-Gahtani, S. S., Hubona, G. S., & Wang, J. (2007). Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT. *Information & Management*, *44*(8), 681-691. https://doi.org/10.1016/j.im.2007.09.002

Alalwan, A. A., Rana, N. P., Dwivedi, Y. K., Lal, B., & Williams, M. D. (2015). Adoption of Mobile Banking in Jordan: Exploring Demographic Differences on Customers' Perceptions. In M. Janssen, M. Mäntymäki, J. Hidders, B. Klievink, W. Lamersdorf, B. van Loenen, & A. Zuiderwijk (Eds.), *Open and Big Data Management and Innovation* (pp. 13-23). Springer International Publishing. https://doi.org/10.1007/978-3-319-25013-7_2

Amirjan, A. (2016). *Evaluating the customer's willingness to buy electronically using the technology acceptance model and the Unified model of technology acceptance and use* [Master, Payame Noor University of Tehran Province]. Tehran, Iran. https://ganj.irandoc.ac.ir//#/articles/7abb93a811d97934ca7d3a7ab4213233

Arzani Birgani, A., Bostan, H., & Arzani Birgani, F. (2017, March 8). *Application of virtual reality technology in sports* [Conference session]. The first National Conference of Sports Science Research New findings in the field of health, prevention, heroes and Tourism, Ahvaz, Khuzestan, Iran. https://civilica.com/doc/596441/

Azami, M., & Hasanpoor, K. (2020). Applying an integrated acceptance model and using technology for accepting innovations among farmers in Delfan County). *Agricultural Education Administration Research*, *12*(52), 157-176. https://doi.org/10.22092/jaear.2020.342593.1718

Azami, M., & Hasanpour, K. (2020). Application of the Unified model of acceptance and use of technology to accept innovations among the farmers of Delfan city. *Agricultural Education Management Research*, *12*(52), 157-176. https://doi.org/10.22092/jaear.2020.342593.1718

Barnes, W., Gartland, M., & Stack, M. (2004). Old habits die hard: path dependency and behavioral lock-in. *Journal of Economic Issues*, *38*(2), 371-377. https://doi.org/10.1080/00213624.2004.11506696

Bozyer, Z. (2015). Augmented Reality in Sports: Today and Tomorrow. *International Journal of Sport Culture and Science*, *3*(Special Issue 4), 314-325. https://doi.org/10.14486/IJSCS392

Chiu, C. L., Ho, H-C., Yu, T., Liu, Y., & Mo, Y. (2021). Exploring information technology success of Augmented Reality Retail Applications in retail food chain. *Journal of Retailing and Consumer Services*, *61*(3), 102561. https://doi.org/10.1016/j.jretconser.2021.102561

Cossich, V. R. A., Carlgren, D., Holash, R. J., & Katz, L. (2023). Technological Breakthroughs in Sport: Current Practice and Future Potential of Artificial Intelligence, Virtual Reality, Augmented Reality, and Modern Data Visualization in Performance Analysis. *Applied Sciences*, *13*(23), 12965. https://doi.org/10.3390/app132312965

Dadwal, S. S., & Hassan, A. (2016). The augmented reality marketing: A merger of marketing and technology in tourism. In I. R. M. Association (Ed.), *Mobile computing and wireless networks: Concepts, methodologies, tools, and applications* (pp. 63-80). IGI Global. https://doi.org/10.4018/978-1-4666-8751-6.ch004

Dalili Saleh, M., Salami, M., Soheili, F., & Ziaei, S. (2022). Academic Librarians' Attitudes towards Augmented Reality. *Depiction of Health*, *13*(1), 18-32. https://doi.org/10.34172/doh.2022.02

Doskarayev, B., Omarov, N., Omarov, B., Ismagulova, Z., Kozhamkulova, Z., Nurlybaeva, E., & Kasimova, G. (2023). Development of Computer Vision-enabled Augmented Reality Games to Increase Motivation for Sports. *International Journal of Advanced Computer Science and Applications*, *14*(4), 245-252. https://doi.org/10.14569/IJACSA.2023.0140428

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-Debei, M. M., Dennehy, D., Metri, B., Buhalis, D., Cheung, C. M. K., Conboy, K., Doyle, R., Dubey, R., Dutot, V., Felix, R., Goyal, D. P., Gustafsson, A., Hinsch, C., Jebabli, I., . . . Wamba, S. F. (2022). Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, *66*, 102542. https://doi.org/10.1016/j.ijinfomgt.2022.102542

Farahani, A. (2002). The role of technology in physical education and future challenges. *Research in sports science*, *1*(2), 21-41. http://noo.rs/96xue

Frevel, N., Beiderbeck, D., & Schmidt, S. L. (2022). The impact of technology on sports – A prospective study. *Technological Forecasting and Social Change*, *182*, 121838. https://doi.org/10.1016/j.techfore.2022.121838

Goebert, C. (2020). Augmented reality in sport marketing: Uses and directions. *Sports Innovation Journal*, *1*, 134-151. https://doi.org/https://doi.org/10.18060/24227

Golabian Moghadam, M. (2018). A review of information technology acceptance models with an emphasis on expectation-confirmation theory. *Shamseh: Electronic Publication of the*

Organization of Libraries, Museums and Documents Center of Astan Quds Razavi, *10*(38-39), 1-16. https://shamseh.aqr-libjournal.ir/article_69335.html

Hilken, T., de Ruyter, K., Chylinski, M., Mahr, D., & Keeling, D. I. (2017). Augmenting the eye of the beholder: exploring the strategic potential of augmented reality to enhance online service experiences. *Journal of the Academy of Marketing Science*, *45*(6), 884-905. https://doi.org/10.1007/s11747-017-0541-x

Huang, T-L. (2021). Restorative experiences and online tourists' willingness to pay a price premium in an augmented reality environment. *Journal of Retailing and Consumer Services*, *58*(8), 102256. https://doi.org/10.1016/j.jretconser.2020.102256

Joshi, N. (2019, October 26). *Revolutionizing Sports With Augmented Reality*. Forbes. https://www.forbes.com/sites/cognitiveworld/2019/10/26/revolutionizing-sports-with-augmented-reality/

Kang, H. J., Shin, J-H., & Ponto, K. (2020). How 3D Virtual Reality Stores Can Shape Consumer Purchase Decisions: The Roles of Informativeness and Playfulness. *Journal of Interactive Marketing*, *49*(1), 70-85. https://doi.org/10.1016/j.intmar.2019.07.002

Liao, T. (2015). Augmented or admented reality? The influence of marketing on augmented reality technologies. *Information, Communication & Society*, *18*(3), 310-326. https://doi.org/10.1080/1369118X.2014.989252

Liu, D., Maimaitijiang, R., Gu, J., Zhong, S., Zhou, M., Wu, Z., Luo, A., Lu, C., & Hao, Y. (2019). Using the unified theory of acceptance and use of technology (UTAUT) to investigate the intention to use physical activity apps: cross-sectional survey. *JMIR mHealth and uHealth*, *7*(9), e13127. https://doi.org/10.2196/13127

Mascret, N., Montagne, G., Devrièse-Sence, A., Vu, A., & Kulpa, R. (2022). Acceptance by athletes of a virtual reality head-mounted display intended to enhance sport performance. *Psychology of Sport and Exercise*, *61*(12), 102201. https://doi.org/10.1016/j.psychsport.2022.102201

Mohammadi, S., Izadi, B., & Salehi, N. (2013). The Attitude of Iranian National Team Coaches toward Applying Science and Information Technology to Sport. *Sport Management Journal*, *4*(15), 123-141. https://doi.org/10.22059/jsm.2013.29835

Pascoal, R. M., & Guerreiro, S. L. (2017). Information overload in augmented reality: The outdoor sports environments. In R. P. F. Marques & J. C. L. Batista (Eds.), *Information and Communication Overload in the Digital Age* (pp. 271-301). IGI Global. https://doi.org/10.4018/978-1-5225-2061-0.ch012

Polites, G. L., & Karahanna, E. (2012). Shackled to the status quo: The inhibiting effects of incumbent system habit, switching costs, and inertia on new system acceptance. *MIS Quarterly*, *36*(1), 21-42. https://doi.org/10.2307/41410404

Rauschnabel, P. A., Babin, B. J., Tom Dieck, M. C., Krey, N., & Jung, T. (2022). What is augmented reality marketing? Its definition, complexity, and future. *Journal of Business Research*, *142*, 1140-1150. https://doi.org/10.1016/j.jbusres.2021.12.084

Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. *Technological Forecasting and Social Change*, *124*, 306-319. https://doi.org/10.1016/j.techfore.2016.10.010

Sadeqi Arani, Z., Monemzade, M., & Mazroui Nasrabadi, E. (2023). Development of Technology Acceptance Model: Investigating the Impact of Consumer Experience, Inertia and Consumer Culture on Open Banking Acceptance (Case: Tejarat Bank). *Kashan Shenasi*, -(-), -. https://doi.org/10.22052/kashan.2023.252490.1071

Sawan, N., Eltweri, A., Lucia, C. D., Cavaliere, L. P. L., Faccia, A., & Moşteanu, N. R. (2021, December 29-31). *Mixed and Augmented Reality Applications in the Sport Industry*

[Conference session]. 2nd International Conference on E-Business and E-commerce Engineering, Bangkok, Thailand. https://doi.org/10.1145/3446922.3446932

Shokery, N. M. A. H., Nawi, N. B. C., Nasir, N., & Al Mamun, A. (2016). Factors contributing to the acceptance of social media as a platform among student entrepreneurs: A review. *Mediterranean Journal of Social Sciences*, *7*(2), 42-51. https://doi.org/10.5901/mjss.2016.v7n2p42

Soltani, P., & Morice, A. H. P. (2020). Augmented reality tools for sports education and training. *Computers & Education*, *155*, 103923. https://doi.org/10.1016/j.compedu.2020.103923

Thérouanne, P., Hayotte, M., Halgand, F., & d'Arripe-Longueville, F. (2023). The acceptability of technology-based physical activity interventions in postbariatric surgery women: insights from qualitative analysis using the unified theory of acceptance and use of technology 2 model. *JMIR Human Factors*, *10*(1), e42178. https://doi.org/10.2196/42178

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, *36*(1), 157-178. https://doi.org/10.2307/41410412

Wang, J., Zheng, B., Liu, H., & Yu, L. (2021). A two-factor theoretical model of social media discontinuance: role of regret, inertia, and their antecedents. *Information Technology & People*, *34*(1), 1-24. https://doi.org/10.1108/ITP-10-2018-0483

Yu, J-H., Nekar, D. M., Kang, H-Y., Lee, J-W., & Oh, S-Y. (2023). Comparison of Physical Activity Training Using Augmented Reality and Conventional Therapy on Physical Performance following a Total Knee Replacement: A Randomized Controlled Trial. *Applied Sciences*, *13*(2), 894. https://doi.org/10.3390/app13020894

Zhang, J., & Huang, Y-S. (2023). Augmented Reality in Sports and Physical Education. In A. Y. C. Nee & S. K. Ong (Eds.), *Springer Handbook of Augmented Reality* (pp. 355-368). Springer International Publishing. https://doi.org/10.1007/978-3-030-67822-7_14

Zollmann, S., Langlotz, T., Loos, M., Lo, W. H., & Baker, L. (2019, November 17-20). *ARSpectator: Exploring Augmented Reality for Sport Events* [Conference session]. SIGGRAPH Asia 2019 Technical Briefs, Brisbane, Queensland, Australia. https://doi.org/10.1145/3355088.3365162

کاربرد نظریه یکپارچه پذیرش و استفاده از فناوری واقعیت افزوده جهت توسعه و ترویج ورزش با نقش تعدیل‌کننده اینرسی مصرف‌کننده

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چکیده

هدف: در قرن حاضر پیشرفت‌های فناوری در توسعه جوامع نقش اساسی داشته است. کشورهای مختلف به طور فزاینده‌ای از نوآوری‌های تکنولوژی برای ارتقای تجربیات زندگی در ابعاد مختلف استقبال کرده‌اند. بااین‌حال، پذیرش گسترده این فناوری‌ها توسط مصرف‌کنندگان برای موفقیت مداوم و گسترش بیشتر آنها بسیار مهم است. هدف این تحقیق بررسی نظریه یکپارچه پذیرش و استفاده از فناوری واقعیت افزوده باتوجه‌به نقش تعدیل‌کننده اینرسی مصرف‌کننده در پیشرفت و ارتقای ورزش است.

روش: این پژوهش که به روش کاربردی - توصیفی طراحی شده است، با استفاده از روش نمونه‌گیری غیرتصادفی، داده‌های جمع‌آوری‌شده از طریق پرسش‌نامه آنلاین با استفاده از روش مدل‌سازی معادلات ساختاری مورد تجزیه‌وتحلیل قرار گرفت. اگرچه مفهوم اینرسی مصرف‌کننده در ابتدا در چارچوب مدل پذیرش فناوری گنجانده نشده است، شواهد نشان می‌دهد که این عامل نقش مهمی را به‌عنوان یک پیش‌بینی‌کننده کلیدی مقاومت در برابر پذیرش محصولات جدید ایفا می‌کند. این مقاومت می تواند از سایر عوامل پیش‌بینی‌کننده مانند عملکرد مورد انتظار، تلاش موردنیاز، تأثیرات اجتماعی و شرایط تسهیل‌کننده مهم‌تر باشد.

یافته‌ها: این تحقیق نشان داده است که با درک عمیق‌تر این عوامل کلیدی و ایجاد زیرساخت‌های لازم برای حمایت از آن‌ها، احتمال موفقیت و مزایای بالقوه فناوری واقعیت افزوده در حوزه ورزش به میزان قابل‌توجهی افزایش می‌یابد.

اصالت و ابتکار مقاله: این تحقیق به طور مبتکرانه اینرسی مصرف‌کننده را در چارچوب نظریه یکپارچه پذیرش و استفاده از فناوری برای فناوری واقعیت افزوده در ورزش گنجانده است. با برجسته‌کردن اهمیت اینرسی مصرف‌کننده به‌عنوان یک پیش‌بینی‌کننده کلیدی مقاومت در برابر محصولات جدید، موانع بالقوه برای پذیرش را برطرف می‌کند. این یافته‌ها بینش‌های ارزشمندی را برای محققان و متخصصان باهدف افزایش‌پذیرش فناوری در صنعت ورزش ارائه می‌کند.

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