

Investigation of The Effect of Mindfulness-Based Self-Efficacy on Attitudes Towards Artificial Intelligence Technology Among Sports Consumers

Spor Tüketicilerinde Bilinçli Farkındalık Temelli Öz Yeterliğin Yapay Zeka Teknolojilerine Yönelik Tutuma Etkisinin İncelenmesi

ABSTRACT

This study aims to investigate the effects of mindfulness-based self-efficacy on attitudes towards artificial intelligence technologies in sports consumers in terms of various socio-demographic variables. 409 undergraduate students studying in the field of sports sciences in the Marmara region, selected through a convenience sampling method, participated in the study. Data were analyzed using the SPSS 29.0.1.0 (171) program. The findings show that there are significant differences in mindfulness-based self-efficacy and attitudes towards artificial intelligence technologies based on socio-demographic factors. In addition, the study found that mindfulness-based self-efficacy has a positive effect on attitudes towards artificial intelligence technologies. It is seen that artificial intelligence technologies are rapidly spreading in the field of sports and the acceptance of these technologies varies depending on the methods that can be applied and emotional states. As a result, the findings shed light on the development of improvements to encourage more positive perceptions regarding the acceptance of new technologies in the sports industry.

Keywords: Technology in sports, artificial intelligence, conscious awareness, 5.0 in sports industry

ÖZ

Bu çalışmada, spor tüketicilerinde çeşitli sosyo-demografik değişkenler açısından bilinçli farkındalık temelli öz yeterliklerinin yapay zeka teknolojilerine yönelik tutumlarına etkisinin incelenmesi amaçlanmıştır. Araştırmaya Marmara bölgesinde spor bilimleri alanında öğrenim gören, kolay örnekleme yöntemi ile seçilen 409 lisans öğrencisi katılmıştır. Veriler SPSS 29.0.1.0 (171) programı kullanılarak analiz edilmiştir. Bulgular, sosyo-demografik faktörlere dayalı olarak bilinçli farkındalık temelli öz yeterlik ve yapay zeka teknolojilerine yönelik tutumlarda anlamlı farklılıklar olduğunu göstermektedir. Ayrıca, araştırma sonucu bilinçli farkındalık temelli öz yeterliğin yapay zeka teknolojilerine yönelik tutum üzerinde olumlu etkiye sahip olduğu tespit edilmiştir.

Yapay zeka teknolojilerinin spor alanında hızla yaygınlaştığı ve bu teknolojilerin kabulünün uygulanabilen yöntemlere ve duygusal durumlara bağlı olarak değiştiği görülmektedir. Sonuç olarak bulgular, spor endüstrisinde yeni teknolojilerin kabulüne ilişkin daha olumlu algıları teşvik etmek için iyileştirmelerin geliştirilmesine ışık tutmaktadır.

Anahtar Kelimeler: Sporda teknoloji, yapay zeka, bilinçli farkındalık, endüstri 5.0'da spor

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Introduction

Today, sports as a major social dynamic attracts the attention of a wide range of people and is increasingly organized (Ölçücü et al., 2012). One of the most innovative contributions of technology is seen in the fields of sports science and sports industry. Technology is effectively used in the equipment of sports fields and in the development of sports products. These developments directly contribute to the increase of athlete performance, the breaking of new records and the increase in the quality of sports activities (Atasoy & Kuter, 2005; Haake, 2009; Şentürk & Özer, 2022). Artificial intelligence, which has become increasingly widespread in the field of sports in recent years, has become a field that has various applications and represents a technological approach. Artificial intelligence can be used effectively in many areas in the sports world, such as data analysis, performance evaluation, training programming, and strategy development (McCabe & Trevathan, 2008).

Conscious awareness; Focusing on the present, regulating attention, orienting towards life, being open and accepting constitute the basic elements of conscious awareness. These elements enable the individual to experience the moment more deeply and respond more clearly to what is happening around him (Germer et al., 2005; Kabat-Zinn, 2003; Mackenzie et al., 2005). The human mind often wanders between regrets of the past and worries about the future. Conscious awareness is based on approaching the present moment with curiosity, intentionality, acceptance and compassion. This attitude supports the person to stay in the moment and achieve mental peace (Thera, 2001).

Mindfulness is a simple method for overcoming difficulties and pain in our lives. This skill allows us to react less to momentary events and helps us deal with them more consciously. Mindfulness is a skill that involves relating to all our experiences, positive, negative and neutral, and thus helps us increase well-being. This concept is often associated with Buddhism and is expressed by the word "Sati", whose origins date back 2500 years. The word Sati means remembering, awareness and attention (Garmer, 2004). Conscious awareness has long had an important place in Eastern philosophy. Kabat-Zinn's studies at the Conscious Awareness Center at MIT (Massachusetts Institute of Technology) enabled this concept to be adopted as a separate approach in the field of psychotherapy (Teasdale et al., 2000). Conscious awareness helps individuals see and accept everything as it is, allowing them to experience the richness of every moment of life (Özdoğan & Çelik, 2022). Bandura defined self-efficacy as the individual's belief in the skills and behaviors he will use in response to events that affect his life. Self-efficacy reflects the individual's confidence in his own skills to achieve a goal and his belief in his ability to control these skills (Bandura, 1997).

Albert Bandura's social cognitive theory emphasizes that there is a strong relationship between how individuals think, feel, and behave, especially when faced with difficult situations. Perception of self-efficacy has an important role in this process. Self-efficacy refers to an individual's belief that he or she can be successful at a particular subject. Individuals with high self-efficacy are more open-minded and more likely to consider different alternatives to solve problems. For example, individuals with low self-efficacy may avoid activities that make them anxious or only choose activities in which they will be successful. However, individuals with high self-efficacy participate in activities more willingly and perform better. As conscious awareness increases, individuals become aware of how they evaluate themselves and when self-criticism and self-judgment occur. They can control thoughts about past negative experiences or possible future negativities. In this way, limiting beliefs and judgmental attitudes decrease and individuals become able to handle the current situation independently of past and future connections. This contributes to increasing their self-efficacy (Bandura, 1977).

Mindfulness-based self-efficacy is defined as a person's ability to maintain nonjudgmental awareness when faced with a variety of situations. This involves the individual's ability to accept and be aware of any situation as it is, which can lead to a more emotionally and mentally healthy experience (Chang et al., 2004). Self-efficacy based on conscious awareness can be defined as the belief in being able to act with conscious awareness, with a non-judgmental and accepting attitude, and the individual's feeling of competence in the face of events (Atalay et al., 2017).

The rapid development of artificial intelligence technologies manifests itself effectively in the sports industry, as in many sectors (Yıldız et al., 2021). The impact of artificial intelligence on sports is increasing and has significant growth potential. Sports teams and organizations are taking advantage of the advantages offered by artificial intelligence to get ahead of their competitors. Just as wearable devices are used to monitor and analyze the performance of athletes, new technologies are also being developed to protect the health of athletes. For example, artificial intelligence solutions that can detect long-term concussions with high accuracy enable athletes to monitor their health status more effectively. Additionally, by recommending mentally strong players for teams, Al-based platforms can help identify players who are not only talented but can truly reach their potential. These advances can present great opportunities for franchises willing to invest in artificial intelligence in the sports industry and stand out as an important step in the future (Inbenta, 2017).

This research aims to examine the effect of mindfulness-based self-efficacy on attitudes towards artificial intelligence technologies. The findings to be obtained will contribute to placing artificial intelligence technologies on a more solid and conscious basis in the world of sports. In particular, the development of more conscious, responsible and positive attitudes towards technology by sports consumers, athletes and coaches will support the efficient and ethical use of these technologies. Revealing how mindfulness-based self-efficacy shapes individuals' perceptions of artificial intelligence is of great importance in terms of improving both individual performance and health. Mindfulness-based self-efficacy enables individuals to more consciously manage their awareness of and reactions to technological developments both in themselves and in their environment. Individuals with such a level of self-efficacy not only see artificial intelligence technologies as a tool; they also tend to use the opportunities offered by these technologies in a more efficient, controlled and ethical manner. In this respect, the research aims to fill an important gap at both theoretical and practical levels by contributing to the psychological basis of technology integration in the field of sports.

Methods

This study utilizes a survey model based on a descriptive approach. This model aims to examine the relationships between variables and understand how these variables are related to each other (Karasar, 2018).

Research Group

409 undergraduate students studying sports sciences in the Marmara region, selected by convenience sampling method, participated in the research. Convenience sampling technique is a non-probability-based method used to collect data from accessible subjects during the data collection process. In other words, researchers use available subjects until they reach the sample they want (Coşkun et al., 2017).

Ethical approval for this study was obtained from Yalova University Human Research Ethics Committee and the ethical approval process was completed on March 14, 2024 with protocol number 2024/16. Participants were given detailed information about the name and subject of the study and were assured that their personal information would only be used for scientific purposes. Participants were clearly informed that they had the right to withdraw from the study at any stage.

Data Analysis

Data were analyzed using SPSS 29.0.1.0 (171) software. The demographic information of the participants was analyzed using descriptive statistics. The reliability of the cognitive flexibility inventory was evaluated using Cronbach's alpha coefficient. When the skewness and kurtosis values of the sample group were examined, it was seen that the data did not exhibit a homogeneous distribution within the range of ± 1.5, so the hypotheses were tested with nonparametric analyses (Tabachnik & Fidell, 2013). Nonparametric test techniques were used for non-normally distributed measurements. Research results were interpreted with non-parametric tests such as Kruskal-Wallis and Mann-Whitney U tests to evaluate the differences between groups. Regression analysis was conducted to investigate the effect of mindfulness-based self-efficacy on attitude towards AI technologies in sports consumers.

Data Collection Tools

Personal Information Form

To gather socio-demographic information of the participants, the personal information form included the following questions: age, gender, habits of using technological devices during sports, and the frequency of exercise.

Mindfulness-Based Self Efficacy Scale-Revised (MSES-R): Turkish Adaptation Study

The scale was developed by Cayoun, et al., (2012). It was adapted into Turkish by Atalay et al., (2017). In the Turkish adaptation of the scale, items 1, 2, 3, 4, 6, 7, 8, 11, 12, 14, 15, 16, 17, 18, 21 and 22 were reverse coded (1=5, 2=4, 3=3, 4=2, 5=1) and the other items were calculated as marked by the participants.

Emotion Regulation: 1, 4, 6, 7, 12, 18
Emotional Balance: 5, 10, 13, 19

Social Skills: 2, 3, 20

Distress Tolerance: 8, 16, 17
Taking Responsibility: 11, 21, 22
Interpersonal Activity: 9, 14, 15

The score obtained from the scale is obtained by summing all items. The higher the score, the higher the level of mindfulness-based self-efficacy of individuals.

Supplementary Material - Turkish Version of the General Attitudes to Artificial Intelligence Scale

The scale assessment is as follows: Positive attitudes towards AI are calculated by summing items 1 to 12 of the scale. Negative attitudes towards AI are obtained by inverting and summing items 13 to 20 of the scale. These methods are used to measure participants' positive and negative attitudes towards AI.

Scale scoring is as follows: The score range for positive attitudes towards AI is between 12 and 60. For negative attitudes towards AI, the score range is between 8 and 40. These score ranges are used to measure participants' attitudes towards AI.

Results

The Cronbach's alpha reliability coefficient was obtained as 0.827. The Kolmogorov-Smirnov test yielded a result of 0.000, and consequently, Mann-Whitney U and Kruskall-Wallis analyses were applied. Regression analysis was conducted to investigate the effect of mindfulness-based self-efficacy on attitude towards AI technologies in sports consumers.

Table 1.			
Result of kolmogorov-	- smirnov test		
	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
AIMEAN	.052	409	.009
MSES-RMEAN	.095	409	<.001

AIMEAN: Mean of the General Attitudes to Artificial Intelligence Scale MSES-RMEAN: Mean of the Mindfulness-Based Self-Efficacy Scale.

Since it was p:.001 (p<.005), it was determined that the data did not show normal distribution.

Test Statistics ^a								
						Interpersonal Activity		
	Emotion	Emotional			Taking	Mean		
	Regulation	Balance	Social Skills	Tolerate	Responsibil		Al Positive	AI Negative
	Mean	Mean	Mean	Distress Mean	ity Mean		Attitude Mean	Attitude Mean
Mann-	18683.	20496.	18858.	17175.000	20222.	15645.50	18572.000	18204.500
Whitney U	500	000	500		000	0		
Wilcoxon W	45248.	36606.	34968.	43740.000	36332.	42210.50	34682.000	34314.500
	500	000	500		000	0		
Z	-1.609	075	-1.474	-2.903	309	-4.204	-1.700	-2.012
Asymp. Sig. (2-tailed)	.108	.940	.140	.004	.757	<.001	.089	.044

The sub-dimensions in the table are the sub-dimensions of the scale of General Attitudes to Artificial Intelligence Scale: AI (Artificial Intelligence) Positive Attitude Mean, AI (Artificial Intelligence) Negative Attitude Mean.

Significant differences were obtained according to the mean scores of sports consumers' mindfulness-based self-efficacy and artificial intelligence for gender variable. When we look at the sub-dimensions of the scale related to mindfulness-based self-efficacy scale; a significant difference was obtained in the sub-dimension of tolerance of distress and interpersonal activity sub-dimension (p<.05). In the sub-dimension of tolerance to distress, it was found that the scoring of male participants was higher than that of females. In line with this result, it can be said that men can tolerate distress more than women. In the interpersonal effectiveness sub-dimension, female participants scored higher than male participants. In this context, it can be concluded that women are more effective in interpersonal effectiveness than men. When the scores of the scale sub-dimensions of attitudes towards artificial intelligence technologies were analyzed, it was found that male participants had higher negative attitude scores than female participants. In line with this result, it is seen that male participants in this research group have a more negative attitude towards artificial intelligence technologies than female participants.

Table 3.

Mann-Whitney U test results on regular exercise status

Test Statistics^a

	Emotion Regulatio n Mean	Emotiona I Balance Mean	Social Skills Mean	Tolerate Distress Mean	Taking Responsibilit y Mean	Interpersonal Activity Mean	AI Positive Attitude Mean	AI Negative Attitude Mean
Mann-Whitney	17947.00	16899.00	17544.000	17769.500	18124.000	18823.000	17783.500	19444.500
U	0	0						
Wilcoxon W	51358.000	28375.000	50955.000	51180.500	51535.000	52234.000	51194.500	30920.500
Z	-1.332	-2.245	-1.699	-1.496	-1.187	574	-1.472	030
Asymp. Sig. (2-tailed)	.183	.025	.089	.135	.235	.566	.141	.976

The sub-dimensions in the table are the sub-dimensions of the scale of General Attitudes to Artificial Intelligence Scale: AI (Artificial Intelligence) Positive Attitude Mean, AI (Artificial Intelligence) Negative Attitude Mean.

When the statistical results for the participants' regular exercise status variable were examined, a significant difference was obtained in the mood regulation sub-dimension of the Conscious awareness-based self-efficacy scale. People who exercise regularly have higher emotional balance scores than those who do not exercise regularly.

Test statistics ^{a,b}								
	Emotion Regulation Mean	Emotional Balance Mean	Social Skills Mean	Tolerate Distress Mean	Taking Responsibilit y Mean	Interpersonal Activity Mean	Al Positive Attitude Mean	Al Negative Attitude Mean
Kruskal-Wallis H	8.546	4.044	.650	8.117	2.832	6.275	8.678	8.857
df	1	1	1	1	1	1	1	1
Asymp. Sg.	.003	.044	.420	.004	.092	.012	.003	.003
a. Kruskal W	allis Test							

In the table are the sub-dimensions of the scale of General Attitudes to Artificial Intelligence Scale: AI (Artificial Intelligence) Positive Attitude Mean, AI (Artificial Intelligence) Negative Attitude Mean.

A significant difference was obtained in the emotional balance sub-dimension of the sub-dimensions of the participants' Conscious awareness-based self-efficacy scale. As a result of the Kruskal Wallis Test, the average emotional balance score of those who frequently participated in recreational activities was higher than those who rarely and moderately participated. In addition, the average scores of the participants towards artificial intelligence technologies were found to be higher in those who frequently participate in recreational activities than in those who rarely and moderately participate in these technologies.

			ANOVA ^a			
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.317	1	2.317	6.403	.012b
	Residual	147.295	407	.362		
	Total	149.613	408			

The model explains a portion (2.317/149.613) of the variance in the dependent variable AIMEAN. This indicates that the model can meaningfully explain the dependent variable (AIMEAN) using the independent variable (MSES-R Mean).

These findings indicate that your regression model has a significant effect on AIMEAN and that the model significantly explains the dependent variable using the independent variable (MSES-R Mean).

Test results of coefficients on the effect of mindfulness-based self-efficacy on artificial intelligence technologies								
			Coeff	icients ^a				
			Standardized					
		Unstandardized Coefficients		Coefficients				
Model		В	Std. Error	Beta	t	Sig.		
1	(Constant)	2.160	.238		9.061	<.001		
	MSES-R Mean	.218	.086	.124	2.530	.012		

 ${\it MSES-R Mean: The mean of Mindfulness-Based Self Efficacy Scale-Revised Scale.}$

The regression model is generally significant (p = 0.012 < 0.05).

Model Significance: The model is significant overall (p<.001), indicating that MSES-R Mean has a significant effect on AI Mean.

According to the analysis result; (Constant): <.001. This is the significance level of the constant and is also known as the p-value. A value of <.001 indicates that the constant is highly significant.

(MSES-R Mean): 0.012. This is the significance level of the MSES-R Mean. A value of 0.012 indicates a significant effect on the independent variable of MSES-R Mean.

As a result, in this regression analysis, the MSES-R Mean variable has a significant and positive effect on AIMEAN.

According to the findings of this study, it has been determined that Mindfulness-Based Self-Efficacy has a positive effect on attitudes towards artificial intelligence technologies. This result shows that increasing conscious awareness and self-efficacy levels contributes to individuals' adoption of artificial intelligence technologies more positively.

Discussion

Artificial intelligence has an increasing impact on professional (Atasoy et al., 2021). Al has an increasing impact on professional and social life (McCabe & Trevathan, 2008). Technological developments have also affected the sports sector and transformed the practices in this field (Tekin & Karakuş, 2018). Artificial intelligence, which has become rapidly widespread in the sports world in recent years, is radically changing sports technologies with its various applications. In areas such as data analysis, performance evaluation, training planning and strategy development, artificial intelligence makes significant contributions to athletes and coaches in optimizing their decision-making processes. This technological advancement has become an indispensable tool for those who want to increase sports performance and gain a high level of competitive advantage (McCabe & Trevathan, 2008).

In the relevant literature, it is seen that new and comprehensive studies are urgently needed to improve the awareness

levels of individuals with conscious awareness. Increasing research on this subject will both contribute to the personal development of individuals and enable the raising of more conscious and aware individuals at the social level (Demir, 2015).

Shapiro et al., (2005), investigated the effects of the Mindfulness-Based Stress Reduction Program (MBSR) on healthcare professionals. As a result of the 8-week program, participants' levels of stress, psychological distress and professional burnout decreased; It was determined that their self-compassion and life satisfaction increased.

It can be said that studies based on the concept of general self-efficacy have some limitations. However, when we look at the research conducted in this field both at home and abroad, it is noted that general self-efficacy is related to concepts such as mental health, basic psychological needs, self-regulation, optimism and self-esteem, which can have positive effects on the individual. Additionally, when the literature is examined, it is seen that the concept of "self-efficacy based on conscious awareness" is a new concept. For this reason, it is noteworthy that research addressing this concept holistically is limited (Kaya, 2021).

The benefits of mindfulness practices have been researched by many scientists over the years and have begun to be included in various interventions in western psychology. In particular, Mindfulness-Based Stress Reduction intervention, according to Kabat-Zinn's studies, positively affects the way the brain processes difficult emotions under stress, shifting activation in certain regions of the prefrontal cortex from right-sided activation to left-sided activation towards greater emotional balance. This intervention also contributes to positive immune system changes associated with changes in the brain. In addition, it is effective in issues such as controlling desires and regulates fear-based reactions to perceived threats (Aktepe & Tolan, 2020). In this context, the effect of conscious awareness-based self-efficacy on sports consumers' attitudes towards artificial intelligence technologies is very important. This effect can help us understand how athletes and teams perceive Al-enabled technologies and to what extent they adopt these technologies. Investigating this relationship in the sports industry may contribute to our better understanding of the potential effects of both mindfulness and artificial intelligence technologies on sports performance and management.

Studies with a high level of evidence in the literature show that mindfulness-based interventions are effective in reducing anxiety problems (Green & Bieling, 2012; Hofmann et al., 2010). In this context, in the sports industry; In order to reduce concerns about artificial intelligence technologies, people's anxiety problems can be supported through conscious awareness-based training.

In line with this research, the concept of self-efficacy based on mindfulness, considering the concerns experienced by consumers in the sports industry; It can be evaluated as a functional, problem-solving, effective and efficiency-enhancing concept.

Conclusion and Recommendation

In this research, sports consumers' mindfulness-based self-efficacy and attitudes towards artificial intelligence technologies were examined among various variables and the effect of mindfulness-based self-efficacy on their attitudes towards artificial intelligence technologies.

Research result; Significant differences were obtained according to gender, regular exercise status and frequency of participation in recreational activities. In addition, it was concluded that mindfulness-based self-efficacy has a positive effect on attitudes towards artificial intelligence technologies.

Significant differences were obtained according to the mean scores of sports consumers' mindfulness-based self-efficacy and artificial intelligence for gender variable. When we look at the sub-dimensions of the scale related to mindfulness-based self-efficacy scale; a significant difference was obtained in the sub-dimension of tolerance of distress and interpersonal activity sub-dimension (p<.05).

In the sub-dimension of tolerance to distress, it was found that the scoring of male participants was higher than that of females. In line with this result, it can be said that men can tolerate distress more than women. In the interpersonal effectiveness sub-dimension, female participants scored higher than male participants. In this context, it can be concluded that women are more effective in interpersonal effectiveness than men. When the scores of the scale sub-dimensions of attitudes towards artificial intelligence technologies were analyzed, it was found that male participants had higher negative attitude scores than female participants. In line with this result, it is seen that male participants in this research group have a more negative attitude towards artificial intelligence technologies than female participants.

When the statistical results for the participants' regular exercise status variable were examined, a significant difference was obtained in the mood regulation sub-dimension of the Conscious awareness-based self-efficacy scale. People who

exercise regularly have higher emotional balance scores than those who do not exercise regularly.

This finding suggests that regular exercise has a positive effect on mood regulation. It reveals that individuals who exercise regularly are more successful in their mood regulation skills and thus have higher emotional balance scores. This highlights that exercise is important not only for physical health, but also for psychological well-being.

A significant difference was obtained in the emotional balance sub-dimension of the sub-dimensions of the participants' Conscious awareness-based self-efficacy scale. As a result of the Kruskal Wallis Test, the average emotional balance score of those who frequently participated in recreational activities was higher than those who rarely and moderately participated. In addition, the average scores of the participants towards artificial intelligence technologies were found to be higher in those who frequently participate in recreational activities than in those who rarely and moderately participate in these technologies.

Recreational activities usually take place in natural and social environments, and participants establish more direct and physical connections with nature, social groups or themselves through these activities. These individuals may be more resistant to digital and automated technologies, such as artificial intelligence, because these technologies can represent a departure from natural and social interactions.

It shows that recreational activities can positively affect emotional balance, but at the same time, these individuals' attitudes towards technology may be resistance towards technology.

According to the findings of this study, it has been determined that Mindfulness-Based Self-Efficacy has a positive effect on attitudes towards artificial intelligence technologies. This result shows that increasing conscious awareness and self-efficacy levels contributes to individuals' adoption of artificial intelligence technologies more positively.

Mindfulness improves individuals' ability to live in the moment and be open to current experiences. This can help them be more open to and accept new and innovative technologies more easily. Individuals with high levels of self-efficacy, on the other hand, have more confidence in using artificial intelligence technologies and can use these technologies effectively, thanks to their beliefs about performing a certain task. Additionally, mindfulness can help individuals become less resistant to new technologies by reducing stress and anxiety. Less stress and anxiety can positively impact individuals' attitudes towards AI technologies.

Consequently, increasing levels of conscious awareness and self-efficacy can encourage the adoption and effective use of artificial intelligence technologies. Dissemination of these skills through training programs and awareness campaigns can positively shape individuals' attitudes towards technology.

In this context, increasing mindfulness-based self-efficacy promotes the acceptance and use of artificial intelligence technologies in the sports industry. Athletes' and coaches' deepening trust and understanding of technology may enable more widespread integration of technology in areas such as sports performance, training management and health monitoring. As a result, increasing mindfulness-based self-efficacy in the sports industry can contribute to athletes and coaches improving their performance and health by ensuring the effective and responsible use of artificial intelligence technologies. At this point, it can be emphasized that further studies will form an important basis for a more in-depth understanding of the effects and use of technology in the field of sports.

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