



SPORTICOPEDIA
SMB 2023
INTERNATIONAL CONFERENCE

FIRST INTERNATIONAL SCIENTIFIC CONFERENCE
SPORTICOPEDIA-Sports Media and Business 2023

THE BOOK OF PROCEEDINGS

editor

Dejan Dašić PhD
Faculty of Sport

October 13-14, 2023

Belgrade, SERBIA

FIRST INTERNATIONAL SCIENTIFIC CONFERENCE



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FACULTY OF SPORT
BELGRADE

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Dear colleagues, participants of the Conference

On the occasion of the 10th anniversary of the Faculty of Sport University "UNION – Nikola Tesla" Belgrade, an international scientific conference was organized to celebrate the jubilee. The international science conference "Sporticopedia SMB 2023" was established with the aim of engaging scholars from faculties and institutes, as well as experts in the field of sports and physical education, in finding solutions to challenges in the modern, dynamic environment. The conference is structured through three main sessions: physical education, communication and management in sport. That is why there is no question at all about whether there should be research in this area interdisciplinary and multidisciplinary character. The goal of the "SPORTICOPEDIA - SMB2023" conference is to identify the problems that physical education, sport and recreation are now facing, but also yes answers on how to overcome these problems.

In accordance with the defined criteria, 36 submissions (abstracts) were received within the thematic, and after the reviews, the Scientific Board accepted 29 abstracts, in English. Chosen papers were distributed in 3 sessions for oral presentations, and one poster session. A slightly smaller number of the total number of oral presentations at the conference, was sent by the authors for review for the Book of proceedings, of which 24 articles received positive reviews, and were published here in the book of proceedings. Accepted papers are published in proceedings in hard copy and in electronic form and they include 318 pages.

Considering the success of the first conference, preparations for the second conference Sporticopedia SMB 2024 have already begun, and we hope it will be even better and more extensive than the first one. On behalf of the organizers, hereby we express a gratitude to all organizations and individuals that have supported the initiative for organizing this conference. We would also like to extend our gratitude to all authors and participants from abroad and from the country for their contribution to this conference.

Dejan Dašić, PhD
Faculty of Sport

A handwritten signature in blue ink, appearing to read 'D. Dašić', with a long horizontal stroke extending to the right.

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ECOSYSTEM THINKING – A KEY SKILL FOR THE STRENGTH AND CONDITIONING COACH

Ian Jeffreys¹

Abstract: Strength and Conditioning has become a mainstream feature of most elite sports performance programmes, and consequently employment as a strength and conditioning coach is now a well-established career track in many countries. Accompanying this growth has been a tsunami in the amount of research publications into the field, and a plethora of formal and informal educational opportunities in the field. Given this it would be logical to think that we have developed a deep understanding of what makes for a truly effective strength and conditioning coach, yet dig under the surface and it is clear that many fundamental questions remain largely unanswered suggesting that our understanding of strength and conditioning is far from complete. For example, some great programmes that use the very best evidence-based practice fail, yet other that are far less sophisticated succeed? In the reductionist world of theoretical strength and conditioning, where the quality of the programme is the only variable investigated, these anomalies should not occur. However, S&C is ultimately an applied discipline and never occurs in a vacuum, instead the programme is but one variable to be considered and multiple factors will ultimately affect the success of a programme. This article presents a novel approach to viewing S&C application in situ: that of the training ecosystem, where the relationship between multiple and multi-variate factors ultimately determines the overall success of any training programme.

Keywords: sportske performanse, kondicija, trening ekosistema, athletes

Introduction

It has often been said that knowledge is power and the importance of knowledge continues to drive much of our strength and conditioning (S&C) education and professional development. However, whether knowledge the key differential between levels of performance of S&C coaches is open to debate. Today, there is more knowledge and information available than ever before, and this can easily be accessed via multiple sources such as the internet, magazines, journals and so on. In short, knowledge is available to a much wider audience and at an ever-increasing rate. As a result, in today's world, it could be argued that real value lies not in knowledge per se but in how this

¹ PhD, Emeritus Professor, RSCC*E, CSCS*D, FNCSA, FUKSCA. University of South Wales, Director at All-Pro Performance, Brecon, United Kingdom. INVITATION PAPERS

information is applied to practice - execution. Many strength coaches will attest to the fact that the real challenges they face in their daily rarely relate to accessing knowledge, but instead in synthesising and inputting this knowledge into practice in a constantly changing training environment – the essence of execution. Additionally, many of the critical challenges they face don't relate to programming issues, but instead relate to relate directly to the ability to execute. We have an 'execution gap' that is preventing coaches achieving their full potential. In any applied field, great execution is critical and a necessary condition for success (1) and S&C coaching is no different.

However, effective execution of a S&C programme is not a simple task, and must encompass factors that at first would appear to have little to do with the field. Our initial notion of execution focuses on what we traditionally consider the strength and conditioning process: assessing the needs of the individual/group, developing an effective programme to address these needs, and then delivering interventions to achieve the goals, whilst constantly monitoring the programme and making any necessary adjustments. (7). However, effective execution relies on addressing elements on a much wider scale than this, often involving a wide – and often eclectic – range of factors, many of which are seldom considered as playing any role in S&C. Conversations with many S&C coaches highlight the fact that many of the major challenges they have faced in setting up effective programmes have been with laying the foundations necessary to allow the programme to function and without which their programme would never have been successful. This has been critical to their work and relied on a range of elements such as building effective working relationships with athletes, coaches and support staff; building effective performance environments; effective self-management etc. Although many of these would not traditionally be thought of as influencing the S&C programme, the reality is that unless these are effectively managed, the programme will never optimally flourish, regardless of the quality of delivery.

To address this, we need to start thinking of programmes from a much wider perspective, considering the impact of multiple layers of interaction on the ability to execute the programme to maximum effectiveness. A failure to do this may hold us back from ever optimising our success – regardless of our knowledge and coaching capabilities. This article will attempt to introduce a new concept to the thinking of the S&C coach, allowing this wider perspective to be developed. Given the wide range of factors capable of influencing the success of a programme, and the variation of these factors within each individual environment, the article is not meant to be all-encompassing. Instead, it aims to be more conceptual in nature, presenting a broad view, in an attempt to widen our understanding of why some programmes are successful and others less so. In doing so, it attempts to propose questions rather than to provide solutions, with a few examples made just to illustrate points rather than being a comprehensive analysis of potential impacts.

A different way of thinking

Academic study of strength and conditioning encourages us to think scientifically, to focus on that which can be measured, to isolate variables, to identify cause-and-effect relationships and judge the effectiveness of training programmes against these constraints. However, in reality the success or failure of a programme will rest upon a range of diverse factors, many of which may not appear directly related to its quality. Ron Adner, in his book, "The Wide Lens: what successful innovators see that others miss", outlines how the success of many businesses has depended using a wide lens to identify all factors impacting upon the business (1). In many instances, potentially great products were unsuccessful, not because of any fault in the product or even the company, but instead due to a failure to account for factors that were not always clearly visible, such as a lack of a supply infrastructure or the failure of a partner to deliver on a related element to the product (1). Adner proposes the idea of the business 'ecosystem', where all elements that can potentially impact upon a business are identified and managed effectively (1). Given the complexity of interactions impacting upon the effectiveness of the training programme, a similar thought process could help us understand and manage our own programmes. The development of a more global view of training, through the concept of a 'training ecosystem', would allow us to more effectively identify and subsequently manage the entire training process, laying the foundations for the effective application of the training programme itself (7). However, this requires a radical change in thinking to our standard academic view of training. As well as an almost religious emphasis on the programme, even where other factors are considered we tend to attribute what happens in a programme to events close in time and space. However, in reality, the results are often dependent upon the dynamics of a larger system in which the programme is embedded (4). So, although great execution of the programme itself is essential, and is a necessary condition for success, it is not enough. The success of the programme will ultimately depend, not only upon our own execution, but on the ability of others to execute at a similarly high level and towards the alignment of multiple factors working towards the same goals. This realisation requires a drastically different way of thinking to the typical reductionist view of strength and conditioning. It requires an outlook that considers the potential effects of every possible interaction that has the capacity to influence the programme, and effective tools via which to manage these interactions. This is where the concept of the training ecosystem is extremely valuable.

The training ecosystem

Effective programmes supported by great coaching will always be vital aspects of any strength and conditioning programme. Yet we know that even these are not enough to guarantee success, so what are the potential factors that will influence whether this

will ultimately translate into successful training. Here, the concept of a training ecosystem is very useful. Biologically, an ecosystem is a community of living organisms, interacting as a system and with every interaction having an effect on the functioning of the system as a whole. In a training scenario, the ecosystem refers to the training environment and all elements that influence its functioning (7). Quite clearly, this reflects a wide range of variables, from the chief executive deciding how much to invest, the sports coach deciding how many S&C inputs will be allocated, the caretaker opening the doors of the facility at the right time – all the way through to the athletes believing in and engaging with the programme etc. All of these factors can have a large impact upon the programme and if not effectively managed may often be the difference between successful execution and average execution. In essence, each interaction within this ecosystem has the potential to enhance or negate the effectiveness of the training programme. In the world of the ecosystem, success will depend upon the alignment of variables ensuring they are working together to develop a winning programme.

This approach also throws up a challenge to the current universal approach to strength and conditioning. In this worldview, training approaches will apply equally, regardless of location, yet in an ecosystem approach this is not the case. Just as ecosystems are unique, then each and every training environment will have its own unique factors that impact directly and indirectly on its functioning (7). This individuality lies at the heart of the ecosystem approach, where the best approach will be dependent upon multiple features of the ecosystem.

The ‘performance environment’ – the heart of the training ecosystem

Lying at the heart of the training ecosystem is the concept of the ‘performance environment’. Without the correct environment – ‘one in which the individual is encouraged and supported and has opportunity to learn and ‘practise’ – optimum performance will never be obtained (10). An evaluation of what makes a performance environment must start with an examination of the basic needs required to enable a person to optimise their performance. Anthropologists and scientists believe that humans thrive when the following are present in their environment: security, community, clarity, authority and respect (7). These five factors can be thought of as the bedrock of the performance environment, allowing athletes and coaches to thrive and ultimately optimise performance. The aim is to develop an environment where this bedrock is provided, together with a culture of constant improvement. This clearly relies on the development of much more than just an excellent training programme and an excellent facility: it requires an alignment and clarification of standards, values, ideals and beliefs, as well as establishing the programme’s way of doing things (11). The role

of the coach is central to developing this environment and for this, the coach needs to be well versed in skills such as communication, management, leadership etc. However, none of these skills are traditionally addressed in S&C education or development. Another challenge is that these skills are often associated domains with not naturally linked with science (which has become intricately linked with S&C), such as management, leadership, communication, marketing, negotiation and personal relationships providing further barriers to their inclusion in a comprehensive education package.

Although the concept of the 'performance environment' may seem straightforward, an analysis of what affects it shows it to be far more complex and also highly context-specific. Essentially, any person who has any input whatsoever into the system has the potential to affect the environment – positively, neutrally or negatively. Similarly, each person who has contact with anyone who inputs into the system can also affect the performance of the ecosystem. Consequently, effective leadership skills are key, ensuring that everyone is aware of the vision and is working towards the achievement of this vision whilst feeling that their contribution is valued. Here, the ability to build effective relationships with key parties, all based on trust and communication is crucial.

The ecosystem energy

A key consideration of any biological ecosystem is the flow of energy within it (7). This is similarly the case for any training ecosystem, as its ultimate success will be linked to the energy people bring into, or take out of, the performance environment (7). Human energy possesses quantity, quality, focus, and intensity and a key role will be the management of this energy throughout the ecosystem, ensuring that energy is managed in each of these domains (8). Importantly, every personal interaction within the performance environment has the capacity to affect the overall energy within the system. Energy invested by athletes and coaches, and similarly the energy invested by other key players, will affect the overall ecosystem energy, and so all inputs need to be evaluated and managed appropriately. Forming the bedrock of the ecosystem energy are the athlete's interactions with the programme. Focussing on delivering the programme in a way that develops an optimal experience can transform the results of the programme (2), and may require a re-evaluation of how some aspects are delivered (7). Again, these processes are rarely the focus of attention in the current narrow focus of S&C and as a result many opportunities to enhance execution are lost.

Communicating the value of energy investment

For optimal performance to occur athletes have to invest energy into the processes. For this to occur, they must be able to clearly see how the investment of their energy directly benefits them. Here we have to create the conditions whereby the athletes are full participants in the process (9). Athletes will often work off the question 'what's in it for me?', and unless the direct benefits can be effectively communicated, the results may never be optimal (7). Therefore, it is crucial to clearly communicate the programme's aims and – more importantly – the benefits the athletes will gain from investing their energy in the programme. It will often take time and relentless persuasion for the idea to gain traction (9) and thus communication needs to be a long-term process and not a one-off event (7). Importantly, the communication needs to speak directly to the athlete's key needs, not necessarily in S&C language (7). An athlete is normally far more concerned with a programme's effects on key factors they consider important to their sports performance – such as an increased number of goals, an increased number of clean breaks etc – than in a figure such as an increased 1RM squat. Developing effective communication strategies with the athlete should always be considered a major step towards ensuring a greater investment of energy in the programme.

However, here again the complexity of an ecosystem is evident. Managing ecosystem energy is about more than just managing athletes' energy, instead, one has to consider the energy inputs of coaches and any other member of the support team who has input into the system. Thus, energy management involves managing every individual providing any input and ensuring that they are all able to function in a meaningful and optimal way towards the success of the programme. A critical factor in determining the energy a person brings to an environment is the value they perceive is placed on their work, and their perceived impact on performance. Here, simple acts such as demonstrating how their work affects performance, showing gratitude for their work etc. can have a huge effect on the overall energy levels of the environment.

Defining the ecosystem

Quite clearly, optimising the functioning of the ecosystem can have a major effect on its performance. For this, two tasks are required: first, an identification of the potential inputs into the system, and secondly effective management of these inputs. It is often said that you cannot manage that of which you are not aware and therefore, an essential first step is to define the ecosystem and to identify factors which have the potential to enhance or undermine the ecosystem. The identification of these potential factors must begin with an examination of the unique environment the coach is working in and a consideration of all potential inputs that can affect it both directly and indirectly (7). Just

by thinking of the training environment as an ecosystem allows a far wider perspective to be taken when viewing the potential inputs, and can help identify factors that are affecting the success of the programme directly or indirectly. In a simple model, where the programme is seen as the only variable, then only a small number of factors have the capacity of affecting the results. However, with an ecosystem view, every potential interaction can have the potential to affect the results of training and so need to be managed effectively. Once this is undertaken, a web of potential interactions starts to be developed, and here potential problems can be identified and managed. Some impacts will be direct, such as the time allocated to the programme, the investment in the facility etc.; but others will be indirect and often subtle. For example, comments made by individuals which question the value of S&C could directly affect the energy that an athlete devotes to their S&C work resulting in less-than-optimal physical adaptation, which in turn could further reinforce this scepticism – a vicious circle starts to form. Being unaware of such an issue doesn't make it go away, it just leaves it to fester for longer, potentially undermining the programme.

Managing your ecosystem

Once the factors affecting the ecosystem have been identified the next step is to attempt to manage as many of these as possible. At first this may appear impossible, but whilst the ecosystem may at first appear to be a highly complex entity, effective management essentially relies on two key skills: managing oneself, and managing relationships. Interpersonal behaviour is often thought of as being the difference maker between being great and being nearly great (3).

The S&C coach should make an effort to make these relationships both genuine and built upon caring for both the person and the programme. It is unrealistic to expect that any coach will get on with all people, or that everyone will get on within the ecosystem, but working relationships can be developed when built upon a base of understanding and communication. Here again, managing relationships must start with an awareness of the key relationships that affect the programme, and although some are obvious such as the coach/athlete relationship, others are more subtle, yet still have the capacity to directly affect the functioning of the ecosystem. Many of the decisions that directly affect the programme will be made by people not directly involved in the its delivery. Many of these people will have positions of authority within the organisation, and may initially be viewed as having little direct input into the programmes. In reality, decisions made at the executive level will often be critical in the development of the programme. Decisions as to funding levels for equipment, facilities, staff, etc are made at this executive level, and unless the people making these decisions are aware of the value of the programme, and the way it operates, it is

unlikely that the programme will ever achieve the levels of funding and development the coach would hope for. Similarly, many of the daily operational decisions on scheduling, time allocation etc. will be made by the senior coaching team. Here again, unless they are aware of the full value of the programme, and how it contributes to their own goals, there will always be a compromise which will negatively affect the productivity of the programme. It is not uncommon to hear a S&C coach outline how difficult it is to work with a certain coach and how they don't understand 'what we do'. However, it is often worthwhile stepping back and considering where the problem lies. In thinking that the problem is with someone else, the S&C coach can justify their own actions, but then the problems never get resolved. Consideration must be made of how effective the working relationship with the coaching team is, how effectively the value of the programme is being communicated, and whether or not the needs of the coach have been effectively taken into consideration. Although not all conflicts can be resolved, quite often the ultimate aims are the same – developing a better player and a winning team – and so developing effective relationships along these lines will ultimately lead to a far more productive programme.

A central relationship to the success of any programme is building the relationship with the athlete. In the medical field, research has shown that the strongest predictor to patients following instruction is whether they feel the doctor actually cares (4). This has important implications for the coaching profession, as athletes will similarly need to know that you care for their development. They need to be given a clear indication of how your work will help them achieve their goals. In addition, it is important that the athlete is treated as a person and not simply as a commodity; relationships with the athlete need to work within and outside the training environment. Again, it is all about attaining the feeling of being valued which lies at the heart of the performance environment.

A critical, but often overlooked step in the management of the ecosystem is the management of the self. Essentially, a programme will often reflect the character of the leader, and if the aim is to develop a performance environment, then the impact of the coach upon this environment will be critical (7). A coach's actions have the capacity to enhance or undermine the ecosystem and so self-management is critical, requiring an honest and open appraisal of what they bring directly to the environment and an acknowledgement of their inherent strength and weaknesses. Here, the focus should never be just on knowledge but should involve a consideration of their actions and the impact of these actions on other key people. A good leader creates belief in the philosophy of the organisation and the mission, and drives everyone forward towards the attainment of this goal. A poor leader, on the other hand, can have a crippling effect on the energy of the entire ecosystem. It is always important for a coach to reflect upon their direct impact upon the ecosystem. The personality we project to the world plays a

substantial role in our success (5) and has the ability to directly influence the ecosystem's energy and functioning. Here, self-analysis is critical to effective ecosystem management. Coaches need to ask themselves questions such as: are they the type of individual who brings energy to the environment or one who leaks energy? Do they create the climate of security, community, clarity, authority and respect that underpin the ecosystem or do they undermine these through your actions? All these need to be examined in terms of the direct effect on the ecosystem. Unfortunately, all too often we are unaware of our own impact and thus not in a position to facilitate change. Again, an open communication channel where a coach is able to receive feedback from others can be helpful in developing the required self-awareness to be able to function optimally. Indeed, the gap between how we see ourselves and the way the world sees us is a good indication of our self-awareness (4). All this can help bring emotional control to our actions, which as John Wooden says is a primary component of consistency which in itself is a primary component of success (12).

Conclusion

Much of the success of an S&C coach will be attributable to multiple factors, many of which are unrelated to our knowledge or the quality of the programmes we write. Ultimately, execution is critical, but effective execution requires the management of factors that are not often associated with strength and conditioning (6). Becoming aware of these factors and effectively managing them is critical to our ultimate success. The concept of a training ecosystem allows us to take a more global view of the training process, where multiple factors and inputs can affect the success or failure of the programme. Given the unique scenarios each coach faces, their ecosystem will ultimately be different and they will need to manage different variables. This article does not attempt to provide an all-encompassing view, and in reality just brushes the surface of some potential issues. However, the concept of the training ecosystem does provide a coach with a more holistic model by which they can evaluate and manage factors that could affect the success of their programme.

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SPORT, MEDIA AND BUSINESS IN SOUTHEAST EUROPE IN THE 21ST CENTURY: RECOMMENDATIONS FOR PROFESSIONALS AND SCHOLARS

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Abstract: Despite the shift from socialist to market economy and the proliferation of media outlets and opportunities, sport and media organizations in Southeast Europe have not kept up with global trends. Most teams and fixtures have become feeders for top leagues rather than remaining aspirational destinations in their own right. This phenomenon has manifested across all former Yugoslav republics. Yet, political divergences have hindered learning from neighboring countries' mistakes and experiences.

This paper outlines the broadcasting presence of selected leagues from Southeast Europe, describes the most common motivations for mediated sport consumption, and introduces the concept of mediatization of sport. Media professionals should develop contents designed to satisfy all motivations for sport spectatorship. Scholars should study such content, the professional situation of journalists and broadcasters, and the representation of foreign athletes and women in sport. Collaboration among scholars and professionals is vital for the continued development of sport, media and business in the region.

Keywords: sport broadcasting, mediatization, motivations, audience, Former Socialist states

Introduction

When preparing this keynote lecture for the inaugural "Sporticopedia" Sport, Media and Business conference, I drew content and ideas from my academic knowledge, diverse

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background, and professional experiences in both mass media and sport industries, in an effort to ultimately establish connections that are not immediately obvious.

My vantage point is that of an individual born in Yugoslavia, who was then educated in Slovenia, where I acquired initial academic and professional experiences as the country transitioned from socialism to market economy. Since 2013, I have lived in – and learned from – the market economy and society of the United States. In some ways, when presenting in Southeast Europe, I come from a metaphorical future – more specifically, from the future societal and economic context this region is aspiring to become.

In this chapter, let us examine some characteristics of the intersection of sport, media and business in Southeast Europe in the early 21st century. These will inform the recommendations for professionals and scholars offered in the conclusion of the article.

A shared history

A group of countries in Southeast Europe shared a history and a polity for most of the 20th century. While the shared polity started disintegrating in 1990, the shared history remains, and after a turbulent and regrettable decade, all former Yugoslav republics and entities embarked on a path towards a new European political, economic and social integration. (We already were an established and contributing part of European sport and culture.) On this path, each country encountered a series of obstacles and challenges. These were, of course, very similar in nature: after all, each new country originated from the same geographic, cultural and political space, and all were – and still are – heading in the same direction around the same time, differing in their starting points only by a few years.

And yet, as each country embarked on the same journey, leaders and decision-makers in the newly-independent countries only focused on the destination and listened to Western European and North American politicians, economists, and experts, rather than studying and talking to each other, and learning from each other's mistakes. Along with leaders, members of the general population drifted apart, as well: only thirty years after the shared country disintegrated, the younger generation, for the most part, does not even speak the same language anymore.

Former Yugoslav countries share an economic history, as well. This includes the hosting of many elite sporting events – most notably the 1984 Winter Olympic Games in Sarajevo and the men's basketball World Championship in 1970, but also countless European championships and World Cup races in many sports – as well as vibrant ancillary industries. For example, Table 1 shows an incomplete list of Yugoslav sports apparel and footwear brands. Some are still active as of 2023.

Table 1. Selected Yugoslav sports apparel and footwear brands

Brand	Headquarters	Product category	Active (2023)
Alpina	Žiri (SLO)	Footwear	Yes
Borovo	Vukovar (CRO)	Footwear	Yes
Elan	Begunje (SLO)	Equipment	Yes
Mont	Kozje (SLO)	Apparel	No
MTČ (Međimurska trikotaža Čakovec)	Čakovec (CRO)	Apparel	No
NAAI	Belgrade (SER)	Apparel	Yes
Planika	Turnišče (SLO)	Alpine footwear	Yes
Rašica	Ljubljana (SLO)	Apparel	Yes
Toper	Celje (SLO)	Apparel	Yes
Yassa	Varaždin (CRO)	Apparel	No

Source: Own research

Note: Brands are listed in alphabetical order; generic clothing and footwear brands are not included

Even though most brands listed in Table 1 still exist, foreign multinationals in the sector (e.g., Nike, Adidas) have become regional leaders in sales. A study of consumer purchase behavior in Bosnia and Herzegovina, Croatia, Serbia, and Montenegro showed that consumer ethnocentrism and “consumer worldliness” both affect direct and indirect domestic purchase behavior (Dmitrović, Vida, Reardon, 2009). While support for the European Union in the Western Balkans, as a proxy for “worldliness,” is fluctuating (Belloni, 2016), a sizable portion of the population is in favor of European integration, thus arguably driving up the sales of foreign brands over domestic and “formerly domestic” ones. This is problematic for several reasons: domestic brands create more domestic jobs than foreign ones. They also create an opportunity to generate sales on foreign markets. Finally, profits are retained and potentially reinvested into the domestic economy rather than being shifted to other countries.

Brands and corporations can invest profits directly into sport – for example, by sponsoring clubs or governing bodies. They can also invest indirectly, by advertising in sport media and during sport broadcasts. For brands, advertising creates exposure, potentially improves brand image, and drives sales. When advertising inventory is purchased during television sport broadcasts, these ads generate revenue for broadcasting corporations and support the acquisition of electronic media rights to show international and domestic competitions. Thus, advertising during sport broadcasts also benefits sport.

Media rights, media revenues, and their role for sport

This takes us to the main part of our presentation and article. Despite the perceptions of many (students, members of the public, even junior marketing professionals) that ticket sales or perhaps sponsorships generate the most revenue for sport organizations, the single largest source of income for major professional sport organizations are electronic media rights. These near or even exceed half of the annual revenues of governing bodies and leagues such as the International Olympic Committee, FIFA, UEFA, NBA and NFL leagues, and many more (e.g., Deloitte, 2023; FIFA, 2022; IOC, n.d.; UEFA, 2023). Governing bodies and leagues then redistribute most of these revenues to member teams or national federations (e.g., Football Benchmark, 2019). This is true not only for the world's largest sporting events and fixtures, but also for mid-sized professional outfits: for example, the Department of Athletics at Washington State University earned US\$38.7 million from electronic media rights in fiscal year 2022, good for 51.6 percent of its annual revenues (Brunelli, Chun, 2023).

A necessary precursor to generating substantial media rights revenues is to start conceiving and presenting professional sports competitions as a media product and an entertainment product. This is often not the case in countries in Southeast Europe. Table 2 shows licensed TV broadcasters and streaming offerings of national football and basketball championships in former Yugoslav countries (missing are entries from leagues and governing bodies that did not respond to our inquiries). Football and basketball were selected as the most popular team sports in the region.

Table 2. Broadcast partners of national football and basketball championships in former Yugoslavia

	Football			Basketball		
	Domestic broad-caster(s)	International broadcaster(s)	Streaming option	Domestic broad-caster(s)	International broad-caster(s)	Streaming option
Bosnia-Herzegovina (BIH)	Arena Sport	None	Yes	None	None	Yes
Croatia	MAX TV, HRT	Arena Sport (in SER, BIH)	Yes	MAX TV, Sportska TV	None	Yes
Serbia (SER)	Arena Sport	Arena Sport	Yes	Arena Sport	None	Yes
Slovenia	?	?	?	Sportklub, Šport TV, TV Celje	None	Yes

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Montenegro	Arena Sport, RTCG, MNE Sport	Arena Sport (in SER)	Yes	?	?	?
Northern Macedonia	?	?	?	?	?	?
Kosovo	?	?	?	Art Motion, Kujtesa TV	None	Yes

Source: Respective national governing bodies or leagues, via email, September-December 2023.

Note: Question marks denote lack of response from league or governing body

Information presented in Table 2 was obtained via email from the governing bodies (national federations) of the two sports in each country. Only basic identification of (domestic and international) broadcasting partners was requested: we did not solicit information about the value of such agreements.

Responses show only two (out of nine) national leagues, both in football, are shown (also, but not exclusively) on public television channels. From an audience standpoint, this is not ideal: a study of ski jumping has shown that broadcasting on public television increases audience size by 300-750% compared to commercial television (Ličen, Mir, 2023). Also, only three fixtures – also all in football – have licensed broadcasting rights internationally; more specifically, men’s national leagues in Croatia, Serbia and Montenegro have licensed rights to Arena Sport, a regional pay TV sports network owned by Telekom Srbija, to be shown in neighboring countries. Meanwhile, none of the national basketball leagues are shown beyond their current national borders. Granted, these leagues are de facto second-tier competitions as the ABA (Adriatic) Basketball League serves as the top-flight fixture in the region; ABA League is broadcast primarily on Arena Sport, while selected games are broadcast on national commercial channels, as well. All leagues who responded to our survey stream games online: some do so through the broadcaster’s streaming service, while others simply use YouTube.

As of late 2023, former Yugoslavia is home to the third-best men’s national football team in the world (Croatia); the second-best, seventh-best, and eleventh-best men’s basketball teams in the world (Serbia, Slovenia, and Montenegro, respectively); two qualifiers to the women’s basketball World Cup (Bosnia-Herzegovina, Serbia); and some of the world’s best players and talents in both sports. However, as far as national championships are concerned, these *sports and entertainment products* have minimal appeal beyond current national borders. This may well be the “Land of Basketball,” as stated in the title of a popular movie; but at the most interconnected time in human history, when communicative, social and even sports processes change and adapt to our increased

reliance on mediation as part of the process of mediatization (Ličen, Frandsen, Horky, Onwumechili, Wei, 2022), its national competitions have no mainstream visibility beyond its national borders.

In 1990, Yugoslavia and its sport entities had a market base of over 23 million potential spectators, fans, and customers. This generated correspondingly high appeal for prospective sponsors. Today, as all its former constituent republics pursue European integration, they undoubtedly enter a potential market of nearly 450 million. But realistically, sport organizations' audience and, thus, market bases are mostly limited to the population of each republic or entity. There is limited reach and appeal even in the large regional diasporas in other countries in Europe and beyond. And since national populations in the region are declining – some quite significantly (Judah, 2020) – primarily due to migration, diasporas could actually form a viable base for market expansion of national leagues.

Motivations for sport spectatorship

A key consideration to develop a sport competition – or rather, sport property – into a *spectator sport and entertainment product* is, what attracts spectators to sport to begin with. A frequent mistake among professionals and scholars is to assume that everyone watches sports for the same reasons. However, reasons for watching and consuming sports are multifaceted. Media psychologist Arthur Raney (2006) determined that people tend to watch sports to satisfy emotional, cognitive, and/or behavioral and social needs.

One of the *emotional* motivations that spectators aim to fulfill when watching sports is the need for *entertainment*, which indicates the enjoyment and satisfaction that comes from cheering on a favorite team as it follows an undetermined yet aspired path to victory. Then, *euphoric stress* indicates the arousal and controlled excitement that can be achieved when watching close games, rivalries, and otherwise dramatic contests or narratives. The *self-esteem* motivation recognizes that some watch sport in an effort to feel better about themselves, for example by boosting their self-confidence as a result of a mental association with a winning team. Finally, *escape* motivates people with an emotional need to flee the stress of daily living; interestingly, this motivation is comparatively less dependent upon fanship and competitive outcome of the game or contest: people watching sport to escape are less particular about the team or even sport being shown (Raney, 2006).

A second cluster are *cognitive* motivations for mediated sport consumption. One of the two aspects that attract spectators in this cluster is *learning* – facts about athletes and teams, information on the game and how it is (or should be) played, as well as statistical data, trivia, and similar. The second aspect are *aesthetics*, which please some viewers

attracted by the beauty found in movement and expression in sports such as gymnastics and figure skating, or even the novelty, riskiness, or unexpectedness of play that can be found in any sport (Raney, 2006).

The third cluster comprises five *behavioral and social motivations*. One of them is *release*, which indicates the need to dissipate pent-up emotions that can be accomplished through activities such as watching sports in communal settings or other leisure activities. Another is *companionship*, whereby some watch sports primarily to spend time with others, either at home or in public places ranging from bars to public viewings. The *group affiliation* motivation is named after the sense of belonging that some people seek to satisfy by watching sports and associating with a city or national team or comparable entity. The *family* motivation acknowledges that some people watch primarily to spend time or have something to do as a family. The final motivation is *economic* and groups people who watch sports due to a financial stake in the outcome of games, usually because of betting and wagering (Raney, 2006).

Motivations are not mutually exclusive: indeed, many and perhaps most people watch sports for more than one reason. Also, the specific ways in which people enjoy content differs among individuals: for example, viewers attracted by the aesthetics of sport might vary widely in their perception of what constitutes a beautiful play or move.

Applications for spectatorship motivations: Recommendations for professionals

Media producers and content producers should take into account **all** motivations for sport spectatorship and develop content designed to satisfy each of them. Specific applications include the presentation of sports, the commentary and dialogue surrounding sport, theme shows and features, and other contents still. Since sport organizations including governing bodies, leagues, and even individual teams increasingly engage in content production and publication, they should take note of this typology, as well. One way to take advantage of it is to identify the aspects of a sport that satisfy the different motivations, and then produce content that showcases these aspects.

Indeed, this approach is at the heart of the concept of mediatization introduced earlier. This term indicates “all the transformations of communicative and social processes (...) which follow from our increasing reliance on technologically and institutionally based processes of mediation” (Couldry, Hepp, 2017, pp. 3-4). A recent study of public service broadcasting coverage of sport in Slovenia and Croatia showed that mediatization in this region is delayed (Ličen, Antunovic, Bartoluci, 2022). Even during the Olympic Games, which are the greatest regularly-scheduled show on television, media-rights holders

produced minimal content beyond what is televised, and virtually no content designed specifically for social media. The same seems to be true for the content streamed by the national leagues listed in Table 2: while offering games online is undoubtedly positive and makes them more accessible, few creative solutions designed primarily for the online setting seem to be offered. In an economic, social and technological environment where national borders are becoming evanescent, national leagues are no longer competing for spectators just with other sports in the country (for example, basketball Admiral Bet Košarkaška liga Srbije with handball ARKUS Liga and volleyball Wiener Städtische Superliga). Rather, they also compete with the world's largest leagues such as the Premier League and La Liga in football, the National Basketball Association (NBA) in basketball, and other fixtures which are mediatized sport and entertainment products and, thus, among the world's largest sports brands. Indeed, media rights expenditures in the region have risen considerably (SportBusiness, 2022) – alas, not to the benefit of national leagues or indeed national sport.

Currently, national leagues in former Yugoslavia/Southeast Europe are peripheral sport products and secure limited national and very limited regional TV coverage. They gain minimal, if any, exposure and market share in neighboring countries. As a result, they do not maximize the revenue they earn from the licensing of their media and, thus, marketing rights. However, there is enough social and historical continuity, enduring familiarity, and even existing competitive ties – for example, the Adriatic Basketball League – to suggest younger fans domestically and in neighboring countries might be interested in following these leagues if offered *content that is presented interestingly and engagingly*. In its annual report for the year 2022, the Slovenian football federation acknowledged the “full implementation” of a weekly football-themed show on the commercial cable channel that secured the rights to broadcast its men's championship, and added: “To the satisfaction of not only the football, but also the general sports public, we can confidently write that everyone yearned for such a talk-analytical football show, where the creators of the show cover not only the [premier league], but also the federation's other products” (NZS, 2022, 104). The production of a weekly themed show seems like a relatively low bar to clear in the realm of the sport's media presence, especially when considering the development of technology and proliferation of sports production characteristic of the aforementioned mediatization process. Still, the Slovenian football federation generates a comparatively high share of its revenues from media rights, as these accounted for 29.8% of the governing body's total revenues in 2022 (NZS, 2022, 126), compared to 21.7% of the Croatian federation's revenues in the same year (this figure did not include distributions from Croatia's participation in the EURO 2020 and 2022 FIFA World Cup tournaments, which accounted for 42% of their 2022 revenues; PWC, 2022, 21).

Based on these opportunities and limitations, let us offer several recommendations meant to strengthen sport business and grow national leagues in countries of former Yugoslavia.

These recommendations can be expanded upon in an effort to increase market shares and enhance the appeal of sports media properties for advertisers, which could in turn be leveraged to negotiate more valuable media rights licensing contracts.

As spectators turn to sport for a variety of motivations (Raney, 2006), it is time to abandon, or at least *significantly reduce nationalistic imagery*. While some find this difficult to embrace or even conceive, it is important to acknowledge nationalistic imagery turns away more fans than many think. The popularity of foreign football and basketball competitions indicates nationalism is not a top priority among fans in the region. That many follow these leagues due to successful performances by “our” players such as Luka Dončić, Luka Modrić, Nikola Jokić, Edin Džeko and others actually shows that leagues from neighboring countries could very well appeal to fans across borders. Yugoslav boxing giant Mate Parlov is often quoted as saying that “you cannot be a nationalist if you are a world champion” (orig. “*Kako ja mogu biti nacionalist ako sam svjetski prvak?*”). By analogy, one cannot be exclusionary if they want to attract broad audiences. A one-question survey of sportscasting preferences conducted in collaboration with the Slovenian public service showed that only a minority of spectators (15%) expressed a preference for biased announcing in favor of the nation’s “own” team. Factual announcing combined with relevant related facts (24%), technical and tactical insight (22%), and even mere objective commentary (16%) all ranked higher among viewers than commentators supporting “our” team (Jerič, 2011). This suggests media organizations and sport governing bodies should be encouraged and supported in the development and creation of *contents designed to fulfill all the different motivations for sport spectatorship* (Raney, 2006). Such content will help grow the popularity of domestic leagues and support their expansion into foreign markets.

Enduring dominance of television: Recommendations for scholars

Television continues to be a dominant media outlet in the region. It is still the number one source of information for people in Croatia and Slovenia, ahead of online news platforms or social media, for all age groups, including the 15-to-24-year-olds (Eurobarometer, 2023). Television also continues to be a leading media format world-wide, its status largely influenced by sports content (Nielsen, 2023). While the rise of social media is indisputable, the media market has not shifted as much as it has expanded. This creates new opportunities for professionals, as well as scholars. After offering recommendations for sport media professionals, let us offer several research topics and questions worth pursuing by scholars of sport, media and business in the region.

As noted earlier, motivations for sport spectatorship are multifaceted (Raney, 2006). Studies in the region (e.g., Antunovic, 2021; Ličen, Billings, 2013) suggest that broadcasters

tend to focus on fulfilling only some of them. Scholars studying sport journalism, sport media and sport management in Southeast Europe should examine whether **public media**, **commercial media**, and media owned and controlled by teams and governing bodies fulfill all the different motivations for sport spectatorship, as well as study how fans engage with these different types of content.

Society is changing rapidly as a result of economic liberalization, political transformations, and technological advancements. These changes influence professional practices and the very professional status of people working in sport media. To map these changes and identify their consequences, it is important to comprehensively examine who produces sport media content in former Yugoslavia and how sound is their training. A related important challenge is determining the extent to which journalists, reporters, and broadcasters are independent from sport organizations – and how common are hybrid arrangements whereby “journalists” and “broadcasters” hold part-time positions with sports teams, clubs, or even governing bodies. Such arrangements infringe one of the foundational canons of journalism, mainly objectivity and impartiality, which is inherently unattainable if the reporter is also employed by the entities and organizations they are supposed to report about. Sport journalists in such precarious contractual arrangements are also prone to exert self-censorship, which is another ramification worth examining.

An enduring topic of research remains the representation of individuals in sport media. How are domestic athletes, foreign athletes, and nationals from former Yugoslav republics represented in mass and digital media? From a societal standpoint, media representation of home and foreign nationals shapes their perception in broader society (e.g., Bartoluci, Doupona, 2020; Ličen, Billings, 2013). In turn, from a marketing and managerial standpoint, favorable representation can be leveraged to secure promotional and endorsement opportunities for both sport and sponsored products in the former common market.

And finally, despite post-war promotion of gender equality, mass media coverage of women’s sport remains low (Antunovic, 2021; Antunovic, Bartoluci, 2023; Ličen, Bejek, 2019). Articles about women’s sport tend to be less detailed, and the coverage bump observed during the Olympic Games is insufficient. Scholars should continue studying media representation of women’s sport in former Yugoslav countries, identify discrepancies, and develop solutions for stronger coverage. When this recommendation was presented at the “Sporticopedia” conference in Belgrade, several male audience members scoffed or shook their heads in apparent dissent, while several women nodded in agreement. While only anecdotal, this noticeable rift confirms the relevance of this research thread, today perhaps even more than before 1990.

Conclusion: A call for collaboration

Sport, media, and societies in Southeast Europe/former Yugoslavia would benefit from greater collaboration among scholars, as well as from collaboration between scholars and professionals in these fields. As discussed earlier, the country borders that emerged after 1990 often became hard boundaries that stifled collaboration. While understandable and perhaps unavoidable at the time, scholars today, along with their institutions and state research funding agencies should proactively engage in forging and supporting cross-national collaborations.

Conferences such as “Sporticopedia” should become regular appointments in the region’s academic calendar. Ideally, they should attract participants from all countries and regions of former Yugoslavia, as well as from the growing academic diaspora comprised by scholars who study business and communication in sport at universities in Europe or the United States. Such conferences would foster collaboration between scholars from the region and catalyze cross-national comparative research projects examining mass media and social media coverage of sport. Findings from these projects could, in turn, be presented at subsequent editions of these conferences. Collaboration with foreign colleagues is precious; collaboration with regional colleagues familiar with regional peculiarities and able to translate challenges to local particularities is vital.

Former Yugoslavia has long been home to strong teams, inspirational athletic figures, excellent brands, and skilled sports administrators. It has the potential to continue being influential – and become first a regional, and then a continental leader in sport management. For the region’s sport industry to thrive, it is vital to strengthen national competitions and events, and present them as appealing media content. This will create interest among viewers and advertisers alike – an interest that will result in revenue to be reinvested in national sport (and perhaps curb the outpouring of athletic talent to other European countries or North America). A strengthened media presentation of local sport will stimulate not only competitions, but the sport and media industries more widely, and ultimately enhance social cohesion. These are outcomes worth pursuing.

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PHYSICAL EDUCATION

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PHYSICAL FITNESS OF WOMEN UNDER THE INFLUENCE OF TAE BO EXERCISE

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Abstract: The aim of this research was to determine the changes in the physical fitness of women who recreationally practice tae bo. 15 female exercisers between 25 and 40 years old, who have been practicing this recreational exercise for at least a year, participated in the research which lasted for four months. For assessing physical fitness V test, Back Scratch Test (right and left), 2 minute Step in Place Test, Trunk Flexor and Extensor, Squat Test, Arm Curl Test, Hexagon Agility Test and Modified Agility „T“ Test were used. To determine changes, analysis of variance for dependent samples and post hoc analysis were used. After the tae bo program, which lasted for four months, it was determined that most of the tests showed statistically significant changes of different levels of significance. It is concluded that the tae bo program effectively influenced the improvement of women's physical fitness after four months of performance.

Keywords: tae bo, recreation, female exercisers, physical conditioning

Introduction

Due to the general decrease in physical activity in the modern world (Hallal et al., 2012; Dishman et al., 2022), recreational exercise is a significant factor in disease prevention and health preservation (Thompson et al., 2020). The human body, which is naturally moving, needs a constant physical challenge that will improve the level of physical activity and fitness (De Sousa et al., 2019). The degree of physical (cardiorespiratory)

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fitness is inversely proportional to mortality, because the more physically fit people are, the lower the mortality rate (Imboden et al., 2018; Imboden et al., 2019).

Recreational muscle exercise contributes to general health by increasing the level of physical fitness (Boullosa et al., 2020). Since during the aging process the level of fitness decreases (Taylor, 2021), it is necessary to work on increasing muscle mass as a prevention of further development of osteoporosis, which is a consequence of decreasing bone demineralization (Simon et al., 2022). Recreational exercise improves the performance of the heart (Pinckard et al., 2019) and other organ systems (Stern et al., 2019). Besides, people who already suffer from some diseases can achieve significant improvements in their health status through regular exercise (De Medeiros et al., 2017; Wu et al., 2020). In order to achieve a better quality of life and mobility to a very old age, regular exercise that develops physical fitness is needed (Sharkey, Gaskill, 2008).

Among the many aerobic recreational activities, the very popular tae bo program of the founder Billy Blanks takes its place. This recreational activity is a combination of dance movements (ballet, hip-hop, etc.) and foot and hand striking techniques of taekwondo and boxing and is performed with music (Turgut, Metin, 2019). Tae bo includes aerobic exercises, increases heart and lung capacity, burns calories, reduces stress, strengthens body muscles and their flexibility. The high-intensity exercises of this program belong to cardio exercises, affect strength, muscular endurance, flexibility and largely develop general coordination and agility (Milenković, Veselinović, 2010). It is effective in toning and defining the body's musculature and losing excess weight. With tae bo training lasting 60 minutes, the body will burn 500 to 800 calories compared to 300 to 400 calories burned in traditional aerobics training (Turgut, Metin, 2019).

Taking into account the theoretical assumptions, this research aims to determine the changes in the level of physical fitness of women who practice tae bo recreationally. It is assumed that there are statistically significant changes in physical fitness. The significance of this research is to determine which indicators of physical fitness the tae bo program has the greatest impact on, in order to more optimally direct their further development.

Material an method

Participants and research procedure

15 female tae bo practitioners who have been practicing this recreational exercise for at least a year took part in this research. The research was conducted over a period of four months (16 weeks) during which the female exercisers were subjected to tae bo training three times a week in the afternoon for an hour. Three tests were performed; the initial

testing in the first week, the intermediate after the eighth week and the final one after the sixteenth week. A 20-minute warm-up was performed before each test.

A battery of 10 diagnostic tests was used to assess physical fitness (Wood, 2008), which the previous research has found to be reliable and valid for assessing physical fitness: *V Sit and Reach Test* (Cuberek et al., 2013; Sporiš et al., 2011), *Back Scratch Test - left and right* (Keith et al., 2014), *2-Minute Step in Place Test* (Haas et al., 2017), *Trunk Flexor and Extensor* (Evans et al., 2007; Waldhelm, Li, 2012), *Squat Test* (Yeh et al., 2018), *Arm Curl Test* (Boneth Collantes, et al., 2012), *Hexagon Agility Test* (Beekhuizen et al., 2009) and Modified Agility "T" test - MAT (Sassi, et al., 2009). Trunk flexor and extensor endurance tests were performed according to McGill's protocol (McGill et al., 1999).

Tae bo program

The structure of the training lasting four months (48 trainings, three times a week for 60 minutes of exercising) had the concept of Tae Bo aerobics, which included the performance of hand and foot elements of the technique of boxing, karate and taekwondo, combined in simple choreographies, which achieved the muscular tone of the whole body. This type of exercise improves body coordination, increases aerobic endurance and functional abilities while reducing body weight. The time structure of the training consisted of three parts:

The introductory part (warm-up) lasting five minutes was used to raise the body temperature and to increase blood flow in the body. The tempo of the music in this part ranged from 100 to 120 beats per minute with the steps Walk, Jogging, Step Touch, Double Step Touch, Leg Curl, Double Leg Curl, Knee Up, Double Knee Up.

The main part contained two separate parts: Aerobic part - (30 minutes) was composed of movements, blocks and sequences of movements aimed at the development of the cardiovascular and respiratory systems. The steps were clearly defined and popular international terms characteristic of the Taebo exercise model were used: Jab, Hook, Cross, Upper Cut, Kick (front, side, back)., then with the other hand. This number of repetitions was provided for the first part of the program of 16 training sessions, so that in the next part the number of repetitions would increase by four (20). Four more repetitions (32) were planned for the last part of the program. Body shaping exercises – (20 minutes) this part of the training was focused on body shaping and strengthening exercises. A series of exercises for a different muscle group was used in each training session. The tempo of the music is 100–120 beats per minute. When realizing this part of the training, the load on the cardio-respiratory system was low. Exercises were applied to strengthen the muscles of the arms and shoulder girdle, abdominal wall, back, gluteal region and legs. The first 10 minutes were used for the muscle group being treated, performing three to five series with the number of repetitions from 16 to 20 (the first

part of the program 16, the second 18, and the third 20). The other 10 minutes were intended for exercises to strengthen the abdominal muscles.

The final part (five minutes) consisted of stretching and relaxation exercises with the aim of calming down the body. Static stretching exercises were performed. Each exercise was performed for 20 seconds.

Statistical analysis

The statistical descriptive parameters used in the analysis were the arithmetic mean from the measures of central tendencies and the standard deviation. In order to obtain possible changes (differences) in the three mobility tests in exercisers, analysis of variance for dependent samples (repeated measures ANOVA) and post hoc analysis (Fisher LSD) were used to determine specific changes (differences) between the tests. The level of significance is $p < 0.05$.

Results

Table 1. Basic statistics of all tests in female exercisers and the significance of differences between the tests

Tests	<u>Descriptives (Mean±St.Dev.)</u>			<u>ANOVA</u>	
	Pre-test	Mid-test	Post-test	F	Sig.
V Sit and Reach Test	1.07±2.81	3.33±2.02	5.27±1.67	13.44	<0.001*
Right Back Scratch Test	-4±1.73	-2.4±2.06	-0.8±2.34	9.06	0.001*
Left Back Scratch Test	-8±1.56	-7.33±1.68	-7±1.73	1.42	0.254
2-Minute Step in Place Test	97.6±10.45	101.87±10.29	107.67±8.68	3.96	0.027*
Trunk Flexor	98±3.78	101.2±3.86	106±3.61	17.3	<0.001*
Trunk Extensor	143.33±8.28	148.13±6.72	152.87±5.36	7.18	0.002*
Squat Test	27±1.81	29±1.81	30.6±1.84	14.68	<0.001*
Arm Curl Test	16.2±1.15	17.6±1.12	18.27±1.33	11.50	<0.001*
Hexagon Agility Test	18.21±0.68	17.93±0.63	17.85±0.65	1.17	0.321
Modified Agility „T“test	7.83±0.95	7.12±0.94	6.84±0.85	4.66	0.015*

Note: *Significance level is $p < 0.05$

Table 1 presents the analysis of variance (repeated measures ANOVA) which calculated the changes in the physical fitness tests of female tae bo practitioners. Statistically significant changes were found in most of the tests that cover the area of flexibility (V Sit and Reach Test $p < 0.001$; Right Back Scratch Test $p = 0.001$), endurance (2-Minute Step in Place Test $p = 0.027$; Trunk Flexor $p < 0.001$; Trunk Extensor $p = 0.002$), repetitive strength (Squat Test $p < 0.001$; Arm Curl Test $p < 0.001$) and agility (Modified Agility "T" test $p = 0.015$).

Since the results of the analysis of variance are based on three tests, an additional post hoc analysis is performed using the Fisher LSD procedure to determine precisely between which testing there is a statistically significant change. This analysis is used only for those tests where statistical significance was initially recorded.

Table 2. Post hoc results (Fisher LSD test)

V Sit and Reach Test		Sig.	Right Back Scratch Test		Sig.
pre-test	mid-test	.008*	pre-test	mid-test	.039*
	post-test	<.001*		post-test	<.001*
mid-test	post-test	.022*	mid-test	post-test	.039*
2-Minute Step in Place Test		Sig.	Trunk Flexor		Sig.
pre-test	mid-test	.242	pre-test	mid-test	.024*
	post-test	.008*		post-test	<.001*
mid-test	post-test	.114	mid-test	post-test	.001*
Trunk Extensor		Sig.	Squat Test		Sig.
pre-test	mid-test	.063	pre-test	mid-test	.004*
	post-test	<.001*		post-test	<.001*
mid-test	post-test	.067	mid-test	post-test	.021*
Arm Curl Test		Sig.	Modified Agility „T“ test		Sig.
pre-test	mid-test	.003*	pre-test	mid-test	.038*
	post-test	<.001*		post-test	.005*
mid-test	post-test	.137	mid-test	post-test	.416

Table 2 shows the results of post hoc analyzes for physical fitness tests showing changes between each individual test. In the 2-Minute Step in Place Test ($p = .008$) and Trunk Extensor ($p < .001$) tests, the tae bo program contributed to changes only after the final

testing and only in relation to the beginning of the experimental treatment. Tests Arm Curl Test and Modified Agility "T" test did not have statistically significant changes between transit and final testing, but showed improvement in the first part of the program ($p = .003$; $p = .038$) and at the overall level ($p < .001$; $p = .005$). In the other tests, there were statistically significant changes after each phase of tae bo exercise.

Discussion

This research was carried out with the aim of determining changes in the physical fitness of women who practice tae bo recreationally. After four months of training, it was determined that a statistically significant change was recorded in most of the tests that assessed physical fitness. Only in one test of agility (Hexagon Agility Test $p = 0.321$) and flexibility (Left Back Scratch Test $p = 0.254$) did the tae bo program not significantly affect the improvement of physical performance. Other physical fitness tests covering the areas of flexibility, endurance, repetitive strength and agility indicate improvement in women's physical fitness. The previous scientific research practice confirms these views. Eight-week tae bo programs and combinations with pilates programs have a positive effect on improving physical fitness in women. In his master's thesis, Doğan (2017) found an increase in the values of sprinting parameters, aerobic strength, abdominal muscle strength and flexibility values ($p < 0.050$). The increase in the ratio of muscle strength of the right and left knee flexors and extensors at an angular speed of $60^\circ/s$ was significant in the combined Tae bo+pilates group ($p < 0.050$). The increase in the mean angular velocities of the left knee flexor and extensor at $180^\circ/s$ was significant for both groups ($p < 0.050$). A two-month tae bo exercise program has a positive effect on physiological indicators (heart rate after the exercise, systolic and diastolic blood pressure after the exercise), as well as body composition parameters (body mass, body mass index, waist-to-hip ratio and body fat percentage) (Jaber et al., 2022). In the field of coordination development, the tae bo program also influenced the improvement of the parameters of this ability ($p < 0.001$) after three months of practice (Milenković, Veselinović, 2010). Similar results were obtained by the three-month tae bo program for indicators of strength and balance ($p < 0.001$) (Nikić, Milenković, 2014) as well as trunk flexors, cardio-respiratory endurance and flexibility in young women (Mustedanagić et al., 2014). Whereas tae bo belongs to aerobic activities, studies indicate that it is possible to achieve improvements in aerobic endurance ($p < 0.001$) after three months of aerobics with tae bo elements in the population of women aged 25 to 35 (Milenković, Nikić, 2018). If the impact of tae bo is compared with the impact of other recreational forms of aerobic exercise such as step aerobics or cardio boxing, it is concluded that practicing tae bo improves functional abilities in the form of arterial blood pressure as in other types of exercise.

Nevertheless, tae bo gives better results in the field of isometric muscle potential than step aerobics, and somewhat worse than cardio boxing (Milenković, Nikić, 2020).

Tae bo is also successfully performed in the student population as part of the educational process of students and gives results in improving coordination, strength, endurance and flexibility (Shkola et al., 2022). A 10-week tae bo exercise program was effective in reducing traditional risk factors associated with cardiometabolic disease and improving components of physical fitness in obese female students (Mathunjwa et al., 2013). Tekin et al. (2018) also conducted the research with obese female students and found that after a program lasting 16 weeks, tae bo can contribute to the improvement of certain parameters of physical fitness, such as strength and flexibility, as well as the state of general fitness.

The modified tae bo program also gives results in examining the level of kinesthetic perception of basketball players, as well as elements of physical fitness in the form of muscular ability, respiratory endurance, speed and agility (El Roby, 2010). Ramadan, El-Ruby (2019) believe that the programs with modified tae bo exercises should be included in the training of basketball players, because they indicate a significant improvement in physical and physiological parameters, as well as basketball-specific skills. They also add that precision exercises should be included in the tae bo program to further improve the shooting and passing skills of basketball players.

Potential shortcomings and limitations of this research can be the relatively small number of women who participated, as well as the duration of the program itself, which can have an effect on raising better physical preparedness if it would last longer.

Conclusion

Optimal physical activity is a prerequisite for a healthy, fulfilling and long life. However, there are numerous negative factors, both on the physical and psychological levels, due to reduced physical activity. Automated execution of set goals and needs in everyday life is increasingly encroaching on free time, which should be the property of every man in which he satisfies the physical and spiritual needs of his body. Recreational exercise along with other physical activities satisfies the basic need for movement and thus prevents the emergence of a sedentary lifestyle that increasingly preoccupies us, the consequences of which are inexorable and progressive, and include, among other things, a decrease in the capacity of the body, as well as an increase in physical and emotional discomfort during higher physical demands.

The results of this research showed that the four-month tae bo program (three times a week for 60 minutes) contributed to a significant improvement in the level of physical

fitness in women, which indicates that the initial assumption was not rejected. The level of physical fitness contributes to the establishment of good foundations for a healthy life by creating the general immunity of the body, therefore, you should listen to the advice of experts and ensure adequate physical activity.

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IMPORTANCE OF IMPLEMENTATION OF SERVICE LEARNING IN SPORT AND HEALTH HIGHER EDUCATION AREA

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Abstract: Service learning is increasingly recognized as a pedagogical approach providing benefits to students, faculties, educational institutions, communities, and society. It is challenge-based and a credit-based activity with many confirmed benefits in higher education areas such as developing students' academic and personal skills, critical thinking, teamwork, and effective communication. The main aim of the research is to analyse differences in attitudes related to service learning between students who participated in academic courses with service-learning topics, and students who have no service-learning knowledge on an academic level. The research was conducted on a sample of 88 students of Physical Education aged between 20 and 24 divided into two subsamples. Students in the experimental group (N=30) were attendees of an academic course where service learning themes were implemented. Students in the control group (N=58) did not participate in the programs with service learning themes on an academic level. SELEB questionnaire with six categories: civic responsibility, interpersonal skills, leadership ability, ability to apply knowledge, general life skills, and critical thinking, were used for measuring service learning benefits for students. Differences in research groups were noted for all six categories implying that implementation of service learning content in higher education programs of physical education and sports can improve students' attitudes and quality of higher education.

Keywords: learning outcomes, quality of education, higher education area

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Introduction

Service learning (SL) on an academic level is a multidimensional pedagogy (a form of experiential learning) that is integrated within a credit-bearing course in the form of an organized, thoughtful, and meaningful project (Madsen & Turnball, 2006). Gradually, higher education establishments are broadening their objectives beyond emphasizing research as the primary focus. Instead, they are taking on more prominent roles in tackling societal requirements, enhancing students' civic capabilities, and venturing into novel forms of knowledge acquisition and teaching methodologies (Carson et al., 2014). The third mission of the university is gaining more and more importance because today's higher education institutions are expected to cooperate with society actively. As stated by Ćulum (2010), universities today are no longer expected only to achieve excellence in research and continue, but also the development of numerous connections with the external environment. It becomes clear that the interaction of universities with the stakeholders is today a big challenge for modern universities, considering that the pressures and various expectations that come from the inside and outside shape the direction of movement higher education and the current educational paradigm. She states that in the last ten years, intensively developed the research field of the university's third mission, in which the relationship between higher education and society outside the first (teaching) and second missions (research), and the double role of the university as a bearer of positive changes that contributes to society development, and entrepreneurs who contribute to economic development, at the local, regional and national level. Service-learning initiatives typically rest upon six fundamental elements: ((a) high-quality service to the community; (b) integrated learning between the service activity and classroom; (c) reflection by the student to assist in integrating service experiences with academics; (d) student voice to enhance students' role in planning and implementing the learning activities; (e) collaboration to ensure benefits for all (i.e., students, community, and university); and (f) evaluation to effectively assess progress toward both the learning and service goals (Anderson, Swick, & Yff, 2001).

Research on topics of implementation of SL among PE students has been on the rise recently (Carson & Raguse, 2014; Lo et al. 2019; Chiva-Bartoll, 2019; Pérez-Ordás et al., 2021). According to Chiva-Bartoll and Fernandez-Rio (2022), SL has the necessary elements to be considered an activist, transformative, trans-domain, and inter-contextual pedagogical model in Physical Education. Lo et al. (2019) encourage SL implications on the PE sector, considered to be a highly appreciated tool to motivate students and teachers. Continuing on recent research, SL is recognized as a pedagogical approach providing benefits to students, faculties, educational institutions, communities, and society. It is challenge-based and a credit-based activity with many

confirmed benefits in higher education areas such as developing students' academic and personal skills, critical thinking, teamwork, and effective communication.

Generally, SL is an important tool in modern education, which implies a connection with the UN goals of sustainable development. The Sustainable Development Goals (SDGs) represent an urgent and collective imperative for all nations, both developed and developing, to collaborate in a global alliance. These goals acknowledge the interdependence of eradicating poverty and addressing disparities, while concurrently enhancing health, education, and economic progress. Simultaneously, they encompass efforts to combat climate change, safeguard our oceans and forests, and promote a sustainable future (UN, 2023). In this sense, the field of physical activity and sport can be linked to several SDGs such as goal number 4 related to Quality education and goal number 11 related to sustainable cities and communities. Service-Learning can be linked with SDG number 4 (Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), SDG number 11 (Make cities and human settlements inclusive, safe, resilient and sustainable), and SDG number 16 (Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels).

Growing research interest in SL in the field of physical activity and sport emphasizes the authors Francisco-Garcés et al. (2022) according to whom SL comes as a consequence of two factors: (1) the promotion of active and participatory methodologies in higher education, stemming from the demand for higher institutions to develop university social responsibility; and (2) the beneficial effects of SL on students' development. Therefore, it is essential to introduce the implementation of SL content into higher education programs in the field of physical education and sport and to monitor and analyse the effects of such curricular changes. Many others also pointed out the importance of SL implementation in the field of sports education (Cervantes & Meaney, 2013; Carson & Raguse, 2014, etc., therefore, in this research, an attempt was made to examine how PE students, who have or do not have experience with SL, see the benefits of participating in SL activities. Since, according to previous research, there are gender differences, the research also tried to detect differences in the perception of SL benefits, depending on whether the respondents are male or female. According to previous research, there are gender differences among PE students. For example, Kuśnierz et al. (2020) pointed out that there are gender differences in school success, motivation, and personality. They emphasized that both sexes show the same general level of intellectual ability, but women are said to outperform men in academic achievement at different stages of the school system, have better grades, and achieve post-secondary qualifications in greater numbers. According to that, this research also tried to detect differences in the perception of SL benefits, depending on whether the respondents are male or female.

Aim

The main aim of the research was to analyze differences in attitudes related to service learning between students who participated in academic courses with service learning, and students who have no service learning knowledge on an academic level. Another important goal of this research approach is to check the applicability of the SELEB scale on a sample of PE students.

The research set up in this way is in line with studies that support the beneficial effects of SL on students' development (according to Francisco-Garcés, et al. 2022) and at the same time analyses the effects of curriculum changes, which is an important indicator of changes in modern higher education.

Since research-based curricular changes are of crucial importance for PE students, the hypothesis, posted for this research, was:

H1: There is a difference in the perception of the Service-Learning benefits that are previously experience-conditioned.

H2: The SELEB scale is an appropriate tool for testing the benefits of SL among PE students.

H3: There are a gender basis differences in Service-Learning benefits among students.

Methods

The research was conducted on a sample of 88 students of Physical Education aged between 20 and 24 divided into two subsamples. Students in the experimental group (N=30) were attendees of an elective academic course where service learning themes were implemented. Students in the control group (N=58) did not participate in the programs with service learning themes on an academic level.

For the data analysis, descriptive statistics; mean, and standard deviation were made, together with a T-test, Levence's test for equality of variances.

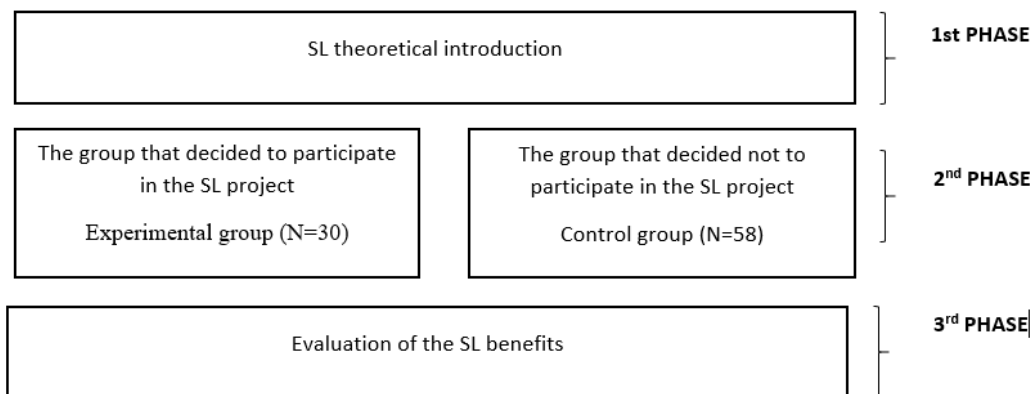
The research was conducted in several stages. In the first phase, students are introduced to the SL term and its benefits. After that, in the second phase, students were offered to develop knowledge about the SL through the elective course. The experimental group was made of students who decided to further develop knowledge about SL and its application in society, but who have not yet started independently implementing SL projects. The students in the control group did not participate in the SL programs. The goal of the sample selected in this way is to continuously monitor

students' perception of SL benefits. In the third phase of the research, student perception of SL benefits was monitored after self-implemented SL projects for the ones who participated in the SL activities and for the ones who didn't. In the continuation, the third phase of the research was conducted, where both groups participated in the questionnaire to evaluate SL benefits.

The goal of such segmented research is to test the six-stage SL model (According to Anstee et al. 2008.) on PE students. Model consists of the following stages: (1) Establishing Community Collaboration; (2) Partnering in the Classroom; (3) Student Training; (4): Delivering the Service Module; (5) Returning to the Classroom; (6) Reporting to Stakeholders.

Students in the experimental group have achieved Stage 1 (Resource Mapping, Key Stakeholder Identification, Matching Community Needs); Stage 2 (Diversity Awareness and Education, Developing Student Interest) started Stage 3 (Preparation of Research Design). The experimental design is presented in Picture 1.

Picture 1. Experimental design of the research



Source: authors

To identify the benefits that students perceived during the implementation of service-learning activities SELEB questionnaire was applied. SELEB questionnaire with six categories: civic responsibility, interpersonal skills, leadership ability, ability to apply knowledge, general life skills, and critical thinking, was used for measuring service learning benefits for students.

The SELEB scale was developed by Toncar et al. (2006) as a useful tool for assessing the quality and effectiveness of service-learning initiatives from the student's perspective. The SELEB scale consisted of six factors: civic responsibility, interpersonal skills, leadership ability, critical thinking, ability to apply knowledge and general life skills that can be used to test the benefits of service learning for students. Dimensions are presented with items explained in Picture 2. Six factors were covered with a list of the 27 items that captured the range of benefits reported in prior literature. Students were asked to indicate how important each of the 27 items was to their educational experience, using a seven-point Likert scale anchored by "not at all important" and "very important."

Picture 2. Six dimensions of the SELEB scale developed by Toncar et al.(2006)

SELE B	CRITICAL THINKING	Social Responsibility and Citizenship Skills, Community Involvement, Service to People in Need, Ability to Make a Difference in the Community
	CIVIL RESPONSIBILITY	Communication Skills, Understanding Cultural and Racial Differences, Social Self-Confidence, Developing Caring Relationships, Empathy and Sensitivity to the Plight of Others
	INTERPERSONAL SKILLS	Ability to Work Well with Others, Leadership skills, Being Trusted by Others, Backgrounds
	LEADERSHIP ABILITY	Applying Knowledge to the "Real World", Social Action Skills, Connecting Theory and Practice
	KNOWLEDGE APPLICATION	Spiritual Growth, Personal Growth, Professional Relationships with Faculty, Conflict Resolution, Ability to Assume Personal Responsibility, Development of Workplace Skills (punctuality, taking direction), Having a Stronger Voice in the Classroom, Organizational Skills and Bolster Resum
	GENERAL LIFE SKILLS	Problem Analysis and Critical Thinking

Source: authors modification

Descriptive statistics was used to summarize and describe the data collected from the SELEB questionnaire (mean value and Standard Deviation with two different target groups – control one and experimental one.

Results and discussion

At the beginning of the research, descriptive research and a T-test were made to measure the differentness of SL benefits in the category of students who had experience with service learning (N=30) – Experimental group. After that, the descriptive statistics were made with PE students who did not participate in the programs with service learning themes on an academic level (N=58) – The control group in the research.

Table 1. A T-test of the SELEB sub-scales for the experimental group and control group

	Experimental group (N=30)	Control group (N=58)
	Mean $\pm$ SD	Mean $\pm$ SD
Critical thinking	5.90 $\pm$ 1.24	5.67 $\pm$ 1.13
Civil responsibility	5.89 $\pm$ 0.93	5.63 $\pm$ 0.76
Interpersonal skills	5.66 $\pm$ 1.03	5.69 $\pm$ 0.91
Leadership ability	5.90 $\pm$ 0.72	5.70 $\pm$ 0.79
Knowledge application	6.08 $\pm$ 0.97	5.96 $\pm$ 0.84
General life skills	5.00 $\pm$ 0.75	4.92 $\pm$ 0.74
SELEB total	5.77 $\pm$ 0.74	5.65 $\pm$ 0.69

Source: authors

Analysing the data, it is possible to conclude that the mean values of all subscales and the main scale were higher for students who had no experience with the topic of service learning. The only deviation was observed in the Interpersonal skills subscale, where a higher mean value was recorded for students who had no previous experience with service learning. Students with no SL experience see Interpersonal skills as a higher benefit of SL than students who have SL experience (Ability to work with others, Leadership Skills, being trusted by others, backgrounds). Furthermore, it can be concluded that students recognized different benefits of SL, and we can conclude that the SELEB scale is suitable for testing the perception of SL benefits among PE students. The findings reveal that mean values for all SELEB subscales and the main scale were generally higher among students without SL experience. An exception is the

interpersonal skills subscale, where students without prior SL experience attributed greater importance to these skills. This suggests that students without SL exposure view interpersonal skills as a more substantial SL benefit. Ultimately, the research indicates that the SELEB scale is suitable for assessing PE students' perceptions of SL benefits. It is also important to note that this research relies on self-reported data through the SELEB questionnaire. While this approach is common in social research, it introduces the possibility of response bias. Students might provide responses they believe align with expectations or social desirability, potentially leading to an inaccurate representation of their true attitudes and experiences.

In the continuation, differences among the students made on a gender basis were tested. In total, in the research, 46 male and 39 female students participated. Other students did not want to be gender registered. According to the results of the T-test, it can be concluded that the female students have a higher mean in all the subscales and the main scale of the SELEB, except the subscale of Critical Thinking, where the values are equated with the results of the male students (Table 2).

Table 2. Comparison of the SL benefits depending on gender basis

	Male students (N=46) Mean ± SD	Female students (N=39) Mean ± SD
Critical thinking	5.77 ± 1.18	5.77 ± 1.09
Civil responsibility	5.66 ± 0.83	5.83 ± 0.69
Interpersonal skills	5.53 ± 0.96	5.89 ± 0.78
Leadership ability	5.71 ± 0.77	5.82 ± 0.76
Knowledge application	5.97 ± 0.72	6.09 ± 0.94
General life skills	5.49 ± 0.76	5.60 ± 0.74
SELEB total	5.64 ± 0.66	5.78 ± 0.64

Source: authors

In the continuation, Levence's test for equality of variances was made with the aim of testing gender differences. Data analysis looked at whether $p < 0.05$. In that case, variances are significantly different so we can assume that there is a difference and they are not equal. If the $p > 0.05$ variances are not significantly different, so we can assume they are equal. According to the results, it is clear that in some subscales there are differences while in others there are none. For all the subscales and the main SELEB scale, the variance was not significantly different, so we can assume that they are different.

Table 3. Results of the Levene's Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Civil responsibility	Equal variances assumed	0.73	0.39	-0.89	83	0.37	-0.15	0.17	-0.48	0.18
	Equal variances not assumed			-0.91	83.00	0.37	-0.14	0.16	-0.47	0.18
Interpersonal skills	Equal variances assumed	0.30	0.58	-1.69	83	0.09	-0.32	0.19	-0.69	0.05
	Equal variances not assumed			-1.72	82.99	0.09	-0.32	0.18	-0.69	0.05
Leadership ability	Equal variances assumed	0.75	0.39	-0.64	83	0.52	-0.10	0.17	-0.44	0.22
	Equal variances not assumed			-0.65	81.40	0.52	-0.11	0.17	-0.44	0.22
Knowledge application	Equal variances assumed	1.55	0.22	-0.64	83	0.52	-0.11	0.18	-0.47	0.24
	Equal variances not assumed			-0.63	70.44	0.53	-0.11	0.18	-0.48	0.25
General life skills	Equal variances assumed	0.09	0.76	-0.56	83	0.58	-0.09	0.16	-0.42	0.23
	Equal variances not assumed			-0.56	81.68	0.58	-0.09	0.16	-0.42	0.23

Critical Thinking	Equal variances assumed	0.69	0.41	0.05	83	0.96	0.01	0.25	-0.48	0.51
	Equal variances not assumed			0.05	82.52	0.96	0.01	0.25	-0.48	0.51
SELEB	Equal variances assumed	0.04	0.84	-1.01	83	0.31	-0.14	0.14	-0.42	0.14
	Equal variances not assumed			-1.01	81.54	0.31	-0.14	0.14	-0.42	0.14

Source: authors

These results are not in line with the previous research made in physical education classes that showed that there were significant differences in student motivation between male and female students, in general in engaging (Kurniawan et al., 2022). The results of this research showed that there is no statistically significant difference between male and female students in the perception of the SL benefits.

It is important to emphasize that the research was conducted with a relatively small sample size of 88 PE students. This limited sample might not fully represent the diverse population of PE students, which could impact the generalizability of the findings to a broader context.

A possible limitation of this study is that the implementation of SL in the curricula of higher education for PE students is only in the initial phase. This presupposed that students gained only theoretical knowledge about SL through compulsory courses and SL was introduced to students only at the informative and theoretical level. Nevertheless, this introductory segment allows PE students to recognize SL as an important segment of their education through which they can participate in the development of projects that will improve their professional knowledge and skills. At the same time, they can participate in the development of modern society in those segments for which the projects are targeted.

The study acknowledges that the implementation of SL in PE curricula is in its early phases, with students having primarily received theoretical knowledge about SL. This limited exposure might not accurately reflect the potential impact of fully integrated and practical SL experiences. The findings could be influenced by the novelty of the SL concept to the students, potentially affecting their perceptions.

Conclusion

In conclusion, the research contributes to the discourse on SL's integration into physical education and sports curricula. The study sheds light on differences in perceived SL benefits among students and validates the utility of the SELEB scale. As SL gains traction in higher education, understanding its impact on students' attitudes and skills remains crucial for refining educational approaches and fostering well-rounded development. While SL contributes to different skill sets such as critical thinking, leadership, and civic responsibility, the findings also highlight the key role of interpersonal skills in this context. Variations in how students perceive these skills based on their SL exposure imply that educators should consider adapting SL programs to meet the specific needs of novice and experienced SL participants, fostering a well-rounded skill set among PE students.

The study also demonstrates the suitability of the SELEB (Service Learning Experience and Benefits) scale as a reliable tool for assessing the perceived benefits of SL among Physical Education (PE) students. The scale's ability to capture dimensions such as civic responsibility, critical thinking, leadership ability, and more provides a structured framework for evaluating the impact of SL. This validation supports the use of SELEB in future research endeavors and educational settings to measure the effectiveness of SL initiatives in PE programs.

The research findings underscore that students with prior experience in Service Learning (SL) tend to perceive higher benefits across various dimensions compared to students who have not encountered SL in their academic journey. This contrast is particularly noticeable in the domain of interpersonal skills. While students with no SL exposure do appreciate the value of these skills, students with prior exposure emphasize them even more.

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EFFECTS OF PHYSICAL EXERCISE ON ABILITY MEASURED BY FMS TESTS AND MENTAL HEALTH OF MIDDLE-AGED PERSONS⁹

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Abstract: The aim of the research was to determine the impact of physical exercise on: 1. abilities measured by FMS tests, 2. the impact of physical status on the mental health of middle-aged people and 3. body composition. The research used a quasi-experimental design (test-retest). 20 respondents (11 men and 9 women) were included in this paper. The average age of the respondents is 52.3 years, average body height 169.4 cm, average body weight 78.62 kg. All respondents live in the territory of the United Arab Emirates, where they are physically minimally active or completely inactive. Body impedance (InBody120), FMS device and survey questionnaire were used in the research. Descriptive statistics and T-test were used for data processing. The results showed that there is a statistically significant difference in the variables that were measured at the beginning and after the application of the defined exercise program (test-retest), in the variable point score-FMS test ($p = 0.000$) and in the satisfaction questionnaire ($p < 0.05$). However, the exercise program had no effect on body composition because it focused on trunk mobility and stabilization exercises.

Keywords: FMS tests, questionnaire, body composition

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Introduction

The term fitness has become completely domesticated in our speech, so it is no longer translated. Matic states that the word fit is of English origin and means everything that modern programs and movements of physical culture want a person to be, i.e. suitable, fit, right, good, capable, ready, ready, healthy (Matic, 1998).

FMS is a method created in 1995 and founded by Gray Cook, Lee Burton and Kate Fields, but only in the last few years has it become an indispensable tool in the physical preparation of professional athletes, as well as recreational ones. It is used to identify limitations or asymmetries in seven fundamental movement patterns that are critical to the functional quality of an individual's movement. These forms are designed to assess the ability of the locomotor apparatus, mainly through stability (resisting unwanted forces, as well as the ability to control force and power) and mobility (appropriate movement in a joint), (Functional Movement Screen). Any deviations in relation to the correct performance of the exercise, which is characterized by balance, speed, coordination of movements, followed by the least possible expenditure of energy, are noticed. The basic idea on which FMS is based is the assumption that every muscle and joint system must fulfill its function in order for the body to have a high level of functionality. Through such testing, we can obtain information about asymmetries and limitations, which is of great importance for training programming.

The main goal of the research is to determine the effect of physical exercise on the exerciser's abilities measured by FMS (Functional Movement Screen) tests and the mental health of middle-aged people.

Materials and Methods

The sample of respondents consisted of male and female adults, the number of respondents was 20, aged between 40 and 60 years. There were 11 male and 9 female respondents. The average age of the respondents is 52.3 years. The average body height of the subjects is 169.4 cm, the average body weight of the subjects is 78.63 kg. Before the research, the respondents led a sedentary lifestyle. All respondents were informed about the research before the beginning and voluntarily agreed to participate. The main condition for participation in the research is that the person lives in the United Arab Emirates, that he is physically minimally active or completely inactive.

Study design and research protocol

The research used a quasi-experimental design (pretest-posttest), that is, a design with initial and final measurements, which lasted six weeks. In the mentioned period, a program of activities lasting one hour, three times a week in the gym or at home, was implemented. The task of this program is not the process of losing weight, but rather the correction of postural status, through mobility, flexibility, stability and basic strength exercises that do not require the use of complex props, but only your own body. After the initial test, the respondents received an exercise program the next day. The program was held three times a week, lasting from 45 minutes to 1 hour.

The exercise program was divided into an introductory-preparatory, main and final part. Introductory - preparatory part consisted of two parts: neuromuscular stimulation and stabilization. The main part consisted of mobility exercises and strength exercises. The final part was unloading and rehydration.

In the introductory-preparatory phase, we have two subphases, neuromuscular stimulation and stabilization. Neuro-muscular stimulation had the task of stimulating and activating a specific muscle region, i.e. warming up the muscle apparatus using rollers, stimulating a large group of muscles and tennis balls, which had the task of activating a specific region of the body. Trunk stabilization is the primary function of the trunk muscles. Through isometric exercises, the working temperature increases, and thus the efficiency of the trunk, whose task is to evenly transfer forces from the upper to the lower part of the body and vice versa.

In the main phase of the program, we also have two sub-phases, mobility and strength exercises. Mobility is done immediately after stabilization. 1-2 series are done, depending on the physical condition, and 12 to 15 repetitions in a series. The exercises are dynamic in nature, but the tempo of the exercise is controlled, which means that the subject has complete control over the movements. These exercises fully activate the joint regions of the body, increase the range of motion and prepare the musculoskeletal system. In this phase, exercises have the greatest advantage precisely in that region, which is the most threatened. This phase is followed by the second phase - strength exercises.

Strength exercises are done in two to three sets, with 12 to 15 repetitions each. In this phase, all large muscle groups are worked. Elastic bands and mini bands are used. This phase has the task of triggering the central nervous system for muscular adaptation.

The final phase has the task of gradually relaxing the body and rehydrating. The respondents were tasked with keeping records of how they felt before, during and after training.

They implemented the program at home or in a fitness center.

After six weeks, the final measurement (retest) was performed. All subjects adhered to the basic requirements and had no other form of physical activity. Also, the respondents were physically healthy, i.e. no medical barrier to participation in the exercise program was identified.

Variables

Body composition variables

Bioelectric impedance (BIA) represents one of the most effective, fast, relatively cheap and valid methods of body composition analysis. The reliability of the result depends on the quality of the device, the training of the person performing the analysis, the accurately measured height and weight, the position of the extremities (extremity angle of 30°-45° in relation to the body), that the subject has not taken food a few hours before the analysis, that his bladder is empty, that he did not practice physical activity, depends on the phase of the menstrual cycle. People who have a pacemaker and pregnant women are not recommended to use this measurement method (Đurđević, 2021).

The data processed were:

TBW – *Total Body Water,*

Protein,

Minerals,

BFM – *Body Fat Mass,*

WT – *Weight,*

SMM – *Skeletal Muscle Mass,*

BMI – *Body Mass Index,*

PBF – *Percent Body Fat,*

InBS – *InBody Score,*

WHR – *Waist-Hio Ratio,*

VFL – *Visceral Fat Level.*

Variables of FMS tests

FMS is intended for everyone regardless of gender, age, profession, the test should not last longer than 15 minutes and contains seven tests:

Deep Squat

Hurdle Step

In-line Lumge

Shoulder Mobility

Active Straight Leg Raise
Trunk Stability Push Up
Rotary Stability

Grading is done with grades from 0 to 3. (*FMS Scoring Criteria-1.pdf*)

Score 3 – Test performed without any compensations

Score 2 – Test performed with certain compensations

Score 1 - The test cannot be performed even with compensations

Score 0 – Pain occurs during the performance of any test

With FMS tests, there is no need to use the variables of all 7 tests, for the reason that at the end of the test, the total result is added up, which is a guide towards progression and a positive result. The maximum score is 21.

Tscore – (Total Score Tests 1-7), Total result of FMS testing, expressed in points from 1-21.

There are also so-called Three clearing tests are done after shoulder mobility, push-ups, and rotational stability to make sure there is no pain that didn't show up on those tests.

Survey questionnaire variables

With the survey questionnaire, we have 10 questions that the respondents filled in after the FMS test. They filled out the questionnaire in both the initial and final measurements.

T_P1 – Test question number 1. How would you rate your overall general health?

T_P2 – Test question number 2. How would you rate the performance of the FMS test?

T_P3 - Test question number 3. How would you rate the performance of the overhead squat?

T_P4 – Test question number 4. How would you rate your health in the last four weeks?

T_P5 – Test question number 5. Does your current physical condition limit your activities?

T_P5a - Test question number 5a. Running, lifting heavy objects, participating in intense sports activities,

T_P5b - Test question number 5b. Moderate activities, cycling, housework, gardening, etc.

T_P5c - Test question number 5c. Lifting and carrying bags from the supermarket,

T_P5d - Test question number 5d. Walking, brisk walking, climbing stairs,

T_P5e - Test question number 5e. Bending, kneeling, stooping,

T_P6 – Test question number 6. Does your current physical condition limit your time during activities?

T_P7 – Test question number 7. Have you experienced physical pain in the past 4 weeks?

T_P8 – Test question number 8. How did physical limitations affect you emotionally while doing any activity in the last 4 weeks?

T_P9 – Test question number 9. How much have your social activities been disrupted in the last 4 weeks, due to your health condition and emotional problem? (Such as visiting friends, relatives, etc.)

T_P10 – Test question number 10. Has physical activity changed your physical and emotional state in the last 4 weeks? (Only if you were active)

R_P1 – is the mark for retest questions in the order they were done after the completion of the entire research paper.

Data collection

In the research, the FMS device and FMS paper, portable bioimpedance (INBODY120, n.d.) and a survey questionnaire, which contains ten questions, related to the self-assessment of the quality of life related to the current physical and mental state of the respondents, were used as means of data collection.

Statistical analysis

For statistical data processing, descriptive statistics T-test analysis was used, which is considered to be the most reliable in this type of testing. The test results were first entered from paper into the Microsoft Excel Worksheet program, where they were selected, and then transferred to the statistical package SPSS 20.

Results and discussion

Table 1. shows the descriptive indicators of the physical test and retest variables composition in middle-aged people.

Table 1. Descriptive indicator of body composition variables in middle-aged people.

	Variable	Mean	Std. Deviation	%cV	Minimum	Maximum
TEST	TBW	39.07	9.665	24.737	24	58
	Protein	10.53	2.634	25.030	7	16
	Minerals	3.71	0.814	21.965	2	5
	BFM	25.31	8.991	35.532	15	49
	WT	78.63	18.716	23.804	50	128
	SMM	29.76	7.965	26.769	18	46
	BMI	27.29	4.992	18.292	21	41
	PBF	32.07	7.008	21.853	18	47
	InBS	69.00	6.657	9.648	54	89
	WHR	0.92	0.049	5.320	0.83	1.01
	VFL	11.25	4.459	39.634	6	20
RETEST	TBW	38.92	9.607	24.687	25	59
	Protein	10.57	2.703	25.575	7	16
	Minerals	3.72	0.821	22.061	2	5
	BFM	25.38	9.310	36.688	14	49
	WT	78.75	18.396	23.362	54	129
	SMM	29.93	7.976	26.652	18	47
	BMI	27.27	4.939	18.111	21	41
	PBF	31.97	7.670	23.995	17	47
	InBS	68.95	7.207	10.453	54	91
	WHR	0.92	0.046	4.933	1	1
	VFL	11.30	4.555	40.309	6	20

TBW – Total Body Water; Protein; Minerals; BFM – Body Fat Mass; WT – Weight; ; SMM – Skeletal Muscle Mass; BMI – Body Mass Index; PBF – Percent Body Fat; InBS – InBody Score; WHR – Waist-Hio Ratio; VFL – Visceral Fat Level

Table 2. shows statistical data on the body composition of middle-aged people.

Table 2. Statistical indicator of the overall result of the body composition T-test.

	Paired Differences			95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
T_TBW - R_TBW	0.155	1.103	0.247	-0.361	0.671	0.629	19	0.537
T_Protein - R_Protein	-0.045	0.300	0.067	-0.185	0.095	-0.671	19	0.510
T_Minerals- R_Minerals	-0.013	0.090	0.020	-0.055	0.029	-0.643	19	0.528
T_BFM - R_BFM	-0.070	1.532	0.343	-0.787	0.647	-0.204	19	0.840
T_WT - R_WT	-0.120	1.706	0.382	-0.919	0.679	-0.315	19	0.757
T_SMM - R_SMM	-0.170	0.753	0.168	-0.523	0.183	-1.009	19	0.326
T_BMI - R_BMI	0.020	0.749	0.167	-0.330	0.370	0.119	19	0.906
T_PBF - R_PBF	0.105	1.992	0.445	-0.827	1.037	0.236	19	0.816
T_InBS - R_InBS	0.050	2.282	0.510	-1.018	1.118	0.098	19	0.923
T_WHR - R_WHR	-0.007	0.036	0.008	-0.024	0.010	-0.877	19	0.392
T_VFL - R_VFL	-0.050	0.945	0.211	-0.492	0.392	-0.237	19	0.815

T_TBW – R_TBW – Test-Retest Total Body Water; T_Protein R_Protein – Test-Retest The amount of protein in the body; T_Minerals- R_Minerals – Test-Retest The amount of minerals in the body; T_BFM - R_BFM – Test-Retest Body Fat Mass; T_WT - R_WT – Test-Retest Weight; T_SMM – R_SMM – Test-Retest Skeletal Muscle Mass; T_BMI – R_BMI – Test-Retest Body Mass Index; T_PBF – R_PBF – Test-Retest Percent Body Fat; T_InBS – R_InBS – Test-Retest InBody Score; T_WHR – R_WHR – Test-Retest Waist-Hio Ratio; T_VFL – R_VFL – Test-Retest Visceral Fat Level

In the table of the 1st and 2nd test and retest of human body composition, the subjects did not show any specific changes in body composition. The research was not moderated in the direction of postural status, but in the direction of physical and mental status. Body composition as a measuring instrument is an integral part of testing, so it is included in the basic measuring instruments.

Konstantin P. Nikolozakes et al. (Nicolozakes, Schneider, Roewer, Borchers, & Hewett, 2017) investigated the effect of body composition on FMS scores in college football players. The results showed that there was a negative correlation between BMI and FMS indicating potential poor movement in athletes and poor test results. With this research, we can compare the negative correlation between the FMS test and body composition. The results obtained after the analysis are not significant statistical changes, which is also indicated by this research among athletes.

In order for the research to gain importance, it is necessary to focus the work on proper nutrition, changing basic life habits, as well as programming a different training program, which in its composition will have the effect of maintaining and progressive training of the cardio-vascular exercise system.

Tables 3 and 4 show the descriptive indicators of the variables and the statistical data of the test and retest in fms testing of middle-aged people.

Table 3. Descriptive indicator of the variables of the overall result in FMS testing.

	Variable	Mean	Std. Deviation	%cV	Minimum	Maximum
TEST	TScore	13.30	1.720	12.931	11	16
RETEST	TScore	16.90	2.049	12.127	12	20

Tscore – Total fms test result;

Table 4. Statistical indicator of results in FMS testing.

	Paired Differences							
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
T_TScore - R_TScore	-3.600	1.789	0.400	-4.437	-2.763	-9.000	19	0.000

T_TScore – R_TScore – Test-Retest results.

Tables 3 and 4 show the processed results of the FMS test obtained in the conducted tests. Based on the obtained and analyzed results, it can be noted the existence of statistical significance in the tested TScore Test - Retest variables (results are in bold).

In Michael Shavchin's research (Sawczyn, 2020), the effect of strength training on the results of the FMS test in students with a higher risk of injury was investigated. The study showed a positive effect of strength training on the improvement of the total FMS score in students with a score below 14. The experimental group that participated in the functional strength training program significantly changed the total FMS scores after 12 weeks ($p < 0.05$). There were also significant differences in the total FMS score between the groups after the experiment ($p < 0.05$). Comparing the work with this research, we can establish the following results. The results obtained after the test and retest, their processing showed a statistically significant influence of the results $T_TScore - R_Tscore$ ($p < 0.000$) on FMS performance. The overall result of the descriptive indicator Test TScore shows that the minimum score on the test was (min 11), and the maximum score on the test was (max 16). The total result Retest TScore shows that the minimum score on the retest was (min 12), and the maximum score on the retest was (max 20). With $T_TScore - R_Tscore$, the existence of statistical significance is noted in the statistical displays, where the total result of the FMS test - retest shows that there were statistically significant results ($p < 0.000$). What can be noticed is that there is a significant difference between the test and the retest, which indicates that the subjects had significant changes after completing the six-week program and significantly improved their general physical fitness.

In a study by Manuel Trinidad-Fernandez et al (Fernandez, Sanchez, & Vargas, 2019) also investigated whether an FMS score of less than 14 was associated with sports injuries. A systematic review and meta-analysis was conducted. In one of 12 studies, among female athletes, an FMS score < 14 out of 21 points was associated with injury. In other studies, it was 95% less, which indicates that less than 14 points on the test, it is not entirely clear whether it affects the injury.

Comparing with this research, the subjects had significant retest results, but we cannot guarantee and say that they are less susceptible to injuries, almost like this is the difference between athletes and generals.

In the research by Rebecca Schultz and colleagues (Shultz, Anderson, Matheson, Marcello, & Besier, 2013) investigated the test-retest relationship and reliability of the FMS, as well as to compare scoring by a single rater during a live test and the same videotaped test. The results showed a relatively good result of test-retest reliability when it comes to the same rater. However, observations have shown that caution should be used when comparing FMS scores among other raters, as there are experienced and novice raters. With this research, we can confirm the test-retest

correlation when the same evaluator evaluated the respondents, which we confirmed with positive test results. It would be good if another evaluator did the same research, then they would see the test-retest reliability and if they would have approximate statistical results.

Table 5 shows the descriptive indicators of the test and retest variables of the middle-aged persons questionnaire.

Table 5. Descriptive indicator of test and retest variables of the survey questionnaire.

Descriptive Statistics						
	Variable	Mean	Std. Deviation	%cV	Minimum	Maximum
TEST	T_P1	3.00	0.725	24.183	1	4
	T_P2	2.20	1.005	45.693	1	4
	T_P3	2.45	1.234	50.383	1	5
	T_P4	3.05	0.686	22.503	2	5
	T_P5a	1.60	0.681	42.535	1	3
	T_P5b	2.45	0.510	20.833	2	3
	T_P5c	2.70	0.571	21.157	1	3
	T_P5d	2.60	0.503	19.332	2	3
	T_P5e	2.00	0.459	22.942	1	3
	T_P5f	2.95	0.224	7.580	2	3
	T_P6	2.55	0.759	29.771	1	4
	T_P7	2.20	1.056	48.014	1	5
	T_P8	2.90	0.968	33.376	1	5
	T_P9	1.85	0.875	47.302	1	4
	T_P10	2.65	1.348	50.886	1	5
RETEST	R_P1	2.40	0.754	31.414	1	3
	R_P2	1.50	0.761	50.726	1	3
	R_P3	1.50	0.607	40.465	1	3
	R_P4	1.65	0.671	40.656	1	3
	R_P5a	2.10	0.718	34.199	1	3
	R_P5b	2.75	0.444	16.155	2	3
	R_P5c	2.85	0.366	12.854	2	3
	R_P5d	2.85	0.366	12.854	2	3
	R_P5e	2.35	0.489	20.824	2	3
	R_P5f	2.95	0.224	7.580	2	3
	R_P6	1.70	0.801	47.136	1	3
	R_P7	1.50	1.000	66.667	1	5
	R_P8	1.95	0.887	45.489	1	4
	R_P9	1.30	0.657	50.534	1	3
	R_P10	3.55	1.276	35.952	2	5

The questions are listed in the variables on pages 4.

Table 6 shows the statistical indicators of test and retest variables of the survey questionnaire among middle-aged people.

Table 6. Statistical significance of the questionnaire variable in percentages.

percentage %						percentage %					
Question	1	2	3	4	5	Question	1	2	3	4	5
T_P1	5.0	10.0	65.0	20.0	0.0	R_P1	15.0	30.0	55.0	0.0	0.0
T_P2	25.0	45.0	15.0	15.0	0.0	R_P2	65.0	20.0	15.0	0.0	0.0
T_P3	25.0	35.0	15.0	20.0	5.0	R_P3	55.0	40.0	5.0	0.0	0.0
T_P4	0.0	15.0	70.0	10.0	5.0	R_P4	45.0	45.0	10.0	0.0	0.0
T_P5a	50.0	50.0	10.0			R_P5a	20.0	50.0	30.0		
T_P5b	0.0	55.0	45.0			R_P5b	0.0	25.0	75.0		
T_P5c	5.0	20.0	75.0			R_P5c	0.0	15.0	85.0		
T_P5d	0.0	40.0	60.0			R_P5d	0.0	15.0	85.0		
T_P5e	10.0	80.0	10.0			R_P5e	0.0	65.0	35.0		
T_P5f	0.0	5.0	95.0			R_P5f	0.0	5.0	95.0		
T_P6	10.0	30.0	55.0	5.0	0.0	R_P6	50.0	30.0	20.0	0.0	0.0
T_P7	30.0	30.0	35.0	0.0	5.0	R_P7	70.0	20.0	5.0	0.0	5.0
T_P8	5.0	30.0	40.0	20.0	5.0	R_P8	35.0	40.0	20.0	5.0	0.0
T_P9	40.0	40.0	15.0	0.0	5.0	R_P9	80.0	10.0	10.0	0.0	0.0
T_P10	25.0	25.0	20.0	20.0	10.0	R_P10	0.0	35.0	5.0	30.0	30.0

T_P1 – T (Test) P (Question) 1 (Ordinal number of questions); R_P1– R (Retest) P (Question) 1 (Ordinal number of questions).

Table 7. Statistical indicator of the results of the T-test of the survey questionnaire.

	Paired Differences						Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t		
				Lower	Upper			
T_P1 - R_P1	0.600	0.754	0.169	0.247	0.953	3.559	19	0.002
T_P2 - R_P2	0.700	1.031	0.231	0.217	1.183	3.036	19	0.007
T_P3 - R_P3	0.950	1.234	0.276	0.372	1.528	3.442	19	0.003
T_P4 - R_P4	1.400	0.940	0.210	0.960	1.840	6.658	19	0.000
T_P5a - R_P5a	-0.500	0.688	0.154	-0.822	-0.178	-3.249	19	0.004
T_P5b - R_P5b	-0.300	0.571	0.128	-0.567	-0.033	-2.349	19	0.030
T_P5c - R_P5c	-0.150	0.366	0.082	-0.321	0.021	-1.831	19	0.083
T_P5d - R_P5d	-0.250	0.444	0.099	-0.458	-0.042	-2.517	19	0.021
T_P5e - R_P5e	-0.350	0.587	0.131	-0.625	-0.075	-2.666	19	0.015
T_P6 - R_P6	0.850	0.813	0.182	0.470	1.230	4.677	19	0.000
T_P7 - R_P7	0.700	0.979	0.219	0.242	1.158	3.199	19	0.005
T_P8 - R_P8	0.950	1.191	0.266	0.393	1.507	3.567	19	0.002
T_P9 - R_P9	0.550	0.686	0.153	0.229	0.871	3.584	19	0.002
T_P10 - R_P10	-0.900	1.683	0.376	-1.688	-0.112	-2.392	19	0.027

T_P1 – T (Test) P (Question) 1 (Ordinal number of questions); R_P1– R (Retest) P (Question) 1 (Ordinal number of questions).

Table 6 shows the results of the test and retest of the survey questionnaire in percentages. After processing the data, a significant statistical change was shown in the respondents, which indicates a positive effect of the program on their mental satisfaction. The reliability of the obtained results shows a significant statistical impact on the mental health of middle-aged people.

Table 7 shows the significant statistical changes of the respondents in their mental satisfaction of the test - retest.

T_P1 – R_P1 How would you rate your overall general health? has significant statistical changes ($p= 0.002$), which indicates that their general health has improved and that the number of respondents who had poor health has

completely decreased, and the number of those who felt very good and excellent has increased.

T_P2 – R_P2 How would you rate the performance of the FMS test? has a significant statistical change ($p= 0.007$), which indicates that the number of respondents who showed satisfaction with the performance of the FMS increased, while the number of those who were dissatisfied decreased completely. The program of activities contributed to improving the technical correctness of the FMS performance.

T_P3 – R_P3 How would you rate the performance of the overhead squat? has a significant statistical change ($p= 0.003$), which indicates that the number of respondents who showed satisfaction with squatting has increased, while the number of dissatisfied and somewhat dissatisfied has completely decreased. The activity program contributed to improving abilities, eliminating compensatory movements, which resulted in a technically correct deep squat, where the subjects themselves noticed the difference and showed a high degree of satisfaction with it.

T_P4 – R_P4 How would you rate your health in the last four weeks? has a significant statistical change ($p= 0.000$), which indicates that the number of respondents who feel much better has increased than before the start of the program, but we also see that the percentage of respondents who felt worse has completely disappeared. The program contributed to a 100% change in both physical and mental status, which indicated a high degree of satisfaction among the respondents.

T_P5– R_P5 Да ли ваш тренутни физички статус ограничава ваше активности? has a significant statistical change T_P5a– R_P5a Running, lifting heavy objects, participation in intensive sports activities ($p= 0.004$), T_P5b– R_P5b Moderate activities, riding bicycles, working in the house, garden, etc. ($p= 0.030$), T_P5c – R_P5c Lifting and carrying bags from the supermarket ($p= 0.083$), T_P5d– R_P5d Walking, fast walking, climbing stairs ($p= 0.021$), T_P5e – R_P5e Bending, kneeling, stooping ($p= 0.015$), which indicates that the number of respondents who feel much better than before the start of the program has increased and that the activities that caused difficulties have completely disappeared. There is no significant statistical difference in the question T_P5c - R_P5c - ($p= 0.083$), which indicates that carrying bags did not pose a problem, because as the author of this research, I believe that carrying bags does not represent a problem in the motor sense compared to other activities that are quite more motorically demanding and include in their activity more complex movements and greater muscle activation.

T_P6 – R_P6 Does your current physical condition limit your time during activities? has a significant statistical change ($p= 0.000$), which indicates that their physical status does not limit their time during the activity compared to the time limited before the program itself. This can also affect mental satisfaction in a positive way. If the respondent does not feel well physically and has certain limitations, it will negatively affect his mental satisfaction as well as the result of the program itself.

T_P7 – R_P7 Have you experienced physical pain in the past 4 weeks? has a significant statistical change ($p= 0.005$), which indicates that the pain, which was moderate, almost completely disappeared, which indicates a positive result of the program. Anyone who experiences some kind of physical pain is bound to have negative effects on their mental state. With these results, we can say that pain reduction also has a positive effect on the mental state of a middle-aged person.

T_P8 – R_P8 How did physical limitations affect you emotionally while doing any activity in the last 4 weeks? has a significant statistical change ($p= 0.002$), which indicates that the respondents improved their physical limitations during the program, which positively affected their mental and emotional state.

T_P9 – R_P9 How much have your social activities been disrupted in the last 4 weeks, due to your health condition and emotional problem? (Such as visiting friends, relatives, etc.) has a significant statistical change ($p= 0.002$), which indicates that the program showed positive results and thus improved the social status, where the respondents no longer had difficulties with social activities.

T_P10 – R_P10 Has physical activity changed your physical and emotional state in the last 4 weeks? (Only if you were active) has a significant statistical change ($p= 0.027$), and that since the beginning of the program it has had positive effects on the physical and mental health of middle-aged people. The respondents showed significant changes in physical status, which also accompanies mental satisfaction.

In the research conducted by Stanislava Popov and Ivana Jakovljević (Popov & Jakovljević, 2017), they provided an overview of modern scientific research studies that deal with the impact of physical exercise on the improvement of cognitive functions. The results show the benefits of physical exercise on cognitive functions, through physiological mechanisms and structural changes in the brain, and indirectly through the influence on mood and stress reduction. The results show that positive effects depend on the intensity of physical activity, while moderate intensity has a positive effect on cognitive functioning, high intensity shows the opposite effect.

We can connect this research with the satisfaction questionnaire, it was shown that a moderate exercise program still has a positive result and positive statistical changes on the mental health of middle-aged people. Also, a positive result at T_P3 – R_P3 How would you rate the performance of the overhead squat? related to squatting above the head, it is from these studies that we can conclude that it has an impact on cognitive functions. Only knowledge, improvement of certain functions and movements, elaboration of information, improved the movement itself through the program, which is why the statistics showed a positive result.

Research conducted by them (Маврић, Кахровић, Мурић, & Раденковић, 2014) about the effects of regular physical activity on the body and they came to the knowledge, which was done in many other studies, that moderate exercise intensity has a positive result on the body and that it contributes to a better quality of life.

The research they conducted (Nelson, Specian, Tracy, & DeMello, 2006) are related to the effects of moderate physical activity in offenders in a modified maximum security institution, showed that regular moderate physical activity produces positive mental and physical benefits for offenders. Moreover, research suggests that such educational programs can provide positive steps toward a productive, healthy, and crime-free lifestyle.

Conclusion

Physical exercise certainly plays one of the important roles in our life. Timely learning, acquiring habits, will inevitably have a positive result on our physical and mental health. Acquiring good habits, knowledge about proper nutrition, the benefits of physical exercise, even at a younger age, will contribute to making aging easier, i.e. let's slow down aging, be more satisfied both mentally and physically, and thus we will have a better quality of life.

Unfortunately, the modern way of life has reduced the importance of exercise, it has contributed to the fact that a person moves little or minimally, that he spends a large part of his time next to the television, computer, video games and various other things that hinder a person from being physically active. This has led to the fact that we are increasingly obese, that our postural status is disturbed and worsened and that we are emotionally dissatisfied with ourselves, which can later lead to a number of other problems and diseases.

This research showed that it is desirable to use FMS testing in program planning for the general population. It would also be desirable to conduct a survey on a larger number of respondents and apply a standardized satisfaction test in order to have more reference research results.

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THE RELATIONSHIP BETWEEN POSTURAL AND NUTRITIONAL STATUS IN PRESCHOOL CHILDREN

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Abstract: The aim of the research is to determine the postural status, nutritional status, and their interrelationship, as well as to identify differences in relation to gender dimorphism. The research methods used in this study are observational and descriptive with a cross-sectional design. Data were collected from a sample of 177 participants from the preschool institutions in the city of Bijeljina. The study included 92 female participants and 85 male participants, aged six years (6 ± 0.5). The postural status was assessed using the Napoleon Wolanski method and nutritional status using standardized calibrated instruments that served to calculate the BMI. To determine the relationship between nutritional and postural status, the Spearman correlation coefficient was used, while the chi-square test was applied to determine differences in postural status with regard to gender dimorphism. The study found no significant relationship between nutritional and postural status in preschoolage children, regardless of gender dimorphism. However, it revealed a high prevalence of postural disorders and overweight among the children. Participating in appropriate and organized physical activity during preschool and leisure time is crucial for children's health, requiring consistent observation and evaluation of relevant factors.

Keywords: postural disorders, nutritional status, preschool children, gender dimorphism

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Introduction

It is evident that with the increase in standards and technological achievements, there has been a decline in physical activity among contemporary individuals from birth to old age. Decreased physical activity in children is primarily attributed to: television, computers, transportation, elevators in buildings, etc. We can observe that children are increasingly engaging in less play and physical activities in the form of sports games, while spending more time in a sedentary position, sitting or lying down (Simov et al., 2011). Furthermore, the inactivity of parents and lack of interest in sports and physical activity also have a significant impact on the reduction of locomotion (Strojek et al., 2014).

Poor body posture in preschool and school-age children is an indicator of health issues that can become very serious if not corrected in a timely manner (Džibrić, 2019). Despite this, it often happens that such problems are not detected on time. Therefore, it can be said that educators themselves play a significant role in proper growth and development. Ideally, if educators could recognize the first signs of poor body posture (Brower & Nash, 1979), the prevention of postural disorders would be greatly facilitated. By systematically monitoring and assessing the postural status of children, many health problems can be identified in a timely manner - before they become serious.

The muscles play the most significant role in shaping and maintaining proper body posture, as an active part of the locomotor system. Weakness in specific muscle groups, excessive or unilateral loading, can lead to various disorders in the spine, chest, upper or lower extremities, particularly in the foot. Due to the plasticity and sensitivity of the child's body, the formation of proper postural status is of particular importance during the preschool period of development and in the early years of schooling (Sabo, 2006b).

Considering the significant importance of postural status for human health and the normal functioning of the entire body, exceptional attention should be devoted to this issue. The modern way of life, particularly hypokinesia, poses a real threat to maintaining a normal upright posture. A sedentary lifestyle has a particularly negative impact during the sensitive period of development, specifically the preschool age (Sabo, 2008).

A disorder in postural status is frequently the result of improper foot and leg positioning. The shape of the legs, particularly flat feet, often leads to disorder in the posture of other body parts, especially the spinal column, resulting in back pain. In later stages, this can cause impairments in work capacity and disruptions in the functioning of specific organs.

Overweight and obesity

Obesity is commonly defined as a pathological accumulation of adipose tissue in the body (Wabitsch, 2000), which is most commonly expressed through the body mass index (BMI). Obesity represents a chronic non-communicable disease that arises as a result of multiple factors. There is no complete consensus on the exact causes of this condition. It is believed to arise from the integration of social, behavioral, cultural, physiological, metabolic, and genetic factors (Đokić & Međedović, 2013).

Excessive weight and obesity are responsible for approximately 80% of type 2 diabetes cases, 35% of myocardial infarctions, and 55% of high blood pressure diseases among adults in Europe, leading to over a million annual deaths (Kisić-Tepavčević et al., 2008; Tsigos et al., 2008; Vuković et al., 2012). The association between obesity and these diseases at such an early age contributes to a shortened life expectancy, adding a significant burden of illness in adulthood (Freedman et al., 2001).

Alongside genetic predisposition and other biological factors such as birth weight and intrauterine development, socio-economic status and family living conditions (smoking, alcohol intake, breastfeeding, parental nutritional status, parental education level, living space, and dietary habits) (Nikolić et al., 2023) are considered to play a fundamental role in the development of obesity among children together with the child's behavior (Burke, 2006). Lack of physical activity and excessive food intake are dominant factors contributing to obesity and the occurrence of postural disorders. Physical inactivity leads to muscular hypotrophy and decreased muscle tone, which, combined with improper posture while sitting and walking, contributes to the development of postural disorders.

Postural status

Proper body posture is a state of good musculoskeletal balance that protects against the occurrence and progressive development of postural disorders in the structures responsible for maintaining the body in an upright or other position, whether in motion or at rest (Protić-Gava & Šćepanović, 2012). The concept of proper posture refers to an upright, effortless standing position in which the physiological curves of the spinal column remain within normal ranges (Živković, 2000). In the cervical region of the spinal column, there is a physiological lordosis - a convex curve forward, in the thoracic region, a physiological kyphosis - a convex curve backward, and in the lumbar region, a physiological lordosis is formed with a convex curve forward.

According to Bogdanović and Milenković (2008), poor body posture encompasses any deviation of the physiological curves of the spinal column or feet from the norm, characterized by muscle weakness.

The subject of this study is the postural and nutritional status of preschool children, aiming to determine their nutrition, postural status, their relationship, and potential differences with respect to gender dimorphism.

Method

The research method used in this study involved both exploratory and descriptive approaches with a cross-sectional time determination.

To determine the relationship between the nutrition and postural status of preschool children, data was collected from a sample of 177 participants from preschool institutions in "Čika Jova Zmaj" kindergartens in the city of Bijeljina. The study included 92 female and 85 male participants, all six years old (6 ± 0.5).

Postural status was assessed using Napoleon Volansky's method. Body segments were analyzed in the following order: head posture, shoulder posture, chest development, scapular posture, deviation of the spinal column in the frontal plane, abdominal posture, leg shape, and foot arches (Sabo, 2006a).

According to Napoleon Volansky, a three-step scale with scores of 0, 1, and 2 is used to assess postural status. A score of 0 is given when all parameters are within normal range, indicating a normal status. Score 1 represents a certain deviation from the normal body posture. Score 2 is characterized by significant deviations from the normal status.

To determine longitudinal dimensionality - body height, the anthropometer by Martin was used. Medical scales were used to determine body mass. The instruments used were of standard make and calibrated before the measurements. Body mass index (BMI) was calculated using the formula $BMI = \text{kg/m}^2 = \text{weight (kg)} / \text{height (m)}^2$, and the classification of participants was based on accepted values for overweight and obesity in children and adolescents (Cole et al., 2000). When values are equal to or above the 95th percentile for children of the same age and sex, the child is considered obese, while overweight is defined by values falling within the range of the 85th to 95th percentile (Barlow & the Expert Committee, 2007).

All participants, including their parents and caregivers, were thoroughly informed orally and in writing about the testing procedure, its purpose, and implementation. The measurements were conducted by a certified professor of physical education and sports in the kindergarten premises. During the measurements and assessment, the participants were barefoot and in lightweight clothing. The analysis of postural status for each participant was performed at a distance of 2m, with individual body segments being measured and assessed according to a pre-established order. Body height and weight were measured after the assessment of postural status. The collected data were entered into measurement sheets and then processed using data analysis software.

Head posture assessment is determined by its position in relation to an imaginary plane tangential to the upper part of the chest bone (Protić-Gava & Šćepanović, 2012). Head posture was observed in the sagittal plane. Shoulder posture was determined by projecting the tip of the shoulder in the sagittal plane relative to the neck. Shoulders were observed in the sagittal plane. Scapular posture refers to the evaluation of scapular alignment with the chest, specifically their fitting into a unified surface of the shoulders. Scapulae were observed in the frontal plane, from the back view. Chest development was assessed in the sagittal plane, with emphasis on its shape (development). Deviation of the spinal column in the frontal plane was evaluated by observing and assessing lateral deviations of the spinal column. Abdominal posture was observed in the sagittal plane, relative to the chest. Leg shape was observed from the front, and an appropriate rating ("X" or "O" legs) was given depending on the degree of deviation. Foot arch was assessed while standing on one foot, and the evaluation focused on the inner arch of the foot.

The obtained data belong to nonparametric ones and are obtained through the assessment of nutritional and postural status. All participants were initially divided into four categories based on their nutritional status (undernutrition - score 1, normal nutrition - score 2, excessive nutrition - score 3, obesity - score 4). The second division was based on the body posture score according to Napoleon Volanski (Table 1). Based on these two divisions, nonparametric results were obtained and subsequently analyzed. Spearman's correlation coefficient was applied to determine the relationship between nutritional status and postural status, and the χ^2 test was used to establish differences in postural status with respect to gender dimorphism. The level of statistical significance for all statistical analyses was set at $p \leq 0.05$. The data were processed using the statistical software "IBM - SPSS 26.0".

Table 1. Definition of Scores and Grades of Postural Status according to Napoleon Volanski

SCORE	GRADE	DESCRIPTION
0	5	Excellent body posture
1-4	4	Very good body posture
5-8	3	Good body posture
9-12	2	Bad body posture
13-16	1	Very bad body posture

Results

In the total sample of 177 participants, presented in Table 2, the research results indicate that 38.4% of children were normal weight, 31% of children were underweight, while one-third of children (30.6%) had an issue of overweight and obesity.

Table 2. Numerical and Percentage Representation of Nutritional Status in the Total Sample of Participants

NUTRITION LEVEL	N	%
Underweight – score 1	55	31.0%
Normal weight – score 2	68	38.4%
Overweight – score 3	21	11.9%
Obesity – score 4	33	18.7%
Total	177	100%

Table 3 presents the nutrition level among participants in relation to gender. Based on the results, it can be concluded that boys are either underweight or normal weight, while a larger number of girls experience issues with overweight and obesity.

Table 3. Numerical and Percentage Representation of Nutritional Status in Relation to Gender

NUTRITION LEVEL		BOYS	GIRLS	TOTAL
Underweight – score 1	N	31	24	55
	%	17.5%	13.5%	31.0%
Normal weight – score 2	N	32	36	68
	%	18.1%	20.3%	38.4%
Overweight – score 3	N	8	13	21
	%	4.6%	7.3%	11.9%
Obesity – score 4	N	14	19	33
	%	7.8%	10.9%	18.7%
Total	N	85	92	177
	%	48.0%	52.0%	100%

Table 4 displays the assessment of postural status among the entire sample, from which it can be concluded that a very small percentage of children have no deformities (1.8%), 65% have very good posture, and 33.2% of children have good body posture.

Table 4. Numerical and Percentage Representation of Postural Status in the Total Sample of Participants according to Napoleon Volanski

POSTURAL STATUS	N	%
Excellent posture – grade 5	3	1.8%
Very good posture – grade 4	115	65.0%
Good posture – grade 3	59	33.2%
Bad posture – grade 2	0	0.0%
Very bad posture – grade 1	0	0.0%
Total	177	100%

Based on the results from Table 5, the assessment of postural status in relation to gender indicates that girls have better posture compared to boys.

Table 5. Numerical and Percentage Representation of Postural Status in the Total Sample of Participants by Gender

POSTURAL STATUS		BOYS	GIRLS	TOTAL
Excellent posture – grade 5	N	1	2	3
	%	0.6%	1.2%	1.8%
Very good posture – grade 4	N	51	64	115
	%	28.8%	36.2%	65.0%
Good posture – grade 3	N	33	26	59
	%	18.6%	14.6%	33.2%
Bad posture – grade 2	N	0	0	0
	%	0.0%	0.0%	0.0%
Very bad posture – grade 1	N	0	0	0
	%	0.0%	0.0%	0.0%
Total	N	85	92	100
	%	48.0%	52.0%	100%

After establishing the association between the nutrition and postural status in preschool-aged children (Table 6), it can be stated that there is no statistically significant correlation between the nutrition and postural status in preschool-aged children ($r=0.115$).

Individually, a statistically significant correlation was found only between the nutrition and the foot arch ($r=0.036$). Other segments of postural status did not show a statistically significant correlation with the nutrition.

Table 6. Association between the Nutrition and Postural Status

POSTURAL STATUS	NUTRITION LEVEL	
	r	p
Overall postural status score	.091	.115
Head posture	.158	.056
Shoulder posture	.066	.382
Chest posture	-.007	.929
Shoulder blades posture	-.093	.221
Spine posture	-.123	.104
Stomach posture	.068	.367
Leg posture	.089	.238
Feet posture	.158	.036*

The data in Table 7 shows that out of the total number of children, 79.1% have good head posture (grade 0), with 37.3% being boys and 41.8% being girls. 20.9% of children exhibit deviations from normal head posture (grade 1). None of the participants show a higher deviation from normal head posture (grade 2).

The analysis of the significance of differences indicates that there is no statistically significant difference in head posture between genders ($\chi^2= 0.208$, $p= 0.649$).

Table 7. Numerical and Percentage Results of Head Posture Analysis by Gender

HEAD POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	66	74	140
	%	37.3%	41.8%	79.1%
1 = partial deviation	N	19	18	37
	%	10.7%	10.2%	20.9%
2 = extreme deviation	N	0	0	0
	%	0.0%	0.0%	0.0%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2 = 0.208 \quad p = 0.649$				

Although there is no statistically significant difference ($p=0.083$) in shoulder posture among the participants based on gender, it can be observed that girls have better posture (Table 8). Grade 0 is assigned to 25.4% of boys and 35.6% of girls. Less deviation from normal shoulder posture is observed in 20.9% of boys and 15.8% of girls, while significant deviations from normal posture (structural changes) are present in 2.3% of children.

Table 8. Numerical and Percentage Results of Shoulder Posture Analysis by Gender

SHOULDER POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	45	63	108
	%	25.4%	35.6%	61%
1 = partial deviation	N	37	28	65
	%	20.9%	15.8%	36.7%
2 = extreme deviation	N	3	1	4
	%	1.7%	0.6%	2.3%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2 = 4.977 \quad p = 0.083$				

There is no statistically significant difference in chest posture between genders ($p=0.730$).

Table 9. Numerical and percentage results of chest posture analysis by gender.

CHEST POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	52	60	112
	%	29.4%	33.9%	63.3%
1 = partial deviation	N	31	31	62
	%	17.5%	17.5%	35%
2 = extreme deviation	N	2	1	3
	%	1.1%	0.6%	1.7%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2= 0.629 \quad p= 0.730$				

Based on the results in Table 10, it can be stated that an equal number of boys (13.6%) and girls (13.6%) have normal scapular posture. A large number of boys and girls are assigned grade 1 (69.4%), while 3.4% are assigned grade 2.

Analysis of the differences between boys and girls in scapular posture shows no statistically significant differences ($p=0.743$, $\chi^2=0.594$).

Table 10. Numerical and percentage results of scapular posture analysis by gender

SHOULDER BLADES POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	24	24	48
	%	13.6%	13.6%	27.2%
1 = partial deviation	N	59	64	123
	%	33.3%	36.1%	69.4%
2 = extreme deviation	N	2	4	6
	%	1.1%	2.3%	3.4%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2= 0.594 \quad p= 0.743$				

The data in Table 11 shows that slightly over half of the participants (58.6%) do not have deviations of the spinal column in the frontal plane. Minor deviations of the spinal column in the frontal plane are present in 29 boys (16.4%) and 46 girls (26%). None of the participants have significant deviations of the spinal column in the frontal plane.

Analysis of the differences between boys and girls in spinal column deviations in the frontal plane reveals a statistically significant difference ($p=0.033$, $\chi^2=4.564$). By comparing the quantitative indicators in Table 11, it can be observed that the significant difference stems from better results of boys compared to girls.

Table 11. Numerical and percentage results of analysis of spinal column deviations in the frontal plane by gender

SPINE POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	56	46	102
	%	31.6%	26%	57.6%
1 = partial deviation	N	29	46	75
	%	16.4%	26%	42.4%
2 = extreme deviation	N	0	0	0
	%	0.0%	0.0%	0.0%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2= 4.564 \quad p= 0.033^*$				

Normal abdominal posture is present in 30.5% of boys and 31.7% of girls. Deviation from normal abdominal posture, which falls under the functional stage of postural disorders, is present in 16.9% of boys and 20.3% of girls.

Based on the results in Table 12, it can be concluded that there is no statistically significant difference in abdominal posture between boys and girls ($p=0.520$).

Table 12. Numerical and percentage results of analysis of abdominal posture by gender

STOMACH POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	54	56	110
	%	30.5%	31.7%	62.2%
1 = partial deviation	N	30	36	66
	%	16.9%	20.3%	37.2%
2 = extreme deviation	N	1	0	1
	%	0.6%	0%	0.6%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2 = 1.307 \quad p = 0.520$				

The results of the leg posture analysis (Table 13) indicate that there are no statistically significant differences between boys and girls ($\chi^2=0.417$, $p=0.519$). Normal leg posture is present in 53.1% (94) of participants, with a similar number of boys (42) and girls (41) showing minor deviations from normal leg posture.

Normal foot arch is observed in 67 participants, including 28 (15.8%) boys and 39 (20%) girls. Less deviation from normal foot status is seen in slightly less than half of the participants (49.2%), while a larger deviation is present in 13% (7.9% male participants and 5.1% female participants).

The results in Table 14 indicate that there is no statistically significant difference in foot arch between genders ($p=0.268$).

Table 13. Numerical and percentage results of the leg posture analysis by gender

LEG POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	43	51	94
	%	24.3%	28.8%	53.1%
1 = partial deviation	N	42	41	83
	%	23.7%	23.2%	46.9%
2 = extreme deviation	N	0	0	0
	%	0.0%	0.0%	0.0%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2 = 0.417 \quad p = 0.519$				

Table 14. Numerical and percentage results of the feet posture analysis by gender

FEET POSTURE		BOYS	GIRLS	TOTAL
0 = no deviation	N	28	39	67
	%	15.8%	22.0%	37.8%
1 = partial deviation	N	43	44	87
	%	24.3%	24.9%	49.2%
2 = extreme deviation	N	14	9	23
	%	7.9%	5.1%	13.0%
Total	N	85	92	177
	%	48.0%	52.0%	100%
$\chi^2= 2.632 \quad p= 0.268$				

Discussion

Based on the results of the overall sample's nutritional status, it can be concluded that one-third of the children (30.6%) from the total sample have a problem with excessive body weight (11.9% - overweight, 18.7% - obesity). These results are consistent with the study conducted by Kisić-Tepavčević and colleagues (2008). Among all the participants of the study, 15.2% of children were overweight, while 15.5% were obese.

The results of the nutritional status in relation to gender indicate that a larger number of female participants have issues with overweight and obesity compared to male participants. These results can be attributed to the higher physical activity levels of boys in this age group.

The assessment of the overall sample's postural status according to Napoleon Volanski reveals that a very small percentage of children have excellent body posture (1.7%), while 115 participants (65%) have very good body posture, and 59 participants (33.3%) have good body posture. The measurement results indicate that even 169 out of 177 participants (95.5%), included in the study, have two or more deformities. Based on the results of the postural status in relation to gender, it can be said that girls have better postural status compared to boys.

Regarding the results of the correlation between nutritional status and postural status, there is no statistically significant correlation ($p=0.115$) between these two parameters. Similar results were obtained by Da Silva and colleagues (2011) in their study aimed at determining differences in postural status between normally nourished

and obese children. The results showed no statistically significant differences in postural status in relation to nutritional status.

Individually examined, a statistically significant correlation is only observed between nutritional status and the postural status of the feet ($p=0.036$). These results are consistent with the findings of similar studies conducted in Poland and Iran at a similar age (Jankowicz-Szymanska & Mikolajczyk, 2016; Sadeghi-Demneh et al., 2016; Shapouri et al., 2019). There are numerous factors contributing to the occurrence of flat feet, but most authors cite overweight and obesity as one of the factors increasing the frequency of this deformity (Živković et al., 2018; Kapo et al., 2020).

The analysis of differences in the status of individual body segments of the participants in relation to gender reveals that in most segments (head posture, shoulder posture, chest development, scapular posture, abdominal posture, leg shape, and foot arch), there is no statistically significant difference. Considering that these are children with relatively similar lifestyles both in kindergarten and outside of it, this result is expected.

A statistically significant difference is only observed in the deviation of the spinal column in the frontal plane ($p=0.033$, $\chi^2=4.564$) in favor of boys (16.4%) compared to girls (26%). This difference is challenging to explain, but it may be attributed to insufficient muscular development in girls compared to boys. The greater muscular development in boys may indicate their higher physical engagement, particularly in free activities, at this age.

Although there are no statistically significant differences in terms of gender dimorphism, the quantitative results of other body segments should not be overlooked. A large number of children have deviations from normal body posture (functional stage), which represents a potential hazard for the development of so-called structural changes, which are permanent and significantly jeopardize normal growth, development, and functioning of the organism.

The results of many studies (Sabo, 2006a; Đorđić, 2007; Obradović & Milošević, 2008; Pavlović, 2012; Romanov et al. 2014) demonstrate a high prevalence of postural disorders in the foot status among preschool-aged children. These results are in line with the findings of this study, as a large number of children have minor (49.2%) or major (13%) deviations from normal foot arch. This data emphasizes the need to focus the most attention on this postural disorder. Timely diagnosis of flat foot changes is a priority task in order to take appropriate measures and prevent other postural disorders that arise as a consequence of flat feet.

Conclusion

The study included 177 participants from preschool institutions, specifically "Čika Jova Zmaj" kindergarten, with 85 male participants and 92 female participants. The aim of the research was to determine the postural status, degree of nourishment, and their relationship, as well as to identify differences in postural status based on gender dimorphism.

The results showed that there is no statistically significant correlation between the degree of nourishment and postural status in pre-school-aged children. These findings align with a previous study on the association between the degree of nourishment and the frequency of postural disorders of the spinal column in 2018 (Cvetković & Cvetković, 2018). Additionally, there is no statistically significant difference in postural status between participants based on gender dimorphism. In other words, it could be concluded that the degree of nourishment is not a key factor in the development of postural disorders. However, normal nourishment is a prerequisite for proper growth, development, and overall functioning of the organism. The relatively similar lifestyle and uniform growth and development of preschool children contributed to the absence of differences in postural status based on gender affiliation.

The results of this research indicate that a significant number of children have issues with postural disorders and excessive nourishment. These data suggest that both educators and parents have a responsibility to guide children in maintaining proper body posture during sitting, walking, and physical activities. Proper and systematic exercise is essential for preserving and improving children's health (Bićanin et al., 2017), both during their time in preschool institutions and in their free time (Ćirić et al., 2015). Controlled and appropriately dosed physical activity can prevent the occurrence of excessive nourishment (Epstein et al., 1998; Mo-suwan et al., 1998; Eliakim et al., 2007; Ling et al., 2016; Janicke et al., 2021) and postural disorders, as well as correct existing disorders (Protić-Gava, 2014; Milić et al., 2021; Calcaterra et al., 2022). Constant monitoring and analysis of relevant parameters, including postural status, are crucial for designing physical activity programs in preschool institutions based on accurate data (Maksimović & Lertua, 2018). Establishing habits of healthy eating and physical activity greatly depends on the approach of educators (Čvrljak & Međimorec, 2021).

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QUALITY HEALTH FOR CARE FOR ATHLETES ENABLES TOP SPORTS RESULTS

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Abstract: Today, millions of people around the world play sports. For some, sport is fun and recreation, and for some, it is job. Health and sport are closely related to each other, without health there is no top sport. An orderly life is a precursor to top sports results.

Keywords: Sport, Health, Athlete, Medical Professionals

Introduction

The fundamental position of the individual sports medicine practitioner is to offer the excellent care to the athlete as a part of the sports medicine team (Miranda-Comas et al., 2021). The team idea applies now no longer handiest to the sport group, or employer, however additionally to the clinical companies who deal with the athletes. The clinical team consists of numerous key gamers amongst whom very frequently the primary participant isn't the pinnacle group doctor, however the licensed athletic trainer. He or she serves because the "gatekeeper" of the clinical team, and the on-subject issuer for the maximum component. However, the team doctor has the management position withinside the employer, control, and provision of care of athletes in character, team, and mass participation wearing occasions. The team doctor have to own the academic qualifications that consist of subspecialty education in sports medicine (withinside the United States) or distinctiveness education in sports activities and exercising sciences (in maximum countries, besides the United States), preferably with board certification and persisted clinical schooling. He or she have to be gifted withinside the prevention and care of musculoskeletal accidents and clinical situations encountered in sports activities, in particular on the sector of play. The team doctor recruits and integrates clinical knowledge with clinical consultants, licensed athletic running shoes, and different allied health care specialists like nurses, physical

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therapists, occupational therapists, psychologists, nutritionists, exercising physiologists, chiropractors, and rubdown therapists. Aided with the aid of using the athletic care community, the team doctor additionally educates athletes, coaches, parents/guardians, and administrators. The team doctor is in the end accountable for an athlete's clearance to take part and the go back-to-game choice after an harm. Additionally, the team doctor have to make certain compliance with nearby, nation, and/or federal rules, regulations, and laws, school and governing frame guidelines, requirements, policies, rules, and affected person privateness laws. The head team doctor oversees sideline preparedness that's the identity of and making plans for clinical offerings to sell the protection of the athlete, to restriction harm, and to offer hospital therapy on the web website online of exercise or opposition.

Health

An green education application that improves physical capacities and overall performance have to consist of intense, fatigue-inducing sessions (Hauswirth et al, 2013). Fatigue is a nation because of physiological and mental constraints main to a discount in physical or intellectual overall performance. For an extended time, fatigue became handiest identified thru its consequences, inclusive of decreased paintings output. Athletes are specially worried with acute fatigue, a kind this is perceived as everyday, because it impacts healthful humans and has identifiable origins. Characterized with the aid of using a speedy onset, acute muscular fatigue performs a defensive position: By forcing athletes to lessen paintings output or to forestall exercise and relaxation, it prevents their organic constants from getting too a long way eliminated from homeostasis. The disturbances to the body's organic constants delivered on with the aid of using exercising then cause adaptive reactions that counter the metabolic modifications and restore the structural harm resulting from the education session.

The recuperation duration all through which those adaptive anabolic reactions arise have to consequently be adequate, each in length and excellent, to permit for the entire restore of the numerous styles of harm incurred. The majority of studies on exercising education and overall performance has centered entirely on education techniques, even though maximum of the soughtafter diversifications to education genuinely take area all through the recuperation duration. Recovery is one of the least understood and maximum underresearched elements of the exercising-model cycle, despite the fact that committed athletes spend a great deal greater time in recuperation than in energetic education. Further, the recuperation duration is likewise described because the time important for numerous physiological parameters, which had been changed with the aid of using exercising, to go back to resting values.

Health Care

A man or woman or an employer in price of a sports activities interest has a responsibility to offer affordable clinical help to contributors in addition to to spectators (Wong, 2010). To decide if this responsibility has been met, each the excellent and the rate of the remedy have to be taken into consideration. The excellent of the remedy can be assessed with the aid of using searching on the qualifications of the issuer and the form of remedy offered. The velocity of the remedy can be decided with the aid of using the reaction time and availability of clinical employees.

There are many distinct ranges of health care companies in the American clinical system. With appreciate to athletic occasions, those companies can be doctors or nurses; greater frequently they may be trainers or emergency medical technicians (EMTs). The preferred of care required of every clinical issuer is primarily based totally at the man or woman's education and qualifications. A better preferred of care is mounted if the magnificence of clinical employees possesses abilities and education past what's anticipated of the affordable layperson. For instance, the same old of care imposed at the clinical career is that the health practitioner have to have met the extent of ability and expertise not unusualplace to the career and adhered to a uniform preferred of conduct.

In the case of a expert, however, the responsibility has an increasing number of turn out to be greater stringent. A expert have to act with the ability and expertise affordable inside his or her distinctiveness. Thus, the developing ranks of doctors training sports medicine may also in the end result in sizeable popularity of sports medicine as a awesome distinctiveness, therefore main to a better preferred of take care of docs that specialize in sports activities accidents in negligence complaints delivered with the aid of using injured athletes. In courtroom docket, the applicable preferred of care will normally be mounted with the aid of using professional testimony.

Generally, clinical employees are taken into consideration unbiased contractors instead of employees, despite the fact that they'll be paid with the aid of using a college district, facility owner, or different supervisory body. As unbiased contractors, despite the fact that clinical employees are located negligent, their negligence can not be imputed to their employers below the doctrine of vicarious legal responsibility. To decide if a health practitioner or different clinical man or woman is an unbiased contractor, the courtroom docket considers the degree of manage exercised with the aid of using the employee's manager over real clinical decisions. There were instances wherein the organisation has been held in charge below the doctrine of vicarious legal responsibility. In those instances, courts have located that the organisation exercised manage and route over the clinical employees.

There are a few unique issues for a health practitioner worried withinside the place of athletics. The first issues the connection among health practitioner and affected person. Typically, the health practitioner is paid with the aid of using the affected person. However, in sports activities, the health practitioner is employed and paid with the aid of using the athletic employer. Usually, there may be a exclusive dating among health practitioner and affected person. When the health practitioner is hired with the aid of using a 3rd party, however, the everyday dating isn't mounted. In impact, then, group docs have masters to serve: the athletic employer for which they paintings and the gamers they deal with. In addition, even as each the employer and the participant are worried with restoring the participant to complete health, there are conditions wherein the group may also be looking for a shorter rehabilitation application even as the participant may also desire a greater careful time body for recuperation. The group health practitioner is positioned withinside the middle. The health practitioner's quandary is highlighted with the aid of using fits regarding the team doctor if the participant believes the doctor has now no longer positioned his or her long-time period recuperation earlier than the application's wishes.

Sports Cardiology

Participation in prepared sports activities throughout the globe has markedly elevated during the last decade, and, in parallel, the medical exercise and studies interest focused at the cardiac take care of athletes in the field of sports activities cardiology has multiplied exponentially (Engel et al., 2021). Recognizing the precise diagnostic and control demanding situations in optimizing the heart health of athletes and reflective of the growing significance assigned to shielding the hearts of athletes, the American College of Cardiology (ACC) in 2011 released the ACC Section of Sports and Exercise Cardiology.

A basis withinside the boom of sports activities cardiology has been the improvement of a refined and more advantageous know-how of the physiological manifestations of exercising at the coronary heart. This progressed characterization of exercising-brought about cardiac remodeling, spotting the relative influence of such modifiers as game kind, length and depth of education, age, gender, race, length, and genetics, has hugely progressed our capacity to display screen for subclinical cardiac ailment and differentiate everyday body structure from pathology. It is critical for healthcare companies who display screen and deal with athletes in any respect ability ranges to have a firm draw close of the tenets of sports activities cardiology and conveniently to be had reference statistics encompassing the important thing factors inside this developing field.

The cumulative medical reveal in received from worrying for athletes education and competing with current cardiac situations has resulted withinside the speedy evolution of pointers guiding wearing participation and the popularity of the significance of shared choice-making. A contemporaneous project has been the devastation wrought with the aid of using the COVID-19 pandemic. Sport and health organizations now confront signifcant demanding situations designing and enforcing secure athlete return to play (RTP) strategies. In this textbook, we are able to evaluate the essential troubles and data surrounding issues of capacity cardiac sequelae of COVID-19, and their effect on athlete screening and RTP plans, because the most up-to-date detail withinside the field of sports activities cardiology.

Team

As a group, clinical companies are accountable for the coordination of preparticipation evaluations, on-subject harm control, clinical take care of off-subject ailments and accidents such as rehabilitation, and secure go back to game (Miranda-Comas et al., 2021). They additionally hold open strains of conversation with different group contributors to make certain continuity of take care of the athlete, offer for suitable schooling and counseling concerning nutrition, power and conditioning, ergogenic aids, substance abuse, and different clinical troubles that might have an effect on the athlete, and maintain right documentation and report keeping.

Just like for the athletes, instruction begins offevolved all through the preseason. Preseason making plans promotes protection and minimizes troubles related to athletic participation on the site of exercise or opposition. During this time, potential athletes have to entire a preparticipation assessment. The chain of command that establishes and defines the duties of all events worried is developed. The Emergency Action Plan (EAP) is applied and rehearsed, guidelines for compliance of mounted requirements for the care of the athletes and environmental evaluation for occasion cancellation are revised, right documentation exercise and the recruitment of a community of companies are mounted. During real sport days or occasion days, the group doctor coordinates all clinical operations, prepares the clinical bag and supplies, critiques the EAP with the entire group, assigns roles to every clinical group member, and guarantees right conversation with the clinical group contributors and occasion/sport employees. Lastly, postseason assessment of sideline insurance optimizes the hospital therapy of injured or sick athletes and promotes persisted development of clinical offerings for destiny seasons.

Members

The length and the composition of the clinical group will rely upon the philosophy and finances of the governing frame, the variety of athletes, kind and variety of sports activities, delegation or group help employees, officials, administrators, coaches, and on occasion athletes' companions (Rodriguez-Negron et al., 2021). Members of the clinical group have to consist of sports activities remedy physicians, orthopedists, nurses, bodily therapists and athletic running shoes, chiropractors, psychologists, and nutritionists. The International Olympic Committee (IOC) recommends one doctor in step with 50 to 60 contributors of the delegation, however this variety varies thinking about the want for 24-hour doctor insurance (on-call) all through the preparatory and opposition periods. No precise advice exists for the alternative contributors of the multidisciplinary group. This variety will rely upon philosophy, allowed licenses withinside the host country, finances, and delegation needs.

As clinicians, there are a few fundamental matters to don't forget in instruction to tour with a group or a multisport delegation. These elements consist of the finances, the precise game(s) wherein the athletes will participate, place of the wearing venues, transportation, security, employer on the venues, the to be had clinical centers on the venues, medical health insurance for the athletes and delegation contributors, and the doctor's legal responsibility insurance.

Each athlete have to entire a preparticipation exam at the least 6 weeks previous to the occasion or, if now no longer feasible, at the least offer fundamental medical information to the clinical group. Having medical information from the relaxation of the contributors of the delegation or group-help employees is likewise suitable given that clinical interest can be supplied now no longer handiest to the athletes however additionally to the coaches, administrators, and different delegation officials.

The clinical body of workers will provide fundamental clinical offerings in a preset clinic, normally a separate lodge room or a chosen apartment, and simultaneous on web website online insurance. During opposition, a time table have to be mounted to make certain that each one regions are blanketed in particular excessive chance sports activities, and that the clinical group receives right relaxation and has the possibility to help their groups as fan.

Injury Prevention

In the sector of harm studies, a broadly used conceptual version to manual the improvement of preventive measures is the collection of prevention (Nauta et al., 2017). The first step withinside the improvement of a preventive programme is an

intensive description of the harm in phrases of occurrence and severity. Next, the elements and mechanisms that play a component withinside the incidence of sports activities accidents want to be diagnosed. The third step is to introduce measures which are probably to lessen the destiny chance and/or severity of sports activities accidents. Such measures have to be primarily based totally at the aetiology and the mechanisms as diagnosed withinside the 2d step. Finally, the impact of the measure have to be evaluated with the aid of using repeating the primary step, which results in so-known as time-fashion evaluation of harm patterns. Ideally, the preventive programme is evaluated acting a randomized managed trial (RCT) wherein half of the contributors get hold of the programme and the alternative half do now no longer. This form of studies became, till recently, pretty scarce withinside the sports activities harm prevention subject, in particular in children. However, the variety of excessive excellent research is growing.

According to the collection of prevention, organising the aetiology and mechanisms of sports activities accidents is the second one step withinside the improvement of a preventive degree. The phrase aetiology is derived from the Greek word aitiologia, which manner 'giving cause for', and aetiology is, consequently, the observe of causation. In harm prevention, the maximum vital reasons are normally divided into fundamental classes: traits of the person that affect harm chance (intrinsic chance elements), and traits that aren't associated with the character (extrinsic, or environmental chance elements). Examples of intrinsic chance elements are age, gender, and physical fitness. Extrinsic chance elements consist of, for instance, the form of sports activities and the usage of defensive equipment. The mixture of intrinsic and extrinsic chance elements makes up the susceptibility of a toddler to maintain an harm. It is critical in sports activities harm prevention that now no longer handiest a chance thing is mounted, however additionally that the underlying harm mechanism is understood.

Many conceptual models are to be had to explain the interplay among chance elements and the incidence of accidents. Many chance elements will affect sports activities behaviour and next harm chance with the aid of using influencing the determinants of behaviour (i.e. attitude, social influences, and selfefficacy). Despite the multi-causal nature of sports activities accidents, many research withinside the subject of sports activities harm prevention have focused on figuring out unmarried inner and outside chance signs from a clinical, mono-causal factor of view, instead of from a multi-causal factor of view. Another hassle arises while a version consists of an inciting occasion as a factor of the causal pathway.

Illegal Activities

The doctor may also get worried in sports or techniques of enhancing athletes' overall performance that aren't illegal-neither medically nor in step with the FIS/IOC (International Ski Federation/International Olympic Committee) rules but nevertheless controversial as to the ethics of such exercise (Ronsen et al., 2003). Administration of intravenous beverages and dietary answers to an athlete for the motive of rushing up recuperation among competitions is an instance of sports activities remedy exercise that may be controversial. Injection of nearby anaesthetics earlier than a opposition to do away with ache from an harm is now confined in the closing 24 h in step with FIS doping guidelines, however although now no longer usually practised with the aid of using all group physicians. Even in the prison time body, this exercise may also on occasion be taken into consideration questionable each medically and ethically. Use of altitude simulating facilities including tents, single rooms or complete homes has been growing in skiers from distinct countries, and numerous champions within the closing global championship and Olympic video games had used that approach. So a long way there may be no limit on the usage of such centers, and below right clinical supervision there may be no recognised health chance related to residing at slight altitudes below those situations for a restrained duration. However, the usage of such centers, whether or not one considers altitude simulation a important and handy step within the acclimatization manner for altitude competitions or a hazard to a healthful and socially ideal improvement of sports activities, have to be discussed. IOC, FIS and World Anti-Doping Agency (WADA) have to additionally make a clean ruling on whether or not they may be prison or now no longer.

Several different 'now no longer illegal' manner and techniques for enhancing acclimatization (to heat, cold, altitude, etc.), education effects, regeneration, recuperation and overall performance do exist, and absolutely greater will come within the destiny. It is the doctor's responsibility to keep away from the usage of any clinical remedy or physiological manipulation that comes into war with the guidelines and guidelines of the game, despite the fact that the manner, techniques or medicinal drugs used aren't but labeled as doping. Furthermore, it's far vital to emphasise that the usage of any banned clinical remedy or physiological manipulation have to be avoided, irrespective of whether or not or now no longer it is able to be disclosed in a doping manage.

Players

Sport is normally performed in a everyday season with weekly games (Ratten, 2018). There are a huge variety of various sports activities that variety in how they may be performed to the variety of gamers worried within the opposition. Sport is commonly described as a machine of sports that includes a few shape of bodily tour or

intellectual interest. In addition, there are typically customs or requirements of conduct that exist in game, which have an effect on how it's far performed. This manner that there may be a degree of subjectivity approximately suitable ethical conduct approximately what's proper withinside the sports activities context. There are guidelines in game however that is supplemented with the aid of using codes of conduct, which replicate suitable conduct.

Sport typically has goal measures of overall performance in phrases of scoring a intention or having the excellent overall performance. Although those measures may be subjective as there may be a degree of inventive assessment in how they may be judged. This artistry is turning into greater obtrusive in new sports activities which have grown along with way of life occasions inclusive of surfing. In maximum sports activities the overall performance is decided with the aid of using the very best score, that's an goal assessment. However, this will be stimulated with the aid of using technical signs which are mixed with inventive capacity, which takes place withinside the case of gymnastics.

Sport is one of the oldest pursuits in society and is essential to the healthful functioning of a society. In the beyond game became taken into consideration a enjoyment interest and there had been greater amateurs than specialists even though that is converting in society. The time period game is on occasion known as enjoyment or leisure sports relying at the environment. The fundamental feature of game is withinside the opposition as gamers project every different so that it will have the excellent overall performance. Sport can make use of character bodily interest or styles of era for opposition. This consists of the usage of motors or animals as a part of the game. Car racing is a famous game, that's depending on the technological improvements of the motor racing industry. Horse racing is likewise famous further to greyhound racing that makes use of animals.

The key benefits of game are withinside the bodily interest however additionally mental well-being. In the beyond there has been greater guide labour however this has modified with the provider economic system so humans in sedentary or workplace jobs make use of game in a distinct way. Social relationships are a key a part of game and that is a shape of networking that enables construct higher network spirits. However, there are greater character sports activities which have turn out to be famous in current years because of the greater individualistic nature of society. This consists of aerobics and yoga, which can be carried out in organizations however attention on character overall performance. In addition, a few sports activities have distinct classes in step with gender and weight that make opposition a greater even gambling subject. This is pondered in a few sports activities being primarily based totally at the excellent overall performance or be judged thru a committee who makes a decision who became the excellent participant. This takes place in sports activities inclusive of boxing and gymnastics that has rankings for overall performance from some of humans at the judging committee.

Conclusion

Preventive examinations are used to identify risk factors and early detection of diseases in people who have no symptoms or clinical signs of the disease. The ultimate goal is to detect potential problems in the asymptomatic phase of the disease so that the treatment is timely and successful. Preventive examinations of athletes are an important mechanism for protecting the health of athletes because they represent health procedures within which the current state of health of athletes and risk factors crucial for disease prevention can be determined.

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COMMUNICATION

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THE IMPACT OF THE INTRODUCTION OF THE VAR TECHNOLOGY ON THE SPECTATORS AND MEDIA COVERAGE OF FOOTBALL

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Abstract: *The paper deals with the introduction of VAR (Video Assistant Referee) as a technical aid for the purpose of minimizing refereeing mistakes and errors. The research in the paper includes the definition of VAR and the observations of various experts, scientists and survey participants. The goal of the research is to determine the influence of VAR on the audience, media and quality of the media coverage of football. The paper provides five hypotheses. The first one implies that VAR makes journalists and media more critical of refereeing mistakes. The second one entails that the introduction of the VAR technology has increased the trust in referees. The third hypothesis suggests that VAR has a negative effect on football as a game as well as on the emotions of spectators and fans. The fourth one relies on the fact that the application of VAR is still in the development stage and the last one presupposes that football is still more prone, despite the application of VAR, to discussions about refereeing decisions than other sports. In order to support the above hypotheses, a survey was conducted. The content analysis is based on the quantitative method, though some elements of the qualitative method have also been used. The discussion has generated the elements which confirm the set hypotheses. The concluding considerations indicate the need to proceed with the use and development of IT technology in sports as well as with related research.*

Keywords: VAR, refereeing decisions, football, controversies, media

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Introduction

Sports have always offered plenty of intrigue when it comes to refereeing decisions. The development of information technology has improved the quality of sports in general. This particularly refers to the introduction of the VAR (Video Assistant Referee) technology. VAR comes as a team of match officials who review video footages from a football game as to provide the referee with assistance. The application of the VAR technology is made possible only if the match organiser has met all the relevant VAR criteria (as prescribed in the VAR Manual) and obtained a written licence and approval from IFAB and FIFA (IFAB, 2019:135). In this sense, the paper presents VAR as a new technological tool.

Considering that the paper is aimed at defining the role of VAR in sports generally and in football in particular, the relating research is designed to revolve around five hypotheses which reflect the total impact of sports-related information technology on the audience, media and overall quality of reporting and media. The research is based on a survey conducted using both the quantitative and qualitative method as to confirm the set hypotheses.

The first hypothesis implies that VAR makes journalists and media more critical of refereeing decisions and mistakes. The second one refers to the introduction of the VAR technology in the context of building trust in referees. It is expected to demonstrate whether VAR has a positive or negative effect on public, media and fans perception of football referees performance. Here a particular emphasis is placed on the influence of VAR on the public, media and fans with respect to controversial refereeing decisions, i.e. non-sanctioned offences. The key question is whether VAR will reduce the number of those or not.

The third hypothesis suggests that VAR exercises excessive influence on football as a game and on spectators and fans. Indeed, it is not clear if VAR represses emotions when play is stopped for several minutes, particularly when that happens in the final stage of the game.

The fourth hypothesis entails that VAR is still imperfect and that it will take years to improve this system as a whole, meaning the technology itself and the performance of on-field and VOR (Video Operation Room) referees and other actors. The last hypothesis indicates that football is still more prone, despite the application of VAR, to discussions about refereeing decisions than other sports provided with the VAR or similar technology.

The completed survey has resulted in key elements needed to confirm or overrule the set hypotheses. The concluding considerations justify the reasons for carrying out such research. This particularly concerns the development of sports-related information

technology and its application, which should contribute to greater objectivity and better sports coverage and reporting.

Basic VAR Features

As part of preparational topic elaboration, here are some basic features of the VAR technology that help referees make important on-field decisions. Briefly, VAR match officials are located in a VOR (*Video Operation Room*) where they review all the controversial moments in the game and directly communicate with the referee through headphones (FIFA, IFAB 2019:135). There are two ways of reviewing video footage from the game or in other words, there are two ways how VAR exercises its influence on the game. The first one is the so-called *silent check* where the match officials in the VOR inform the referee that there has been no mistake in assessing some situation in the game, so there is no need to stop play. The other situation requires referee's consultation with the match officials in the VOR. The latter one relates to moments in which it is difficult to determine what actually happened and thus reviewing video footage is necessary (IFAB, 2018).

When VAR detects a clear refereeing mistake, three scenarios are possible. In the first one, the original refereeing decision is overturned on advice of VAR. The second one refers to *on-field review*, i.e. the referee stops play and has another look at the situation on the sideline monitor. In the third one, the referee ignores VOR recommendation (IFAB, 2019) According to the IFAB Laws of the Game, there are 12 VAR-related principles which shall be adhered to by match officials:

A video assistant referee (VAR) is a match official, with independent access to match footage, who may assist the referee only in the event of a 'clear and obvious error' or 'serious missed incident' on the field.

The referee must always make decision, i.e. the referee is not permitted to give 'no decision' and then use VAR to make the decision.

The original decision given by the referee will not be changed unless the video review clearly shows that the decision was a 'clear and obvious error'.

Only the referee can initiate a 'review'; VAR (and other match officials) can only recommend a 'review' to the referee.

The final decision is always taken by the referee.

There is no time limit for the review process.

The players and team officials must not surround the referee or attempt to influence if a decision is reviewed, the review process or the final decision.

The referee must remain 'visible' during the review process to ensure transparency.

If play continues after an incident which is then reviewed, any disciplinary action taken/required during the post-incident period is not cancelled, even if the original decision is changed (except a caution/sending-off for stopping or interfering with a promising attack).

If play has stopped and been restarted, the referee may not undertake a review.

The period of play before and after an incident that can be reviewed is determined by the Laws of the Game and VAR protocol.

As VAR will automatically 'check' every situation/decision, there is no need for coaches or players to request a 'review' (FIFA, IFAB 2019: 135,136).

When the review process is completed, the referee must show the 'TV signal and communicate the final decision. The referee will then take/change/rescind any disciplinary action (where appropriate) and restart play in accordance with the Laws of the Game (FIFA, IFAB 2019: 141).

The application of technological or more precisely, IT achievements in sports has been considered worldwide by many experts and scientists for years. Here are some VAR-related research results are opinions:

Footballers' physical effect is particularly diminished in the knockout stage during extra-time after a deadlocked match following the regulation 90 minutes (Lago-Peñas et al., 2015.)

In the event of a football game with multiple stoppages, it seems that 'additional time' results in greater physical stress as well as in deterioration of players' fitness and technical performance (Rampinini et al., 2009.; Winder et al., 2018).

Sports officials realized long time ago that responsibility should be a priority when organizing top-level sports competitions with a fair and transparent approach. (D. R. Mascarenhas, Collins, Mortimer et al., 2005).

There are different examples of using ball tracking cameras in tennis, football and cricket. Such cameras are utilized to check whether the ball has crossed the (goal)line or not. Moreover, basketball and American football officials have been using devices for reviewing controversial situations in a game for quite a long. Technological innovations foster fair decision-making. (Leveaux, 2010.)

The use of technology may improve the decision-making process in situations involving temporal and spatial elements, i.e. position of the ball and player at a particular moment. That is particularly evident in tennis and other sports when ball tracking cameras are used (Kolbinger & Lames, 2017.).

Research shows that even top-level tennis tournaments have seen as much as 27% of bad line calls with the average fault of 33,2 mm. Such errors can be avoided using new technologies such as VAR. (Carboch etc. 2016)

Other studies demonstrate that slow motion can amend a disciplinary sanction and turn a yellow into a red card (Caruso et al., 2016.; J. Spitz et al., 2018).

The IFAB Laws of the Game confine VAR interventions to major incidents such as goals, penalty kicks, direct red cards and mistaken identities. Besides, VAR is invited to intervene only in case of clear and obvious mistakes and errors. Other research indicates that the accuracy of on-field multiple-referee decisions ranges from 64 to 77% (Gilis et al., 2006).

There are studies revealing a growing number of sports officials who take account of the context of a situation to make an assessment. The IFAB Laws of the Game leave some space for interpretation and researchers have even demonstrated that the noise coming from the audience may have effect on the referees (Nevill et al., 2002.).

VAR can intervene when a bad call results from one or several steps in the decision-making process and is based on (a lack of) attention and perception (e.g. when a serious foul occurs within the penalty area or when the referee fails to see that the ball has crossed the goal line). Furthermore, VAR processes and categorizes received information (e.g. when a foul is categorized as an offence implying a yellow instead of a red card) as well as reacts to a decision (for instance, when an offence is well-perceived and categorized, but a yellow card is given to a wrong player). (Plessner & Haar, 2006)

What else has been examined in regard to the VAR technology is the number and duration of VAR interventions per game. (Ryall, 2014.).

VAR may, for example, indicate a misjudgement concerning the position of the ball. Such a practice can be applied in other sports too where limited human perception is to be blamed for various misjudgements and omissions; for instance, whether the ball has hit a player's leg in field hockey or if a player was in an offside position when the ball was passed to him. (Myint, 2015).

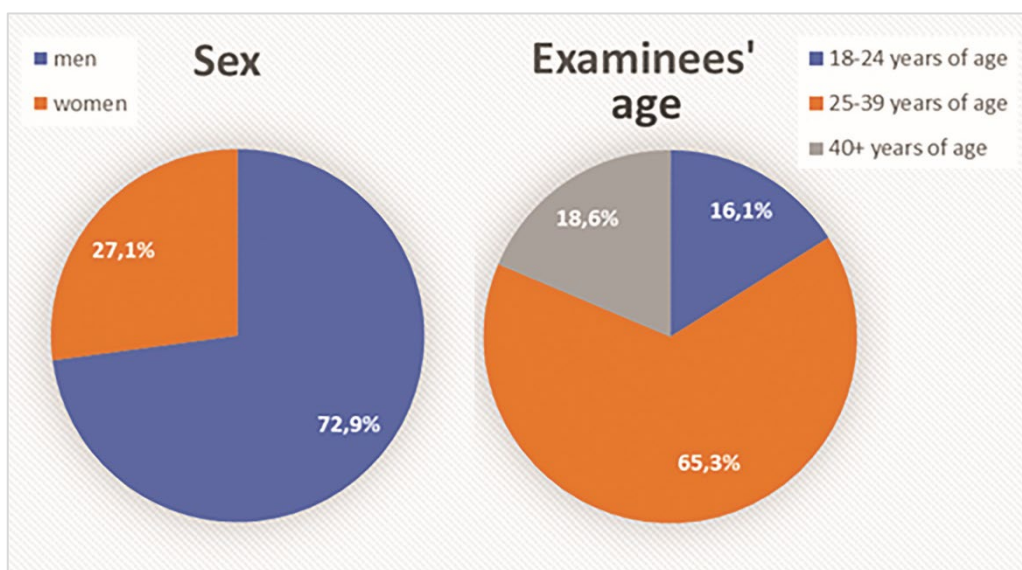
The above studies and conclusions prove that further VAR-related research is necessary to improve the refereeing decision-making and -monitoring process as well as to improve the quality of sports in general.

Survey

In order to investigate the public and media feedback to the use of the VAR technology, a questionnaire-based survey was conducted. More precisely, what do people think about the application of VAR in sports, primarily in football? The questionnaire was filled out by 118 examinees and the answers, which were based on watching games of the First Croatian Football League, varied considerably.

The first three questions of the questionnaire relate to the general information about the sex and age of examinees and whether they watch football games in their free time or not. Among 118 examinees, there were 86 men and 32 women. Percentagewise, there were 72.9% of male and 27.1% of female examinees. The prevailing number of male respondents is no surprise since men are generally more interested in football than women and hence know more about VAR than women do. As many as 77 examinees (65.3%) were aged between 25 and 39, 22 respondents were over 40, which makes 18.6% of the total examinees, and in the 18-24 age group, there were 19 persons or 16.1% of the total examinees.

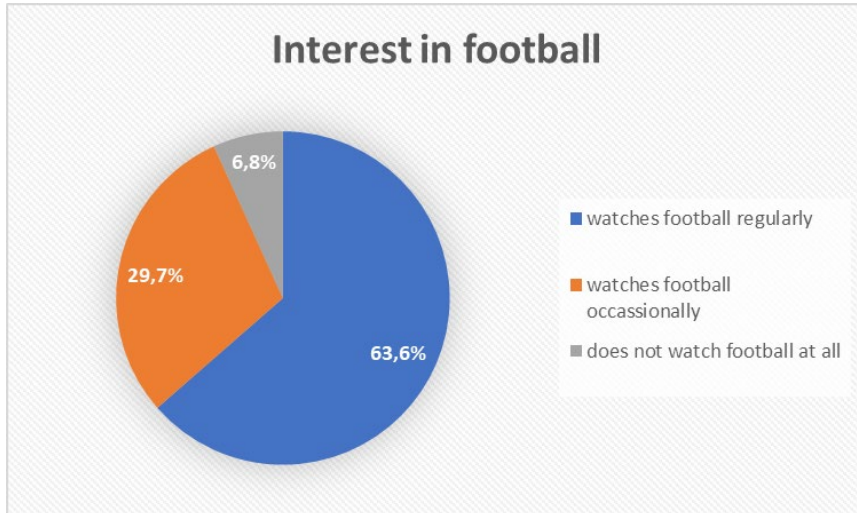
Pie chart 1: Sex and age of examinees



Source: Author's personal files

In terms of evaluation of the examinees' interest in football, 75 examinees (63.6%) claim that they watch football regularly, 35 persons (29.7%) stated that they watch football occasionally and eight respondents (6.7%) asserted that they have no interest in football at all.

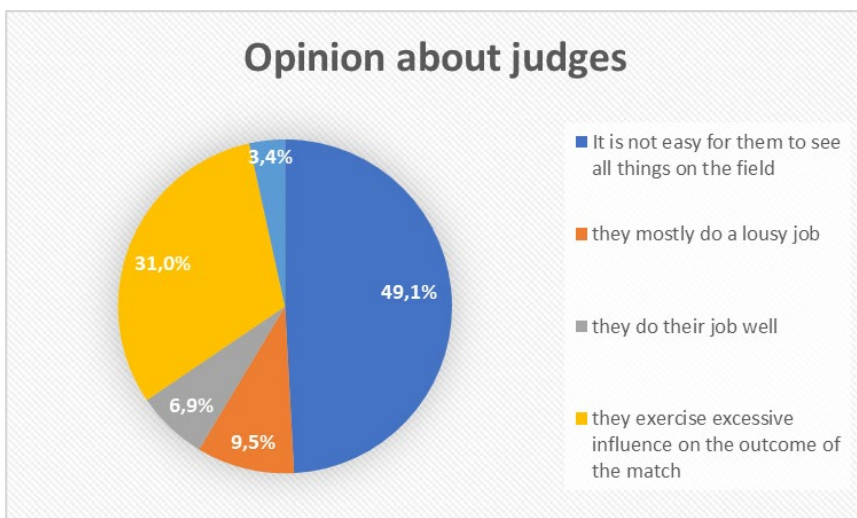
Pie chart 2: Do the examinees watch football?



Source: Author's personal files

The subsequent question required from the examinees to express their opinion about football referees. The examinees could choose among the following answers: "It is not easy for them to see all things on the field", "they mostly do a lousy job", "they do their job well", "they exercise excessive influence on the outcome of the match". They could also formulate their views about this issue independently.

Pie chart 3: Opinion about football referees

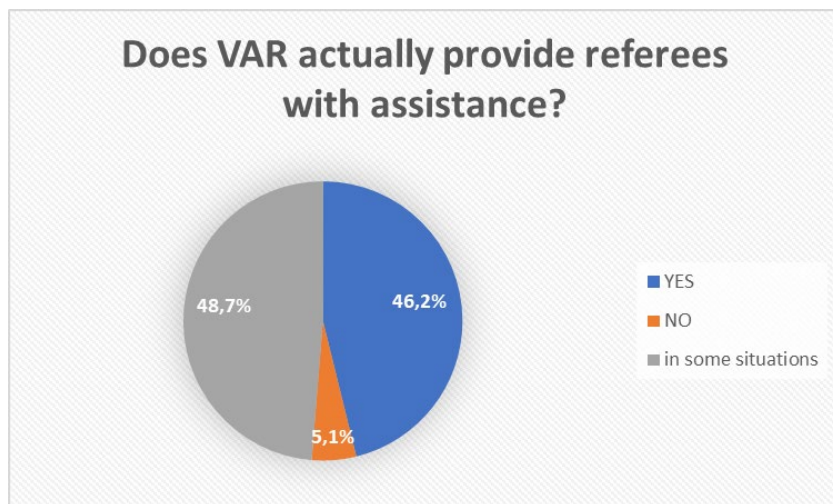


Source: Author's personal files

Most examinees agree that football referees have an exceptionally hard and demanding job. As many as 57 respondents opted for the following answer: “it is not easy for them to see all things on the field”, which makes 49.1% of the total examinees. A further 31% of them or 36 persons chose the fourth answer (“they exercise excessive influence on the outcome of the match”). The rest of the examinees picked either the second (“they mostly do a lousy job”, 11 examinees, 9.5%) or the third answer (“they do their job well”, eight examinees, 6.9%). Among individually formulated answers, the following ones deserve to be singled out: “It is impossible to see all, they have an extremely hard and demanding job, but some confusing mistakes still happen, despite the use of VAR”, “VAR should be used more often”, and “VAR usage depends on who is playing against whom”. These answers imply that in spite of the recognition of the complexity of football refereeing, there is some kind of aversion to football referees. Moreover, the answer also entails that the examinees are not convinced of football referees’ integrity.

The next question was simpler and thus no examinee provided their own answer. The question reads as follows: “Do you think that the introduction of VAR has helped referees in doing their job?”.

Pie chart 4: Does VAR actually provide referees with assistance?

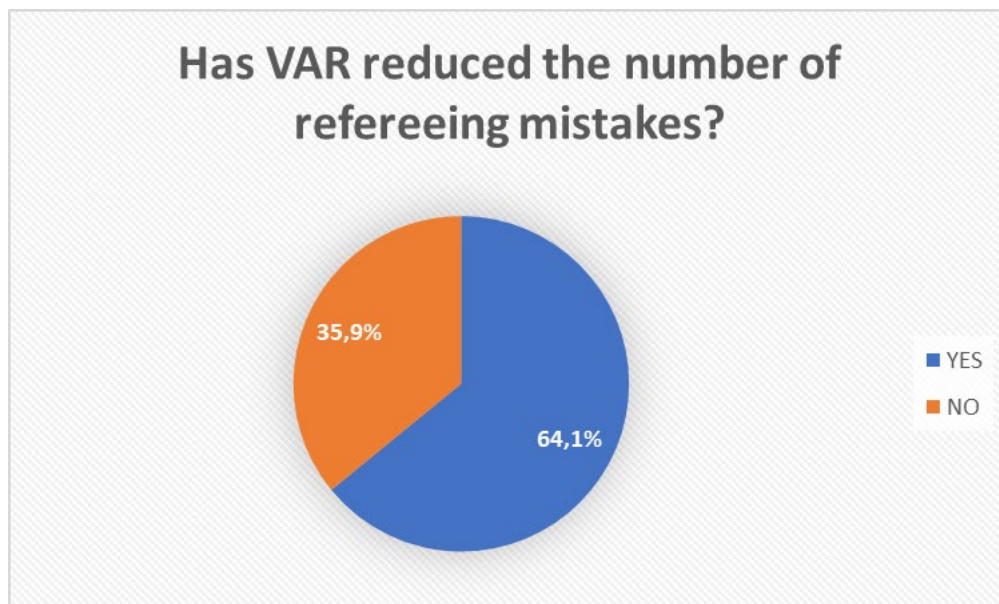


Source: Author's personal files

The greatest share (57, 48.7%) of examinees chose the third answer (“in some situations”). Then, 46.2% of them or 54 persons opted for the first answer (“yes”) whereas only six examinees (5.1%) thought that there is no use of VAR. This simple question enables us to realize that the examinees do believe in VAR efficiency and despite its flaws in certain situations, it for the most part serves as an aid available to referees.

The question which did not result in individually formulated answers as well, was “do you think that the introduction of VAR has reduced the number of refereeing mistakes or errors”. It required only yes or no answers? As many as 75 persons or 64.1% of the total examinees held that VAR do correct refereeing mistakes while 42 respondents (35.9%) had a different opinion. It is interesting that in a certain way, this question is in contradiction with the previous one since despite trust in VAR, some examinees still believe that many calls still reflect subjective referee impressions.

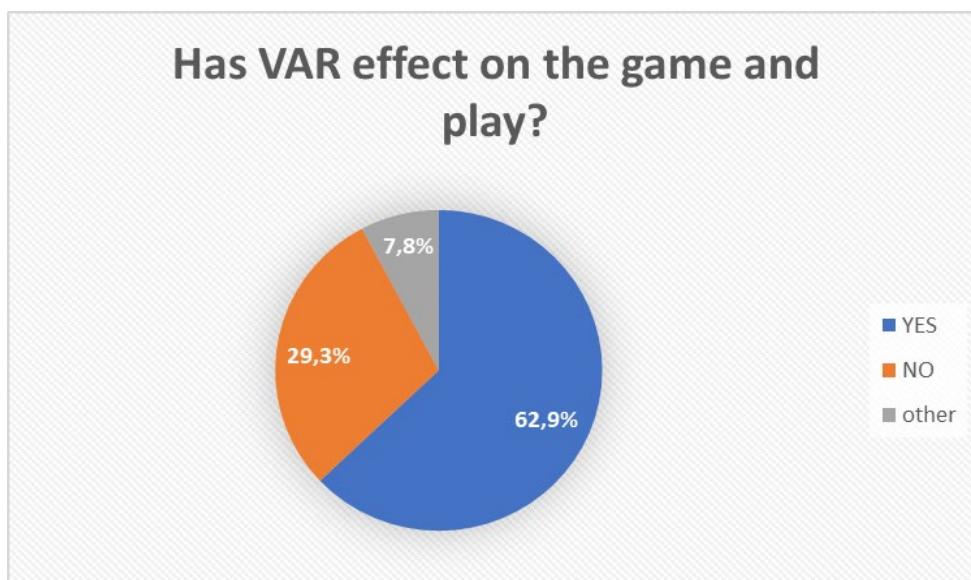
Pie chart 5: Has VAR reduced the number of refereeing mistakes?



Source: Author's personal files

The seventh question reads as follows: “Do you think that VAR has effect on play?” The examinees could choose between the following two answers: “Yes, it slows down play” and “No”. Also, the respondents were offered the possibility to formulate their answers themselves.

Pie chart 6: Has VAR effect on the game and play?

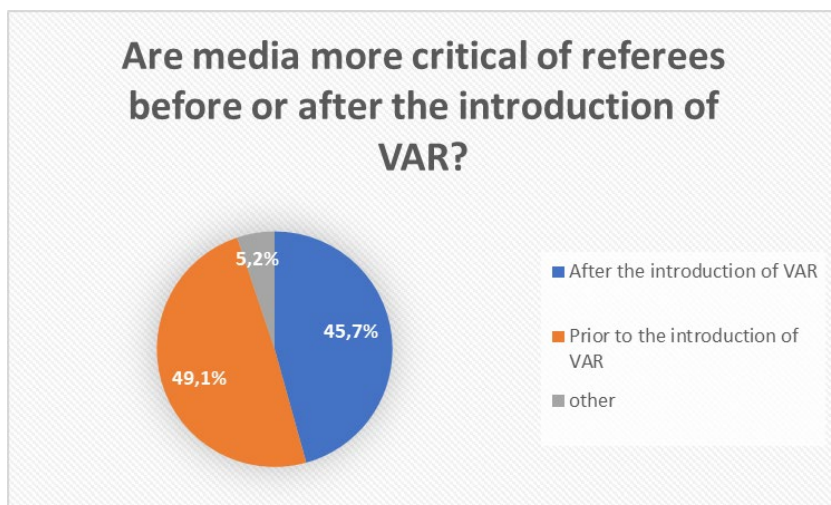


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A total of 62.9% examinees (73 persons) think that VAR slows down play while 34 respondents (29.3%) hold that it exercises no influence on play. Here are some individually formulated answers: "When there was no VAR, refereeing mistakes had even greater impact on the game", "it is its clumsy application that slows down play, sometimes it happens that the ball is kept in play for two, three minutes and then it comes to a VAR check which lasts for additional three, four minutes and is not good and definitively has influence on play. Goal celebration is a similar situation. It lasts a couple of minutes and then comes VAR and its check, which takes additional three minute. Generally, VAR is an excellent technology for eliminating refereeing mistakes, but its application can be disastrous", "yes, it changes the score and reduces mistakes to the minimum", "it has effect on the players (their behaviour)", "it kills the magic of the game" and "it improves the quality of the game". The answers suggest that the examinees believe that VAR does have effect on the game and play, but mostly due to referees.

The eight question was "do you think that media address referees now more than prior to the introduction of VAR" and the examinees could choose between the following two answers: "In my opinion, media are now more critical of referees than before the introduction of VAR" and "in my opinion, media were more critical of referees prior to the introduction of VAR than now". Almost 49.1% of examinees or 57 persons chose the latter answer and the former one was a little less popular (53 respondents, 45.7%). The rest of the examinees provided their own answers disclosing that they did not keep up with media articles about referees.

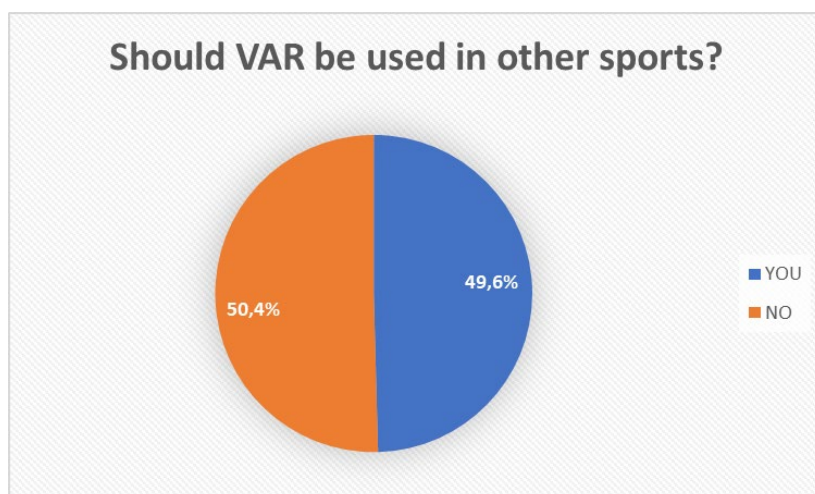
Pie chart 7: Addressing referees by media



Author's personal files

The last three questions required from the examinees to offer their own attitude towards VAR. The examinees were not unanimous at all regarding the answers to the following question: "Do you think that VAR should be used in all sports?". Half of them (59 respondents, 50.4%) provided a negative and half of them (58 respondents, 49.6%) an affirmative answer.

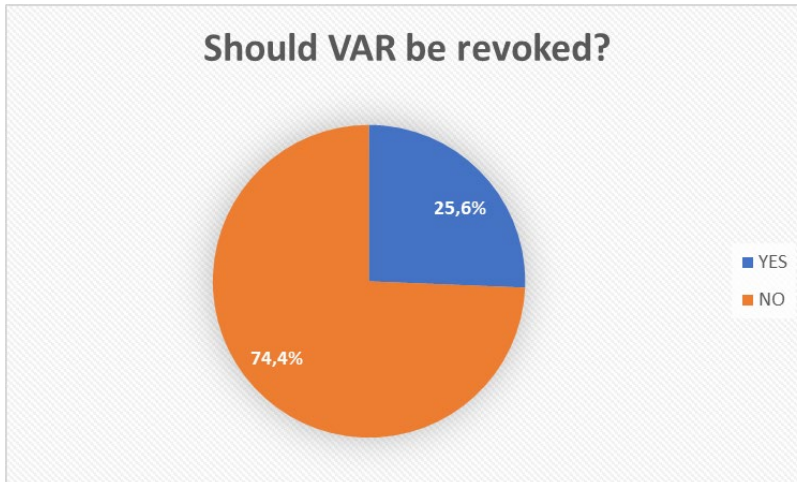
Pie chart 8: Should VAR be used in other sports?



Author's personal files

The question “should VAR be revoked” brought 87 negative answers (74.4%) while the rest of the respondents (30 persons) hold that VAR should be no longer used. It is rather intriguing since the survey reveals that VAR decisions are not univocally embraced, but despite that, the examinees are willing to give this system more time to show its efficiency.

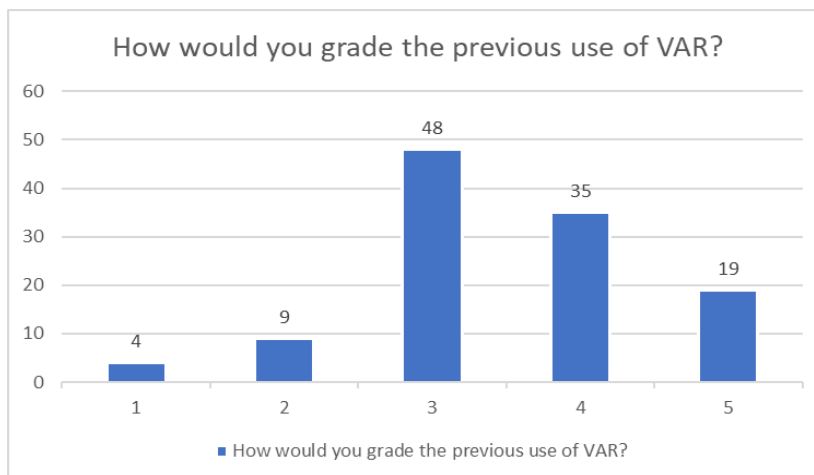
Pie chart 9: Should VAR be revoked?



Author's personal files

The last question related to grading VAR. The examinees could give it marks from 1 to 5, wherein 1 was the poorest and 5 the best mark.

Pie chart 9: How do you grade VAR?



Author's personal files

The most frequent mark was 3, the so-called happy medium, which was to be expected. Pursuant to the aforementioned, there is an impression that VAR is perceived as a useful technology, but its application has not reached an adequate level yet or in other words, there are still too many refereeing mistakes and the referees are not objective as they should be.

Discussion

In terms of its representativeness, the conducted survey has met the respective requirements since 63.6% of respondents regularly watch football and 29.7% of them do that occasionally. Moreover, 65.3% of examinees are in their most productive years. As far as the hypotheses are concerned, the survey results support them to a reasonable extent. With respect to the first hypothesis, pie chart 7 shows that 49.2% of respondents believe that media were more critical of referees before the introduction of VAR. This implies that the first hypothesis has been partially denied. Besides, the survey discloses that media still tend to criticize VAR. In regard to the second hypothesis, pie chart 4 reveals that 94.9% of respondents hold that VAR do provide referees with assistance. Considering the third hypothesis, 62.9% of examinees think that VAR definitely has impact on the dynamics of play since it slows down the game and destroys its imaginativeness. Pie chart 8 unveils that 50.4% of examinees shares the opinion that transparent criteria should be defined in every sport first and then gradually, VAR can be introduced to the game, which confirms the fourth hypothesis. The last hypothesis deals with the issue whether VAR should be abolished or not. Pie chart 9 provides an answer to this question, according to which a great majority of examinees (74.4%) feel that its usage should continue, but it requires constant improvements.

Conclusion

The conducted survey, analysis and discussion help us draw the conclusion that spectators or in our case, respondents support the introduction of VAR in sports, but they do not agree with all VAR-related refereeing decisions. With respect to VAR influence on media, the survey has proved that there was more criticism of referees before the introduction of VAR, though media are still pretty critical of refereeing decisions, so the situation has not changed significantly comparing to the pre-VAR period. In fact, the laws of the football game have become even more confusing. In order to fully refute the set hypotheses, more comprehensive research of media attitude is required.

As demonstrated in the survey, most respondents find sports refereeing pretty demanding. Although most of them are aware of refereeing mistakes occurring after the introduction of VAR, they hold that this technology is needed in football. VAR is expected to advance by the time and referees will probably learn how to take advantage of video technology, so it is likely that the number of refereeing mistakes will decrease. Almost 75% of examinees asserted that the VAR technology should not be revoked despite the feeling that VAR is not embraced by many. Even though many problems are obvious in professional football, even to fans, the dominant opinion is that the VAR technology should be applied in all professional sports.

The fact is that VAR has not still reached an adequate level, but it has been here with us for only a couple of years. VAR is a complex and challenging technology which was developed for years and it will take years and years for VAR to become a tool wanted by the fans. There are certain drawbacks to draw a general conclusion about this issue. Therefore, this technology is subject to further improvements as to ensure the objectivity of sports results. In this sense, VAR should be applied and adapted to all sorts of sports. Only after such prerequisites are fulfilled and thorough analyses performed, one will be able to draw reliable conclusions about the usage of VAR. VAR can certainly contribute to better organization and management of sports events.

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INFLUENCE OF BROADCASTING OF SPORTS EVENTS ON THE DEVELOPMENT OF TELEVISION INDUSTRY

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Abstract: The industry of sports has become one of the most profitable global industries and live broadcasting of sports events has proved to be the most wanted TV programme. There was a time of linear TV emissions, when the contents used to be available exclusively on TV sets, for free, live and only on official national emitter programmes, while nowadays these contents are followed by the viewers via all available platforms and devices, quite frequently for certain additional fee. Sport broadcasting has become globally available at any moment and at any place, both live and delayed, and licence rights are the mighty instrument in the media game. The development of technology and overall media industry is directly linked to the development of the industry of sports through technological advances regarding content placement, the development of new business models and marketing placement. Due to possible budget limitations, exorbitant prices of licence rights concerning the broadcasting of international sports events and the legislation not protecting our national interest in terms of the contents available free of charge to all the citizens, public media services are rather often likely to lose in this race to specialised sports channels whose baseline business models are founded on none other than live broadcast. The research will be conducted using the methods of induction, deduction, analysis and synthesis, as well as the comparative method.

Key words: TV programme, sports broadcast, live broadcast, licence rights, TV industry.

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Introduction

The trademark and essence of the TV industry since its very beginning is the so-called television spectacle, that is, media that links audience and an ongoing event. Thus, live broadcast enables the viewing audience to be an indirect eyewitness of the program content organized in studio facilities or an event that takes place at the same time elsewhere. It is the bridging of time and space distance in a live broadcast that makes television the most attractive media, even after almost nine decades since the beginning of regular broadcasting of television programs. Its linearity in a live broadcast, through creating a sense of presence, has a special effect in following major sports events, which, due to the development of technology in the distribution of programs, became global television broadcasts, accompanied by strong emotions.

"Sport evokes incredibly strong emotions in its supporters; pride, sense of belonging, hope, excitement - but also despair, frustration and anger. Fans want to live in the moment with these emotions, feeling them as they occur, along with thirty million people around the world they're connected to at that moment". (Mainstreaming TV)

The production and distribution of live broadcasts is expected to be impeccable. TV signal delay or other interference are not perceived as technical problems. A viewer's experience is emotional. Improving the viewing experience is one of the strongest motivations for the development and implementation of modern technology in the production of sports broadcasts.

Also, great interest in the so-called sportcasts, i.e. sports broadcasts, stimulated the media struggle for acquiring sports rights and, in particular, the development of specialized television sports channels. There is interest of the media themselves in providing broadcasts on the one hand, and audience that yearns for an ever-increasing amount of sports content on the other, and at the same time it is not only the popularization of sports the sports industry sees in the availability of sports events on television – it is, first and foremost, money.

"Actually, it is a closed circle that consists of sport - money - program. Sport, especially the top-class sport, needs money to provide all the necessary prerequisites for achieving such results. Sport generally gets its money from sponsors, and these in turn need media promotion in order to realize part of the profit through their core activities, which they allocate for sport. Media depends on ratings, so they need a high-quality and attractive program to gain prestige and sport, especially top-class, is highly valued "goods". Therefore, the goal of sport is the result, money wants profit, and media has circulation (ratings). If they are well connected, everybody wins!" (Božičković, 2000)

This is what Veselin Grozdanić, the famous director of TV Belgrade, who directed more than five and a half thousand live broadcasts during his professional career, most of

which were sports events, stated in an interview for the Politika newspaper in 2000. The same formula applies today. Sports that bring in the most profit are the most represented on TV - football, basketball, tennis, then handball, volleyball, cycling, but championships in gymnastics, rowing, etc. are less watched. According to the Ipsos survey, carried out during the 2022 World Cup in Qatar, as many as nine out of ten respondents watched the matches at home, and 92 percent of the respondents were informed about the events in Qatar via television. (Ipsos, 2022)

Due to a better position in the TV schedule, a good time slot, potentially bringing a good share and rating, i.e. high rating results, sports events are often adapted to media requirements. That is why the start of the match coincides with the content in the most watched evening slot, so-called "prime time". This also happens on television programs with national coverage in case of a possible overlap between two sports events, so that one of them, less important according to the editor's opinion, does not get transferred to another channel with lower ratings, which means less income from sponsors and advertising.

There is also a well-known case occurred during the 31 Summer Olympics in Rio: the marathon took place in the hottest part of the day, due to live broadcast on television in its entirety. Cases like these show that ratings and placement first and foremost on so-called national *mainstream* media are the most important to the organizers of sports events.

This paper will focus on the impact of sports on the development of the media market and the TV industry itself, which recognizes sports as the biggest motivation for applying innovations and attracting viewers.

Sports broadcast – from analogue to digital image

Broadcast of the XI Summer Olympics in Berlin in 1936 was the first television live broadcast of a sports event. It was made with three cameras only to nearby technically equipped rooms, and as many as 162,000 viewers followed the live TV broadcasts.

At the first subsequent Summer Olympic Games, held in London in 1948, the BBC produced live TV broadcasts that could only be watched in the city. This was preceded by the first sports TV broadcast in Great Britain - the tennis match between Bunny Austin and George Rogers at Wimbledon in 1937. The broadcast, which lasted 25 minutes, was carried out with two BBC cameras. Those were connected by cables to a smaller production unit located in the parking lot, from which the signal was transmitted to the central building of the British media public service. Other broadcasts that year also lasted for about half an hour. Today, the main field is covered

by 18 cameras, broadcasts are followed by more than a billion viewers in over 200 territories around the world. (Kirkham, 2015)

The first live sports broadcast in Yugoslavia was carried out by TV Zagreb in 1959. It was the broadcast of the football match between Yugoslavia and Italy, ended with a score 4:1, and the commentator was the legendary sports journalist Mladen Delić. The first OB van arrived to Belgrade in 1961. It was a black and white RCA with four cameras. TV Belgrade broadcast live for the first time the same year. Viewers could watch the eternal derby between Red Star and Partizan on their TV sets.

"The broadcast of the match was carried out from the great hall of the Belgrade Fair, where the final of the European Basketball Championship between Yugoslavia and the USSR was played the same year in the adapted area in front of a record number of 25,000 spectators, which the Russians won with a minimum advantage. The first television commentators of a football the eternal derby between Red Star and Partizan were the late Vladanko Stojaković and the current doyen of sports broadcasting Marko Marković, then a rookie reporter." (Ilić, 2014)

TV Belgrade continues with successfully produced TV broadcasts, such as broadcasts from the European Athletics Championship 1962 held at the Partizan Stadium, formerly JNA stadium.

At that time, the distribution and the receiver base was limited, but over time the number of TV sets increased. Sports broadcasts were especially enjoyed by viewers with color TV in the mid-seventies, because the 1966 FIFA World Cup England was the first cross-border color television coverage of a sports event. Two years later, the Summer Olympics in Mexico also had color coverage. At that time, the color production technique became the standard for broadcasting international sports events, so in 1972, for example, TV Belgrade took over the broadcast the FIBA European Cup Winners' Cup from the Greek national television, which was not technologically ready to fulfill the requirements. Greece did not have color television, so the team from Belgrade broadcast the final of the European Basketball Championship between Crvena Zvezda and Simmenthal. According to the testimony of the director Zvonko Simonović for the show "Trezor - Conversation of Veterans, Belgrade School of Live Broadcasts"²¹, TV Belgrade, from the very beginning, carried out direct broadcasts with three lenses (wide, normal and telephoto). This confused the English, who were already working with nine cameras at that time. He said that they couldn't believe how skilled our cameramen were in changing lenses and how such a virtuoso broadcast could be made with only three cameras. By the way, people interested in

²¹ Trezor - Conversation of Veterans, Belgrade School of Direct Broadcasts", part two. Host Kamenko Katić. Broadcast: August 25, 2006

sports remembered the match for the fight a few seconds before the end of the match. "The delegate asked for a recording of the match, but Nebojša Popović, who was then the Editor-in-chief of TV Belgrade, responded that the match was broadcast live and that there was no recording." (Dapčević, 2018)

While TV Belgrade had several tape recorders (devices for recording and reproducing image and sound) at that time, the OB vans for broadcasts did not have one and therefore there was no video of the match. This and other demands from the sports industry influenced the equipping of television stations with additional resources, modernization and keeping up with technical and technological innovations.

Thanks to the skill of the television creators of TV Belgrade, the so-called Belgrade School of Television Broadcasts was created at that time. The special feature of this school was the readiness, resourcefulness and desire to produce top-quality television broadcasts of sports events with equipment that was far scarcer than the production capacities of large media companies at the time. One of the methods for gathering information for the research was an expert interview with the director Veselin Grozdanić, who has been engaged in the production of live broadcasts of sports events since 1978. According to him, the Belgrade School of Live Broadcasts was promoted in the early 1970s with the broadcasts of 1973 FINA World, the final of 1972/73 European Cup, 1973 World Women's Handball Championship, then 1975 FIBA European Championship, Men's and Women's European Volleyball Championships, etc. He also said that the production teams of TV Belgrade drew attention thanks to the exceptional expertise with which they produced the aforementioned championships. They are especially characterised by their understanding of the sports played, precision and creativity in visual presentation, as well as the gift of evoking the atmosphere of the competition, the specific emotions of the competitors, but also of the audience at the sports arenas. He concluded that the essence was in the expert use of technical tools and the choice of people who used them. Thus, the Belgrade School of Live Broadcasts (and not only sports), thanks to fantastic directors, cameramen, video mixers, sound masters, producers, engineers and technical teams, established supremacy, not only in former Yugoslavia (JRT), but also around the world, because the quality and uniqueness of those broadcasts were outstanding: camera positions, types of lenses, shooting angles, sound and sound effects, types and positions of specific microphones, then there are tape recorders and the philosophy of their use, the dynamics of cutting frames and the way of transitioning from one to another, a sense of proportion and the ability to express the image emotions.

The skill of immediate adaptation to unforeseen situations where decisions are immediate and the consequences unforeseeable was especially important. In the 1980s, according to Grozdanić, with the best intention of not falling behind, the other

TV centers in Yugoslavia accepted the best experiences of TV Belgrade. TV Ljubljana and TV Zagreb progressed most. In those years, there was exceptional professional courtesy in exchange of experiences and knowledge among the employees of the TV stations of the Yugoslav Radio and Television, directors in production, and engineers in technology. The biggest joint project of direct broadcasts of sports events was the XIV Winter Olympics in Sarajevo in 1984, where TV Belgrade broadcast the bobsleigh and luge competitions from four OB vans and 17 cameras.

Requirements became more complex over time, new technologies were adopted. From analogue to digital image. The first SDTV standard was promoted in 1982, and the HDTV high-definition image standard was adopted in 1990 by the ITU – International Telecommunication Union.

"Standard Definition Television, SDTV, is a type of digital television that can transmit and produce images of better quality than standard analogue broadcast. SDTV usually has a resolution of 720x576i or 720x480i. Although SDTV is far from HDTV in terms of quality, compared to conventional (analogue) television it is superior." (Petrović, 2019, p. 10).

The most complex sports broadcast that Radio-television of Serbia produced in HD technology was the 2017 European Indoor Athletics Championship in Belgrade. The main director of the broadcast was Veselin Grozdanić, who stated in the interview for this work, "I prepared the project, with regular work, for whole two years - from the previous European Indoor Athletics Championships in O2 Arena in Prague in March 2015 to March 2017 and Štark Arena in Belgrade. The project was produced with seven OB vans, 52 cameras and 367 crew members. Why is this the most complex project that RTS has ever completed in its history? Because the European Athletics Championship takes place in five disciplines at the same time (four technical disciplines and one running). We simultaneously produced seven different signals (broadcasts): one from each technical discipline, a special broadcast followed the races, we produced a unilateral program for the domestic RTS audience, and finally an international broadcast that is a compilation of all the abovementioned."

Digital production of content has brought numerous novelties - cameras for under-water filming, filming from a drone, cameras on helmets, delayed playback of content that is available in the same second after recording on servers, as well as the possibility of slow motion (slow motion, super slow motion and ultra super slow motion), etc. With high-definition image quality, as well as 2K, 4K and 8K image resolution⁴, which is even more perfect, viewers have received over time a complete experience from the sports broadcast, which makes the sports event itself even more realistic for them, as if they were attending it in person, without having media as a link. It is precisely the sensitivity tests of the latest generation TV cameras that are performed, among other things, for the needs of recording the most demanding sports broadcasts, where the camera must re-

cord even the smallest moving details. Thanks to this, the viewer can see the perfection of the water droplets during, for example, the broadcast of a water polo match.

Modern tools are in digital format. The most diverse types of cameras are in use with increasingly better performance - they differ in format, size, the optics they use, etc. Almost all image and sound signals use wireless contact with OB van direction, graphic packages and information systems have a wide range of possibilities, broadcasts are made using 3D technology. There are no technical or technological limitations, only new tools, such as, for example, the use of virtual graphics. Thus, the „CyberSport program (Orad company) enables the introduction of 3D graphics and animation into the live broadcast of a sports event. Regardless of camera's placement, the inserted object will maintain its position and give the illusion that it is an integral part of the field. The improvement to the broadcast of the sports event is achieved by inserting 2D/3D graphics, animations and videos related to the sports field (e.g. sponsor logo, audience reactions...)." ²²

One of the latest tests applied during the broadcast of a water polo match is related to the use of drones. The broadcast of the match between the French clubs Strasbourg and Reims with a camera located behind the goal and transmitting footage from the air, according to the organizers, had footage that had never been seen before at water polo matches. This experience is considered refreshing and promising. Time will tell if it will be widely used in broadcasts of this sport.

"This could allow a viewer to see movements that are often difficult to capture with cameras located on the stands or near the pool. This could also attract a larger audience to water polo and make it more enjoyable to watch." (Total Water Polo, 2023)

This example confirms the claim of director Veselin Grozdanić that the biggest challenges in the production of sports broadcasts used to be the number and type of cameras available for a specific project, cable lengths for longer distances, the capacity of OB vans, types and quality of image and sound recorders, the way of signal transmission from the recording site to the OB van or studio, and the biggest challenge today is creativity and its limits.

²² The first OB van with 8K UHD technology was promoted during the XXXI Summer Olympics in Rio, in 2016. Prva reportažna kola sa tehnologijom su promovisana tokom Letnjih olimpijskih igara u Riju 2016. This technology brings picture quality that is sixteen times better than full HD technology. These accessories can be adapted to specific sports and precise trajectories using mechanical sensors. Thus, a digital image, advertisement, logo, video and virtual screen can be inserted into a recording or a live program." (Dugalić, 2018)

Media struggle for sports broadcast

Modern television viewer is far more demanding than the viewer of sports TV broadcasts in the analogue era. He wants the broadcast of his favorite sports event to be available not only in his mother tongue, but also at any time in any place, with the possibility of delayed viewing.

The development of streaming platforms, available on smart devices, enabled personalized access to content. The development of digital services and HbbTV hybrid television created the conditions for the availability of additional information accompanying a sports event - statistics about the match, players, etc. Over time, the segmentation of the viewing audience took place, i.e. there was a need to follow one program type in one place. The media industry responded to the demand launching specialized theme TV channels.

"The first satellite and cable specialized sports channels began to appear way back in 1976, when Cablevision Sports 3 was launched, and it changed its name to SportsChannel in 1979 (today's MSG Plus). The same year, yet another American cable sports channel, ESPN (Entertainment and Sports Programming Network), was created. A decade later, in 1989, Eurosport was launched. The first sports television in Serbia, the SOS Channel, was created in 1995. It broadcast only domestic sports programs. It was shut down in 2018, and the sports TV channel SOS Kanal Plus was created. In the first years of 21st century, in 2006, the first domestic sports cable TV channel, Sport Club, began broadcasting, and in 2010, sports fans got the first sports channel from the Arena Sport package. The youngest channel in this package is Esport - specialized in broadcasting gaming and electronic sports." (Ćitić, 2021)

The dominant content on these channels are live broadcasts, which, due to placement on a spatially limited market, through one or several cable systems, prevent other viewers in the country from having the opportunity to follow the sports event. In Serbia, live broadcasts of important sports events are most represented on the programs of the Public Broadcasting Radio Television of Serbia, which has national coverage, as well as on the programs of the cable sports TV channels Arena, Sport Club and the largest European sports satellite network Eurosport. Due to the limited availability of cable TV channels, i.e. the fact that they are not available to all viewers on the territory of Serbia, the most important international and national sports events should be broadcast on the program with national coverage, which is often not the case. This situation has led to a kind of deregulation of the media market, i.e. disregard of the rules that control economic activity in order for market forces to determine levelling of supply and demand. Globally, sponsors sometimes withdrew from sponsoring sports for which the viewers were not interested.

"Huge amounts of money are put into circulation. In 1985 alone, sports sponsorships brought in \$1.4 billion to the United States, and the total income from professional sports was three billion dollars. Sports brought the most money to the States and it was even more profitable than the oil industry (\$26 billion). The magic triangle of business - sport - TV crosses even the tightest borders... We should not forget that the increase in the number of tournaments and matches, due to commercialization and the demands of the media, can cause audience saturation and thus call existing contracts into question. Finally, the capital inflow into sports has an indisputable impact on the sports stock market." (Kokotović, 2004)

Clubs and professional sports organizations in the world derive their main income not only from participation in competitions and spectators, but also from advertising, sales of TV broadcast rights, transfers of top athletes and sponsorships (in individual cases over 60 % of income). They have their own calculation of the projected income from the sale of the rights, which leads to the starting amount for a bidding. On the other hand, extremely fierce competition in the media market can motivate former rivals to cooperate.

"Even new participants tend to work together with others rather than act independently." Such collusion can transfer market power from sellers to buyers of sports rights, and product innovation can improve the profitability of sports broadcast." (Solberg, Helland. 2011)

Sports are said to be the cornerstone of the TV industry. Although it was only available on national programs and free-to-air commercial channels for a long time, due to its characteristics and strong impact on viewers reflected through strong emotions and identification, it became very attractive for placement on subscription platforms. The progressive globalization of sports fueled by television has led to the consolidation of the world's sports rights markets, which have been bought by broadcast corporations such as America's 21st Century Fox and ESPN, as well as Qatar's beIN Sports. No longer are only rights for placement on the national market granted, but it is in the interest of telecommunications and media corporations to secure rights for all territories where they have users of their services. On the threshold of the 21st century, with the advancement of technologies for the placement of content and the increase of the television market from local, regional and national, from continental to global, through the system of terrestrial transmitters, via cable and satellite distribution to the world's global Internet network, all technical and technological prerequisites are fulfilled so that a sports event that could once only be followed by the audience on the field or a limited number of TV viewers, can now be distributed to every home, to every mobile phone, computer and other "smart" devices.

The largest digital contract of US\$ 500 million was signed in 2015 by the Chinese company Tencent for the rights to broadcast NBA games for five years. Two years later,

Amazon paid US\$ 50 million for digital streaming for the US National Football League (NFL). The very next year, it had to pay another 130 million dollars for two additional seasons. Thursday's matches were available to subscribers of the Amazon Prime Video platform in over 200 countries. By the way, the rights to broadcast matches of the National Football League are the most lucrative and the most expensive sports broadcast rights in the world. Back in March 2021, the NFL released information about contracts with its television partners through to 2033, which are said to be worth a total of US\$ 113 billion. The NFL has ensured that, in case of changes in the media market, which is normally turbulent, it can terminate the contracts at any time after seven years. Broadcast rights are held by CBS, ESPN, NBC and Fox.

"The new deal will make Amazon the sole provider of Thursday Night Football broadcasts." In the previous arrangement, the broadcasts were broadcast on Fox and simultaneously streamed on Prime Video. However, the new deal kicks Fox out, giving the tech giant exclusive rights to broadcast the game on its platform." (Yusuf, 2023)

The vast majority of domestic sports championships are generally broadcast on pay TV channels, and the world's largest on free-to-air (FTA), free TV channels that are available to all viewers in the territory for which the broadcast rights have been acquired. However, there are also cases where the so-called hybrid rights are regulated. This is the case with the rights granted, for example, to broadcasts of the UEFA Champions League, which is broadcast on free and pay TV channels. (Hoehn, 2012)

When licensing broadcast rights, sports organizations and clubs insist on meeting viewership goals. The value of the contract depends on the audience size and increases in the so-called multiplatform environment, and the contract gets entered through a kind of bidding. Some rights holders recognize the advantages of FTA broadcasts and national TV channels have the right of first refusal over cable channels, which are not available to all viewers in the territory. However, when bidding, cable channels often have an advantage when buying because of the higher offered price, which often national broadcasters, media public service in the first place, cannot respond to. This is happening since the expansion of cable sports channels in Serbia as well. In these cases, the classic bidding formula can benefit only the one who sells the rights, since the bidder's net earnings are questionable, and a large number of viewers remain deprived of the possibility of watching TV broadcasts. Practice has shown that it is of interest to the public, as well as the media, to have a partner performance, so, in addition to the placement on the Arena Sport cable channels, for example, the UEFA Champions League matches on Wednesdays can also be watched by viewers of the Radio-Television of Serbia on RTS1. Also, on Thursdays, one match of the UEFA Europa League, by choice. The ratings of these matches is even up to ten times higher than on cable channels. Yet again, the most watched television program in Serbia, for example,

in 2022, but also in the last four years, was the broadcast of the match between Serbia and Brazil at the 2022 World Cup in Qatar (RTS, 2022) with almost three million viewers, and researchers of the British media market state that, for example, at the 2018 World Cup in Russia, as many viewers watched the match England-Tunisia in the group stage via the OTT platform BBC iPlayer, and 18 million viewers via BBC television program. (Hutching, B. Lee, B. Rowe, D. 2019)

The importance of the availability of international sports broadcasts of national importance to the entire population, was also recognized by the Regulatory Authority for Electronic Media (REM), which made a decision on the list of the most important events of special importance for the citizens of the Republic of Serbia, for which free access must be provided on the territory of the entire country. The list includes the most represented international sports events in which the Serbian national teams or Serbian competitors participate. Since the national interest is recognized, support is needed through legislation and its implementation so that the national broadcaster with FTA access on the territory of the entire country has the right of first refusal in purchasing instead of subscription cable channels that are not available to all viewers on the territory of Serbia.

Conclusion

The development of technology in the TV industry has directly influenced strengthening of the bond between sports and television. In an effort to convey the most attractive program content, which sports broadcasts certainly are, to the audience in the best possible way, the TV industry has also developed. Over time, modern viewers have become more and more demanding and their expectations have increased, and media professionals are more ready to use new technical and technological possibilities - work with a larger number of cameras, virtual graphics, server possibilities for playing delayed footage, etc.

Following the details and skillfully using television language, the director puts his personal reflection of objective reality at the service of an authentically mediated sports event with all significant information, atmosphere, emotion and context. The professionalism of the media teams is also reflected in the skill of producing a good TV broadcast, which is a mirror of the development of modern television. It is the prestige, growing importance and value of sports broadcast live, its influence on the development of the sports and media industry in terms of program production and placement, as well as its appeal to an increasingly large audience, that all participants in these two global industries have recognized.

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DIGITAL LITERACY AND TYPES OF COMMUNICATION WITH THE PUBLIC IN SPORTS

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Abstract: It is the responsibility of public relations professionals to encourage communication between the public and the organization. In sports clubs, discourse is crucial because it fosters tolerance and the coming together of individuals with disparate viewpoints and beliefs to work toward a shared objective. Sports teams may benefit greatly from using public relations techniques to strengthen their bonds with their fan bases. Measurement of fan groups' support and a better comprehension of the goals and missions of sports teams may be achieved by connecting the relationship outcomes to the PR process. External communication helps to build the club's reputation, gain financial support, and attract fans, sponsors, and media attention. Internal communication, on the other hand, ensures effective coordination and collaboration between players, coaches, and management personnel, enhancing teamwork and improving overall performance.

Keywords: Public Relations, Relationship Management, Sports Clubs, Sports and Public Relations

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Introduction

In this new, twenty-first century, digital technology and its unprecedented development have not only become the hallmark of the new century but also a necessary condition for life. For the majority of people, the internet has become a common thing, akin to electricity and running water. Additionally, the internet is viewed as a symbol of a global revolution in communications, similar to the way Gutenberg's invention of the printing press once was.

So, how can one best utilize digital technology and handle the array of available tools? What is necessary to maintain a digital identity optimally? Is digital literacy essential in this context, and what concept of digital literacy, manifested in a multitude of different components, is created and open to significant possibilities for responsible engagement with the overall digital world, if one desires it.

Why is communication significant, and what are the ways in which information is shared? Communication is used daily in almost every environment, whether it's a subtle nod of agreement or the conveyance of information (Dašić, et al., 2021). Communication is absolutely essential in building relationships, exchanging ideas, delegating responsibilities or emotions, managing a team, and other interpersonal skills. The literature often mentions four main types of communication used daily: verbal, nonverbal, written, and visual. With all these communication styles, it is crucial to develop soft skills that can help better understand messages and respond thoughtfully. While these communication models simplify the representation of communication, they illustrate some of the complexities in defining and studying communication.

What conditions are necessary for successful communication? The effective use of language, spoken or written, is certainly the primary condition for successful communication. Going back to ancient times, classical rhetoric was a combination of argumentation and persuasion, based on the classical systems of three ancient Greek teachers: Plato, Isocrates, and Aristotle. The ancient Greeks pondered the significance of language, as it was evident that the primary political skill of that era was the ability to speak effectively in favor of one's interests or the interests of the speaker's representative. This required citizen participation in communication, and decisions were made through deliberation and voting by all.

The power of communication

The term communication, or communicating, is of Latin origin (Latin: communicatio – connection, association; traffic, communication; communicare – establish a connection, traffic, communicate). Communication is most commonly defined as a multi-

phase process, the essence of which is the creation of meaningful content through the sending and receiving of verbal and nonverbal symbols and signs, influenced by various contextual factors and conditions. An essential characteristic of this process is that human communication is the essence of social interaction (Dašić, Jeličić, 2016), and understanding through symbols is a fundamental characteristic that distinguishes humans from other living beings and their potential for communication.

However, defining the actual concept of "communication" poses various challenges, and for decades, communication professionals have struggled to reach any consensus on how to define the concept of communication (Johnston et al, 2016). It is often claimed in relevant literature that there is still no agreed-upon definition of communication to this day, especially after the period from 1970 to 1984 when Frank E. Dance (1970) reviewed and published 126 definitions of communication (found in relevant literature) and expressed the idea that attempting to find a single definition of communication that would satisfy everyone is like trying to nail Jell-O to a wall—a mission impossible.

When any organization, company, or institution establishes communication with the public, it does so more strongly and extensively through public relations and/or marketing—through its image and identity, the sense of its existence, and thus the advantages/disadvantages for all interested parties to contact and communicate with it. In the literature, four developmental periods of communication are mentioned:

1. Classical,
2. Medieval,
3. Renaissance, and
4. Enlightenment period.

They differ in terms of the relevant issues in communication processes, the topics that occupied participants in communication, and which experts (philosophers and/or scientists) interpreted communication as a phenomenon, or who had the greatest influence in that regard. In addition to these four periods, a distinct period represents the modern communication era that emerged in the twentieth and twenty-first centuries.

Researching modes of public communication in today's world would not make sense without considering the role, significance, and effects of the internet. This is because the internet represents a specific infrastructure that is the generator and carrier of the habitus of all potentially emerging digital media, alternatively labeled with names such as new media, communication-information technologies, computer-mediated communication systems, interactive media, servers, networks, and the like (Ratković, Dašić, 2018). The web has completely changed the world, enabled billions of dollars in economic growth, and turned data into the gold of the 21st century. It has fostered

innovation in education, healthcare, and all other areas, eliminated geographical and social boundaries, influenced a media revolution, and prompted changes in all spheres of society, enabling constant two-way dialogue between those who heal and those who recover; those who teach and those who learn; those who sell and those who buy; finally, those who govern and those who are governed (hopefully within socially acceptable norms). Digital technologies impact individuals, organizations, governments, and countries. Digitization provides the opportunity for all activities to gather numerous real-time information and more effectively engage all those interested in participating in a given communication process (Dašić, 2021; Stanković, 2022).

Digital literacy as a sociocultural challenge

The theme of digital literacy, although present in many theoretical works and practical approaches to the implementation of interactive tools and web-based procedures using technologies such as email, web browsers, and databases for "information-related tasks," is characterized by vague definitions and limited research studies, often focused on specific segments in this field. At the end of the twentieth century, there emerged a need in the new era of the digital environment for everyone to be required to use various technical, cognitive, and social skills to perform tasks and solve problems in the digital world. This was defined as "digital literacy" (Gilster, 1997). However, like any new term, "digital literacy" enjoys a broad range of usage in literature, from conceptual theoretical explanations to technical aspects, and then to cognitive, psychological, or sociological meanings (Gilster, 1997; Tapscott, 1998).

The discourse of the contemporary digital age inevitably includes the concept of global citizenship, which takes on new meaning in educational contexts as a worldview or a set of values that prepares young people for a global or world society. This is based on high digital competencies and assumptions about valuing diversity in promoting literacy instruction based on the use of modern learning technologies. It is also argued that the availability of new technologies blurs differences in social status, origin, at home, school, community, online, and offline, requiring a reassessment of the relationships between all these concepts.

In terms of academic knowledge, it is considered that before the digital era, scientific knowledge was traditionally organized around the premise that knowledge was exhaustive, and its artifacts were materially limited. Manuscripts and books as knowledge artifacts were exhaustive and expensive to produce and distribute. Digital content, however, is persistent, replicable, and searchable. Artifacts of digital knowledge can be distributed with negligible costs to the originator or the user without being consumed or diminished. The widespread and increasingly mobile access to

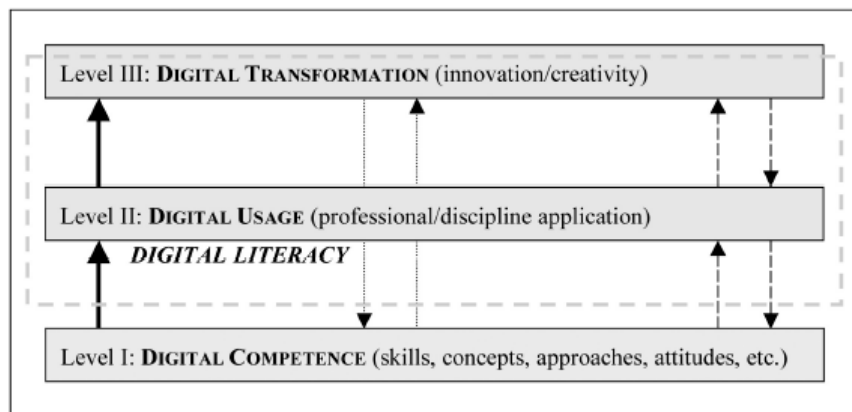
artifacts of digital knowledge in the "world of information abundance is constantly changing" (Jenkins, 2006), indicating a transition from an era of knowledge scarcity to an era of knowledge abundance, even though access remains unevenly distributed.

"Literacy" must equally relate to current, informal electronic communications as well as the creation of formal, written, painstakingly crafted documents that are passed down through generations. This means that a balance must be found between technologies used in the past and those that will be used in the future (reading and writing technologies) in the process of defining the concept of literacy. If this cannot be achieved, then perhaps it is best to use another term or framing the concept, according to some authors (Belshaw, 2011).

It is generally believed that digital literacy is a vital component of individual competence and enhances the "selling power of the national education market," emphasizing that literacy is a more important skill than ever in today's knowledge-based societies. A particular advantage of digital literacy is its individual aspect, as this literacy provides a foundation for skill development and lifelong learning and can help all citizens participate in national economic prosperity, as well as improve their quality of life. These approaches are largely based on the premises of human capital theories, aiming to show that investing in literacy and education is more important for long-term economic growth than investing in physical capital. Thus, the well-being of each individual enters the equation of general prosperity. However, issues related to digital literacy, even if they have almost no connection with information and communication technologies, with electronic and invisible binary sequences of ones and zeros, and almost no connection with the promises mentioned above, must surely have a relationship with the technocratic apparatus of managing people in the global world, economic competition, and teaching individual competencies of "networking" (Rantala, Suoranta, 2008).

According to the previous determinants, literacy can be understood at three levels, and the levels of digital literacy can be seen in the same sense: first, at the operational level of technique and mastery of digital competencies; second, at the level of thoughtful use and contextually appropriate application of digital tools; and third, at the level of critical reflection, understanding transformative, as well as human and social impact of digital actions - a process in which digital literacy is put into practice (Figure 1).

Figure 1. Levels of Digital Literacy



Source: (Martin, 2008)

Digital communication in sports clubs refers to the use of digital technologies and online platforms for more efficient and widespread communication with various interest groups, including players, coaches, fans, sponsors, and media. This type of communication encompasses various aspects, including:

Social Media: Sports clubs use platforms such as Facebook, Twitter, Instagram, and other social media to share news, images, videos, and interactive content with their followers. This allows direct interaction with fans and the creation of a community around the club.

Websites: Club websites serve as a central place where official news, schedules, match results, player biographies, and other relevant content are published. Proper website maintenance contributes to transparency and accessibility of information.

Email: Clubs use email to send official announcements, promotional offers, event invitations, and other information to club members, sponsors, and other interested parties.

Applications: The development of mobile applications enables clubs to communicate directly with users through their smartphones. Applications can provide information about live matches, exclusive content, ticket sales, and other functionalities.

Streaming and Video Content: Clubs often use digital platforms for live streaming or sharing video content to cover training sessions, player interviews, match highlights, and other interesting moments.

Interactivity: Digital communication allows sports clubs to engage their fans in interactive activities such as voting, asking players questions, organizing quizzes, and other online events.

Data Analysis: The use of data analysis enables clubs to track fan engagement, campaign effectiveness, and create targeted strategies to improve communication.

Digital communication in sports clubs helps build the brand, engage the community, attract sponsors, enhance fan experience, and optimize operational processes. This type of communication has become a key element in successfully managing sports organizations in the modern digital age.

Internal and external communication in sports organizations

External and internal communication are crucial aspects in the functioning of sports clubs as they facilitate effective coordination and collaboration among its members. External communication refers to the interaction between the sports club and individuals or organizations outside of its immediate environment, such as sponsors, media, and the general public. On the other hand, internal communication focuses on the exchange of information and ideas within the club, including communication between players, coaches, and management personnel. Both forms of communication are essential for sports clubs to achieve their goals, maintain their reputation, and ensure efficient teamwork.

External communication plays a vital role in enhancing the image and visibility of sports clubs. It involves activities such as public relations, marketing, and media management. Sports clubs need to effectively communicate with sponsors to secure financial support, with media outlets to gain publicity, and with fans to build a loyal following. This may include press releases, social media campaigns, and organizing community events. For example, by maintaining regular contact with the media, sports clubs can ensure accurate coverage of their matches, events, and achievements, which helps in attracting more fans and sponsors (Tasić, Đokić, 2022).

Internal communication, on the other hand, ensures effective coordination and teamwork within the sports club. It involves the exchange of information, feedback, and instructions among various stakeholders, such as players, coaches, and administrators. Good internal communication is crucial for setting goals, formulating strategies, and addressing any issues or conflicts that may arise. For instance, effective communication between the coach and players is essential for ensuring that everyone is on the same page regarding game plans and tactics. Similarly, clear communication

between team members can enhance collaboration and trust, resulting in improved performance on the field.

Sport's reputation has started to improve a little bit as a result of its perception as a career or a viable future. However, the sport organization's public relations duties and tasks have not performed as well as they could have. Because public relations was seen as an ally rather than the focal point of the business, it was still only used in the name of sports organizations. In addition to the lack of held athletic events, this prevented public relations from producing a newspaper or bulletin as a public relations product. Lack of funding, a parent organization's lack of understanding of the value of public relations during routine activities, journalists who are occasionally less supportive of reporting and more interested in stories that have a conflict-like odor, along with a lack of journalistic expertise in sports reporting, are all obstacles that sports organizations must overcome in order to conduct public relations activities (Novitaria, 2017).

Sports clubs should be aware of the volume of messages delivered via social media when they utilize social media venues as it was revealed at a conference conducted by the Sports Marketing Association in 2010 that using social networks as promotional tools irritates followers and supporters. One of the fundamental factors determining the reputation and image of a company is public relations. These days, it is necessary to be accurately seen in the public eye in order to obtain a favourable perception of any company, person, or nation. Public relations are a crucial strategy for influencing how accurately and clearly you are regarded by the general public (Göksel, Serarslan, 2015).

One of the fundamental factors determining the reputation and image of a company is public relations. These days, it is necessary to be accurately seen in the public eye in order to obtain a favourable perception of any company, person, or nation. Public relations are a crucial technique for influencing how the public perceives something (Kuyucu, 2015).

Sports organizations may benefit greatly from using new media in this way, but there are also risks, such as severe monetary and psychological harm. Athletes can be inspired to succeed and achieve goals by using the right technique to influence the public, but supporters and fans can also help teams out by boosting sales and turning contests into festivals (Bajić, 2022). By outperforming competing clubs, enormous chances may be established to achieve both sporting and financial success, stock market share prices can rise, and favorable conditions can be set up so that potential new sponsors are waiting outside the club's door. Sports organizations using new media incorrectly or poorly run the risk of spreading inaccurate information about their organizations, which poses serious risks (Dašić, Ratković, 2022). Failure to manage crises effectively in the event of unfavorable news and events and failure to communicate necessary public announcements via social media accounts with fans,

sponsors, athletes, the media, and relevant institutions, organizations, and people will lead to significant short- and long-term losses for clubs (Göksel, Serarslan, 2015).

Sport seems to be becoming better at grabbing people's attention and cash. This indicates that as the volume of public relations achievements and failures increases, there will be more career possibilities in sport public relations and associated fields (Isaacson, 2010).

Fans' motivation for loyalty may be affected by regular requests for input, clear and transparent information flow, proving that their thoughts and recommendations are taken into account, and assuring their involvement in decision-making. It might be argued that the openness, effectiveness, and volume of the fan groups' communications can foster a feeling of commitment. Such interpersonal communication techniques are a technique used in public relations to build relationships. Additionally, it's important to concentrate on the reputation and image of the represented sports club's fan base, to foster a family atmosphere, to pay attention to behavioral interactions, and to guarantee dependability against corporate governance (Çelebi, 2021). More contact between the groups would improve sport PR training and, in light of study findings, maybe alter some of the conventional media relations strategies employed in the industry. Social media gives public relations, which are created in a different way for conventional media, a new dimension. Social media has enhanced individualism and feedback, which aids the emergence of new media. Thanks to social media, everyone produces their own media and communicates directly. Like many companies, the football industry is impressed by this social media feature.

Conclusion

Sport is both a local and personal experience as well as a worldwide phenomena. It is both a massive for-profit corporation and a massive charitable endeavor. Through a complex and symbiotic connection with the media and other economic interests, sport satisfies all of these competing responsibilities in contemporary society. There are several issues with modern sport, none of which have clear answers or definitions. Clubs are now leveraging new media for target-group input on brand image, business reputation, organizational culture, and products and services in addition to PR, advertising, and marketing campaigns. While sports teams' use of new media creates new avenues for communication, it also brings with it a host of new issues. Social media facilitates effective intraclub communication and gives clubs a direct channel of communication with target audiences; however, it can also quickly and easily spread rumors, false information, and biased views, which can occasionally result in potential crises.

Before entering new media venues, sports teams must decide what new media methods they will employ and undertake the necessary research. Clubs without any new media plans may find it challenging to stay up with the evolving nature of new media. In a broad sense, the clubs' goals, objectives, identities, languages, target audience characteristics, quality of domestic and international sources, and scope of reporting make up their new media strategy for usage in social media networks. Designing new media strategies for clubs is crucial since there are always institutions, people, or organizations that might be favorably or badly impacted.

In the end, external and internal communication are vital for the successful functioning of sports clubs. External communication helps to build the club's reputation, gain financial support, and attract fans, sponsors, and media attention. Internal communication, on the other hand, ensures effective coordination and collaboration between players, coaches, and management personnel, enhancing teamwork and improving overall performance. Sports clubs that prioritize these forms of communication are more likely to achieve their objectives and maintain a positive image in the eyes of the public.

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SPORTS AND MEDIA IN SERBIA IN THE MIRROR OF SPORTS JOURNALISM STUDENTS

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Abstract: Starting from the fact that journalism in Serbia is a reflection of the times we live in, as well as the fact that the domestic scene is overloaded with tabloid discourse and the clientelistic role of the media instead of one that includes the media role as a corrective mechanism of society, it is clear what challenges many representatives of this profession to face in daily work. That dominant image shapes and broadens the attitude in society about this profession, that is, a stereotypical view that thus undeservedly includes numerous representatives who adhere to ethical standards. Therefore, as part of the journalist's guild, the media and media workers who focus on sports live in such an environment as a particularly prominent segment of society through which many others permeate, such as politics, economy, crime, etc. On the other hand, the fact is that technological changes have led to a much larger quantity, namely the possibility of a significant expansion of the body of journalists, including those specialized in sports, and therefore to increased interest in that profession, bearing in mind the rapid growth of the number of media newsrooms in general, as well as special sports newsrooms. This paper aims to form a kind of cross-section of the current situation through a series of attitudes measured on a Likert scale, videlicet insights into how, bearing in mind everything previously said, students of sports journalism in Serbia, as a specific segment of journalism, see this profession today and in the future, their place in that profession, as well as sports and media in general.

Keywords: sport, media, journalism, sports journalism, students of sports journalism.

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Introduction

Global changes in the 21st century, primarily the digital revolution, have led to drastic transformations in sports and journalism, which can only be imagined with numerous technological tools. On the one hand, the media landscape has undergone significant changes with the advent of the internet, which "represents the most radical annulment of the boundaries of time and space that have hindered communication among people since the time we left the savannahs and learned to use language" (Makner, 2005: 290). On the other hand, sports have long held immense significance in people's daily lives, shaping the lives, lifestyles, identities, and values of a large number of individuals as "an activity and spectacle" (Koković, 2008: 8). In understanding this aspect of life, the mediatized version becomes increasingly essential.

Consequently, indirect experience, created through various media platforms, is significantly more influential in shaping the image of sports in society than the experience of directly attending events. Indirect knowledge is proper when it comes to "elite sports," perceived as a segment of popular culture and the entertainment industry, or something that "encompasses a media-profiled, commercially appealing, high-quality sport, in line with the laws of late capitalism" (Biti, 2012: 32, 34, 44). In other words, it is "associated with modernity and interpreted in the dimensions of globalization, mediatization, commercialization, and celebrity culture within its social, cultural, political, and economic context" (Biti, 2012: 218).

Considering those above, "sport is no longer just a segment of society, but something that significantly contributes to shaping public opinion through identification with successes and failures, mass connectedness, and therefore, easier permeability of various messages" (Bajić and Petrović, 2019: 30)" (Bajić, 2021: 18), the significant role of journalists in shaping the image of sports in society becomes apparent. Namely, this characteristic reflects the intensity of interweaving and spillover between sport and other social aspects (Penezić, 2020: 546). In other words, it primarily refers to sports journalists, who set the media agenda in this segment daily.

Journalists themselves are "conveyors, intermediaries, and critics in society and the state" they are the "public eyes and ears, observing and listening to the public and public spirit" (Čupić, 2010: 11). Therefore, it is clear that today they face unique challenges, considering "the time when the fundamental principles of valid journalistic work have long been under serious scrutiny, and the ideals of this profession are often completely sidelined" (Petrović and Penezić, 2023: 118). The media scene in Serbia, dominated by newspaper media and sensationalist reports, significantly undermines the reputation of the journalism profession in society. In this chaotic state of the media market, there is a necessity for more than the informative role of journalists. Instead,

one of the goals in the overall commercialization and profit-driven competition is for journalists to think about economics as well (Petrović, 2014; Selenić, 2022: 146). Given this reality, it's clear that anyone who chooses this profession must have extraordinary patience to deal with numerous challenges, including those in journalism primarily focused on sports.

"Envisioning the journalistic profession, young people often see themselves as rebels and vagabonds who constantly wander the world and metropolises, moving from plane to plane, changing taxis and trains, luxury hotels and prestigious theaters. They capture interesting events, unusual human destinies, terrorist actions, ecological disasters, record political revolutions and processes, glamorous gatherings, sports spectacles, and similar important events with their cameras, laptops, microphones, digital cameras, and increasingly rare pens" (Jevtović, Petrović, and Aracki, 2014: 35).

This romantic view from the book "Genres in Contemporary Journalism," published a decade ago, is complemented by further notes stating that they are correct, "but at the same time, they are wrong, neglecting the difficult and professionally challenging path that needs to be taken to reach the highest levels of this wonderfully seductive, attractive, noble, and minerally tough profession" (Jevtović, Petrović, and Aracki, 2014: 35). On this professionally challenging path, there are livelihood concerns and, in general, considerations about the present and future of this profession. In one of the earlier studies (Selenić and Vulinović, 2021: 63), conducted among journalism students at the Faculty of Sport at the University "Union – Nikola Tesla" and the Faculty of Political Sciences at the University of Belgrade, it was emphasized that "the low income and lack of free time due to the volume and description of the job" were cited as the biggest drawback of sports journalism. Following this line, this paper examines the current perspective of young people who have chosen the journalistic profession, specifically through specialization in sports journalism, and their thoughts on sports journalism and the work of a sports journalist.

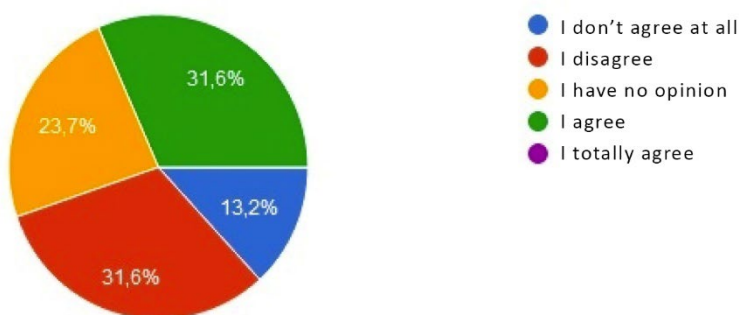
What do students and graduates of sports journalism say?

The research examined a series of statements using the Likert scale, measuring agreement and disagreement with them. The analysis involved students in their second, third, and fourth years of sports journalism at the Faculty of Sport, University "Union – Nikola Tesla," as well as graduates from the last few years (this institution recently celebrated a decade of existence and is unique in Serbia precisely for its sports journalism studies), whose total proportion among the respondents (out of a total of 38) is 10.5 percent. The participant structure is diverse in terms of the level of formal journalism education, as well as in terms of previous experiences in journalism.

Looking at the present situation, more than half of the respondents "generally positively value the field of sports journalism and the work of sports journalists in Serbia" (52.6%), while just under a third express the opposite view (31.6%), and 15.8 percent do not have an opinion on this matter.

However, a prevailing negative attitude emerges when the focus sharpens towards journalistic norms, i.e., the statement that "generally speaking, sports journalists in Serbia adhere to the principles of the profession and journalistic codes," as seen in Chart 1. Namely, 31.6 percent of respondents agree with this statement, while a total of 44.7 percent "disagree" or "strongly disagree," and nearly a quarter (23.7%) have no expressed opinion.

Chart 1. Attitudes of students and graduates of sports journalism regarding the statement that "generally speaking, sports journalists in Serbia adhere to the principles of the profession and journalistic codes."



So, although there is a relatively positive view of sports journalism in local media, the number of those who believe that sports journalists in Serbia fully adhere to journalistic principles and codes is not proportionally high. Opinions are divided regarding the statement that "generally speaking, sports journalists in Serbia have a significant influence on public opinion." Agreement with such a statement prevails (55.2%), with a solid opposing stance (31.6%), and 13.2 percent of respondents have no opinion. However, despite their influence on public opinion, more than half of the students and graduates of sports journalism (52.6%) emphasize that "sports journalists in Serbia are not adequately respected in society, generally speaking." Close to a quarter of respondents (23.7%) disagree, and practically the same proportion has no opinion on this statement. Moreover, these responses also reflect their perception of these issues, providing an objective insight into the current journalistic reality from the perspective of future media professionals.

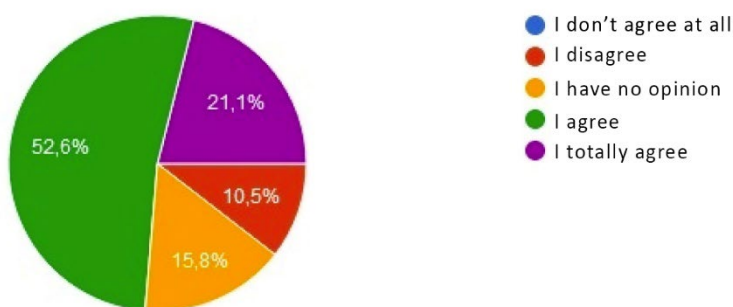
Moving forward and considering the challenges faced by media professionals, respondents are almost unanimous in their view that sports journalists need to be adequately financially compensated by employers in our country for their work in this profession. Financial security is undoubtedly one of the foundations of journalistic independence and everything else that stems from it. Thus, nearly 87 percent of respondents supported the statement that "sports journalists are not adequately paid for their work, generally speaking" (with nuances, as 44.7 percent "completely agree" and 42.1 percent "agree"). On the other hand, only 5.3 percent of respondents hold the opposite view, while 7.9 percent have no opinion on this statement. Also, it points to the motives that may dominate their long-term professional direction. It may be a litmus test for the initial stages of journalistic careers, which, as known to all in the profession, often involve longer unpaid internships or work for minimal fees and a long-term status as freelancers. Since the participants in this research are primarily at the beginning of their journalistic careers, most have encountered (or are still experiencing) this management approach in media newsrooms.

Considering this, young sports journalists in Serbia, both current and future, also identify a challenge related to the finances of newsrooms, namely instability in terms of funding. A lack of opportunities to resist external influences sufficiently negatively impacts their integrity, work, and credibility. Journalism, media organizations, public interest, and society suffer significant damage. Thus, the statement that "a significant problem in sports journalism in Serbia is of a financial nature – the inability of newsrooms to be financially independent enough to ensure autonomy from external influences" was supported by a staggering 94.7 percent of survey participants, differing only in nuances regarding whether they "agree" (57.9%) or "completely agree" (36.8%).

The research also confirmed that one of the major problems of the journalism profession is the adherence to professional self-regulation and better organization. A significant 81.6 percent of students and graduates of sports journalism agreed with the statement that "a significant problem in sports journalism in Serbia is a weak mutual organization or the lack of a strong professional organization at the state level that could protect sports newsrooms and sports journalists from pressure." Only 2.6 percent disagreed with this. In comparison, 15.8 percent had no opinion on this statement. These responses to the report followed that "a significant problem in sports journalism in Serbia is that sports journalists are not sufficiently mutually supportive, meaning they do not adequately protect each other from unjustified attacks and other pressures." Almost three-quarters of survey participants (73.7%) confirm this statement's correctness, 7.9 percent disagree, and the remaining have no opinion (18.4%). This problem is, in fact, much broader than the isolated segment of sports journalism and permeates the entire field of journalism in these regions. It also shows

that it is not only a systemic or professional issue but also reflects individual relationships and understanding of the importance of defending the journalism profession.

Chart 2. Attitudes of students and graduates of sports journalism regarding the statement that "a significant problem in sports journalism in Serbia is that a significant number of sports journalists in this sector are not adequately educated and prepared for this profession."



It is essential to emphasize, as seen in Chart 2, that research participants recognize the importance of formal education for performing tasks in the field of sports journalism, given the predominantly positive attitude towards the statement that "a significant problem in sports journalism in Serbia is that a significant number of sports journalists in this sector are not adequately educated and prepared for this profession." Formal education is often overlooked, quite tendentiously (even insidiously), with a simultaneous emphasis on the undisputed importance of journalistic practice. However, more is needed to maintain the significance of thorough and thoughtful journalistic training and maturation through higher education focused on this field.

Today, this has become one of the leading causes of the gap between different types of media professionals: young and experienced journalists, journalists and editors, editorial teams, the business part of the management sector, media theorists, and media practitioners. This rift within the media reality becomes the vacuum that traps many media workers and organizations, indirectly causing immeasurable damage to their functioning and future. Moreover, in this case, it is a phenomenon not unique to this region and the domestic media landscape (not even the area) but a trend that has prevailed globally in media and journalism for quite some time.

Therefore, nearly three-quarters of the participants in this research need to recognize the importance of this factor and understand the potential issues that may indirectly arise if they wholly disregard this factor. Or if certain other shortcomings, paradoxically stemming from the same functional framework, are intentionally devalued to divert attention. These shortcomings often manifest in the absence of nurturing and applying principles in fundamental categories of performing this profession, visible through the lenses of journalistic ethics and professionalism. Today, they are also evident in the sphere of adequate reflection and adaptation to the challenges of the 21st century that journalism and media face, especially those of a technical and technological nature.

Respondents also have concrete suggestions for improving the functioning of sports newsrooms and the quality of working conditions. They believe that more significant investments are necessary in human resources, i.e., increased investment in their professional development and adequate financial compensation for their work (salaries). They also emphasize the need for better personnel selection (both journalistic and editorial), preferring more professional solutions rather than those who "blindly follow management." At the same time, the importance of monitoring and increased investment in the technical and technological domain is highlighted, along with the significance of "implementing ideas and working methods from leading world sports newsrooms" and analyzing successful editorial models worldwide. However, this should be done not to copy them but to learn from them about the importance of respecting the profession, public figures, traditional journalistic techniques, and innovation in work.

The participants in this research also provide insights into possible improvements in content preparation and dissemination, emphasizing the importance of "avoiding formality and templates, i.e., originality," as well as a "different way of organizing and disseminating content." There is also an insistence on developing an editorial culture through "direct communication, openness, understanding of others and new ideas," and "advocacy for their journalists and greater courage when it comes to sensitive topics."

After such assessments, potential paths for improving sports media in Serbia are expected (in terms of quality, extraordinary reputation, and more). Some responses on this topic closely follow what was expressed in the previous corpus, emphasizing more excellent material investment in employees, their working conditions, development, and salaries. On the other hand, some respondents admit that a good starting point is to begin with oneself ("Let's start with ourselves. Strive to be better every day").

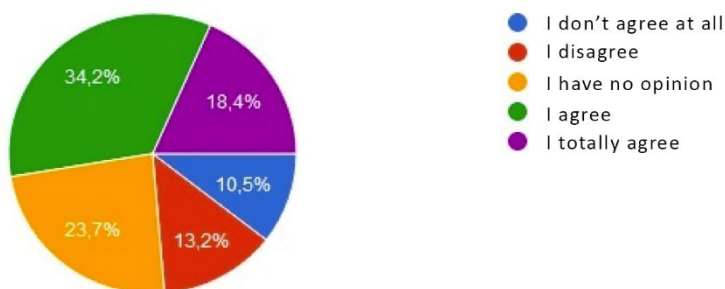
It is particularly significant that the importance of a different approach to reporting and content dissemination, based on truth, objective reporting, and adherence to ethical codes of the journalistic profession, is recognized and emphasized. Significantly, the importance of a different approach to reporting and disseminating content based on truth, objective reporting, and respect for the ethical codes of the journalistic profession is recognized and emphasized. A different approach involves "reducing sensationalism" and "tabloid behavior, "spreading unverified information." Consequently, the discussion leads to the importance of creating higher-quality content, which is a commonplace but a topic of enduring significance and a fundamental strategy for success in the media market, even in current, rather challenging circumstances, both locally and globally. Numerous practical examples and a growing number of media theorists highlight the importance of this factor and the acceptance of the so-called content-first²⁹ strategy in managing media organizations.

Strictly from the perspective of domestic sports, some participants emphasized the importance of giving more space to different content and reducing the dominance of those focusing on the two largest local sports organizations (Red Star and Partizan). They propose "more coverage of national teams and the importance of playing for one's country throughout the season."

There is also a recognition of the negative impact of "political influence" on editorial offices, which is crucial for changing the current situation. Furthermore, the necessity of "full media freedom," facilitated by better financial aspects of work, is highlighted. However, compared to some earlier responses, a confusing, even contradictory impression arises concerning the statement about a "positive outlook on the future of sports journalism in Serbia." Namely, the same group of respondents who view the current state of sports journalism more positively than negatively has a different outlook on its future. Almost half of them (47.4%) do not share such a view, while slightly less than a third (31.6%) agree, and the rest have no opinion. In conclusion, considering everything mentioned and the fact that these are current sports journalism students and recent graduates, their attitude towards the statement "I see myself as a professional in the field of sports journalism in Serbia in the long run" was examined.

²⁹ Global instruction to media organizations in the 21st century that in the light of deciding on the development of a particular media platform and giving preference to one of them (content on that platform), they must first deal with the content that will be placed there. This indirectly suggests that the quality of content and its applicability for a specific type of platform or media is fundamentally important and a priority topic in deciding which of them will have priority and how they will develop in terms of infrastructure.

Chart 3. Attitudes of students and graduates of sports journalism regarding the statement, "I see myself in the long term as a professional in the field of sports journalism in Serbia."



As seen in Chart 3, almost a quarter of the respondents already admit, at this stage of their professional development, that they do not see themselves in the long term in the field of sports journalism in Serbia. More than 10% of them are almost explicitly against this statement (completely disagree with the stated assertion), while more than 13% also specifically mention having such an opinion. The percentage of undecided individuals is exceptionally high, accounting for almost a quarter of the surveyed. Such a percentage of individuals already leaning towards this view is certainly not optimistic, and it also indicates the realities and trends that prevail in the world of journalism and media, not only locally but as a global trend that has been present in this field for quite some time. In developed media systems and economically wealthier societies, for about two decades, there has been a noticeable trend where journalism students lose interest in this profession during their studies and turn to other occupations. The most common "escape" route in this regard is the field of public relations or PR. Therefore, this is mostly a calculation stemming from the logic of anticipated earnings in journalism and the numerous challenges accompanying this profession. In societies where the position of journalists is even more complex and under external pressure and where the economic (financial) factor is even more modest, such disappointment is even more expected and frequent. The balance toward optimism is grounded in the fact that more than half of those currently (and still) confident that their professional future lies in the role of a sports journalist—a solid result considering that among the respondents, a significant number are already "eating the journalistic bread with seven crusts" (given that a considerable number of academics gain practical experience during their studies) and are well aware of all the circumstances that accompany this profession and industry.

The primary motivations for respondents to "stay" in sports journalism in the long term are expectedly the love for sports and the profession of a sports journalist, as well as the "adrenaline" and unique experiences that come with this job. Other positive aspects include travel, professional contacts, and socializing. People also desire to "change the image of sports journalism in our country" and explore the "possibility of achieving greater objectivity in sports journalism because journalism in this country must be objective, and media houses should not poison people with false information for the sake of profit." Respondents also mentioned the wish to "contribute personally to the media popularization of less popular sports" and "the general popularization of sports," as well as "following the development of journalism from the front lines"...

However, not a small number of those have essentially given up on pursuing sports journalism, which could be expected based on their attitudes regarding certain statements above. Among them are those who emphasize that they already "lack the motivation to stay in journalism in the long term," as well as those who explicitly state that they "will not engage in journalism as long as the state of journalism in Serbia is like this," and those for whom the primary motivation for such a professional orientation would be an improvement in the financial circumstances that accompany this profession (better salaries, primarily).

Concluding considerations

Considering the participants' structure, this research covered a diverse and representative sample within the journalism segment associated with sports. The conclusions reached are a significant source of information for the journalism profession to understand the perspective of those coming, or in other words, the future of journalism.

The cross-section of opinions indicates that the survey participants, to some extent, lament that sports journalists in Serbia undeniably influence public opinion, yet despite this, they are not adequately valued and compensated. Recognizing such an attitude as a diagnosis could lead to further research to analyze the causes of such a reality.

The concerning attitude toward their continued engagement in this profession, coupled with the previous responses regarding financial instability, a less influential journalism community, which consequently cannot strongly advocate for the adherence to ethical norms within the profession itself, and insufficiently quality interpersonal relationships contributing to the betterment of the work, are calling for alarm for the current generations of sports journalists. It signals that change is necessary for their well-being and the benefit of future generations.

It is crucial not only to reduce the number of disillusioned individuals but primarily to retain the majority of respondents who see their future in sports journalism in Serbia, especially considering the importance of academically educated professionals. The most common motivator among them is the love for sports and the desire to follow and understand sports events. Particularly interesting are those who emphasize the goal of contributing to the promotion of sports and preserving the ideals of truth through sports journalism. The journalistic profession needs to take a series of actions to elevate its reputation and influence. It's important to note that journalists are not all-powerful and, practically, are following a negative trend in society, struggling to fulfill one of the functions of journalism—to be a corrective factor in society.

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MANAGEMENT IN SPORTS

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INDICATORS OF THE DEVELOPMENT OF SPORTS AND RECREATIONAL TOURISM AS AN INTEGRAL PRODUCT OF RURAL DESTINATIONS

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Abstract: Given that we live in a very stressful time, it is clear that modern man needs rest and peace in order to restore the necessary energy. That energy is the key to success for normal functioning. Rural destinations are precisely such "oases of peace" where it is possible to return to traditional values and nature, as a healthy lifestyle prerequisites. Even more, rural destinations enable the exercise of sports and recreational activities. The paper started from the hypothesis that sports and recreation are the best prevention of anxiety and stress, and that rural destinations are in themselves an environment that contributes to betterment. A survey was conducted among 317 tourists of the rural destination of Vrdnik, and the results showed that tourists enjoy sports and recreational activities and that they are the "best medicine" in the fight against stress.

Keywords: Sports and recreational tourism, rural destinations, stress, Vrdnik

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Introduction

Today, a large number of people participate in sports actively or as observers, and almost everyone longs for a vacation (Penić et al., 2016). Although the connection between sport and tourism has long been established, it has now taken on a form of global importance (Gatersleben, Appleton, 2007); a lot of media attention was devoted to it, which caused raising awareness among people when it comes to health and benefits brought by sports and tourism. Sports-recreational tourism represents a form of tourism in which the emphasis is on active leisure time (Vujko, Plavša, 2014).

Whether it's activities on the ground, in the air or in the water, one thing is certain - tourists who spend their free time in this way are constantly looking for new destinations and ways to satisfy their need for activities (Vujko, Gajić, 2014). If we were to say that the present is extremely conditioned by exposure to stress, then destinations that allow the exercise of sports and recreational activities are highly valued. Such destinations are the base for the development of rural, sports-recreational, health and other compatible forms of tourism. Nevertheless, rural destinations in themselves have more predispositions for the development of sports and recreational tourism (Petrović et al., 2016). This is because sports-recreational tourism represents an excellent type of supplementary tourist offer with traditional values (Antić et al., 2015), which completes and enriches the tourist stay. The most common form of sport and recreation in rural destinations is cycling, mountain climbing (plain hiking), horse riding, swimming, but also flying where it is possible.

The paper started from the initial hypothesis that sports and recreation are the best prevention of anxiety and stress, that is, that engaging in activities in nature is very compatible. Namely, the natural, i.e., rural environment in itself stimulates movement, which is a characteristic of sports-recreational tourism. We examined the motives and attitudes for engaging in sports-recreational tourism and came to the conclusion that tourists consider sports-recreational tourism as the best "medicine" for prevention and combating stress, but also that staying in rural areas is unimaginable without sport and recreation.

Methodology

The survey was conducted in the area of the rural destination Vrdnik on Fruška Gora. Fruška Gora Mountain is located between 45° 00' and 45° 15' north latitude and between 16° 37' and 18° 01' east longitude. It is a Mountain in the northern part of Srem (South-western Vojvodina) i.e. south-eastern periphery of the vast Pannonian Plain. It has a total surface area of 21,500 km², which makes 24.3% of the whole

territory of the Republic of Serbia (Đurđev et al., 2010; Vujko, Plavša, 2014). 317 weekend tourists who spent their weekends in this place in Fruško Gora, near Novi Sad were examined. The research was part of a wider research project, and the paper presents responses grouped by similarity. A survey containing 28 questions was used, and the research lasted from March to October 2022.

The Chi-square test (Pearson Chi-Square Test) was used as the method of analysis. The test showed statistical differences in respondents' answers in relation to gender, as the most common type of comparison in respondents' answers. The assumption was that there was no difference in the answers. Statistically significant differences are taken for those having $p < 0.05$.

Results and discussion

A total of 317 respondents, visitors to the rural village of Vrdnik in Fruškogora, participated in the research. Of that number, there were 129 male and 188 female respondents (Table 1).

Table 1. Gender

		Frequency	Percent
Valid	Male	129	40,7
	Female	188	59,3
	Total	317	100,0

Table 2 showed that respondents most often enjoy walking (96 respondents), but also playing game with ball (soccer, basketball, tennis, etc.) on the field (72 respondents), then ride a bicycle (which can be rented) on paths through the mountain (64 respondents). Tourists also swim a lot in the pools. Other activities (such as running, gym and similar) are less common among respondents.

Table 2. Exercising sports and recreational tourism

		Gender		Total
		Male	Female	
What additional forms of sports - recreational tourism do you practice?	Cycling	23	41	64
	Walking (hiking)	58	38	96
	Swimming in pools	7	48	55
	Ball court games	31	41	72
	Riding horses	6	3	9
	Running	3	3	6
	Trim track and equipment for exercise at open	1	8	9
	Gym i fitness	0	6	6
Total		129	188	317

Looking at table 3, it can be concluded that there was no statistically significant difference in the responses of respondents in relation to gender. First of all, this means that the respondents' answers are uniform.

Table 3. Pearson Chi-Square

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	44,175 ^a	7	,000

Table 4 showed answers grouped by importance, that is, similarity. Here, the respondents gave an answer to the question "why" they practice various recreational activities during their stay at the destination. The answers were very interesting. The largest percentage of respondents answered that practicing sports and recreational activities during their stay at destination helps them rest better. Namely, participating in sports and recreational activities, the respondents get "tired", that is, their muscles work and extra calories are consumed. This positive fatigue affects better sleep, and thus rest. It is interesting that the responses of both male (42) and female (40)

respondents were uniform regarding this question. No other answer to the question produced such uniform responses. Therefore, it can be concluded that people generally need much more sports and recreational activities and quality sleep, which does not seem to be the case in cities. Next, by number of answers, was the answer that sports and recreational activities expel negative energy (62 respondents). This is an answer that supports the development of sports and recreational tourist offers, as a complementary tourist offer of rural destinations. In this way, people practice sports and recreational activities as a prevention of various diseases that are acquired by long-term exposure to stressful situations. Here, sports and recreational activities are perceived as the "best medicine" in the prevention of various diseases. Two other answer categories were equally represented and both had a high number of answers. Those were groups of answers that respondents take care of their health (53) and that being in nature cannot be imagined without some sports and recreational activity (47). All in all, the answers to this group of questions confirmed the initial hypothesis that sports and recreation are the best prevention of anxiety and stress, and that rural destinations in themselves are an environment that contributes to betterment.

Table 4. Reasons for participating in sports and recreational activities

		Gender		Total
		Male	Female	
Why do you carry out additional sports and recreational activities in Vrdnik?	It helps me get very tired, so I sleep better	42	40	82
	I throw negative energy out of me	25	37	62
	Staying in nature is unthinkable without sports and recreational activities	13	34	47
	I take care of my health	10	43	53
	I feel good	20	9	29
	When I return to the city, I feel reborn	19	25	44
Total		129	188	317

Also, as in the previous question, respondents' answers regarding sports and recreational activities did not show any statistical significance in comparison to gender, because $p=0.000$.

Table 5. Pearson Chi-Square

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27,255 ^a	5	,000

Conclusion

It can be said that the relationship between sports and recreational activities, rural destinations and tourism in the modern world has taken on a symbiotic character (Petrović et al., 2015). Not only do sports-recreational activities improve tourism by offering an increasing number of tourist-attractive elements, but also, sports-recreational activities represent complementary tourist motives of rural destinations and a way to enrich the offer, and also to extend the stay of tourists (Vujko et al., 2016).

Changes in the world tourist market lead to an increase in the variety of types of tourists and their needs. Adventurous and active vacation have become an important segment of the tourism industry as same as also the practice of sports activities are recognized as an important means of preserving health whereby tourism representing a kind of catalyst for such activities.

It is important to recognize the potential of the destination and then develop in that direction. Rural destinations in themselves represent an excellent potential for practicing sports-recreational activities (Cutumisu, Cottrell, 2004), and as we had the opportunity to see in the research, the respondents confirmed that such an environment stimulates and encourages them to practice sports and recreation.

Destinations must recognize the importance of such an offer and work to arrange the conditions for the exercise of sports and recreational activities. In particular, the destination Vrdnik has arranged trim and hiking trails, it is possible to rent a bicycle, it is possible to ride off-road as well as carriage driving, the fields for group sports are also arranged, as well as numerous swimming pools. It can be pointed out that Vrdnik is an example of good practice that many other destinations should follow. Because prevention must come before treatment and rehabilitation, and sports and recreational activities are a healthy base on which everything else can be built upon.

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THE ROLE OF OPERATIONAL MANAGERS ON THE MOTIVATION OF ATHLETES

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Abstract: Operational managers in sports are a key link in the management team and in their independent programs they plan, organize, predict and control the athletes and the team, as well as implement appropriate strategies to beat the competition and achieve good results. They manage the most important resources - the athletes and carry out personnel policy over them by way of selection, elections, determining the tasks and roles of the players in the team and are the main motivators of the athletes. We conducted a survey of a sample of 20 respondents, operational managers - coaches from the Macedonian football league, in order to determine the attitudes and opinions about their role and influence on the motivation of athletes in sports clubs. For the research, we used a survey questionnaire as a measuring instrument. After analyzing the survey questionnaire, we came to the conclusion that:

- Spreading the vision, mission and goals in a sports club is the responsibility of the operational manager, where the majority of respondents believe that, apart from them, these characteristics should be possessed and implemented by every member of the management team.
- The majority of the clubs and operational managers as an integral part of them, pay great attention to the motivation, to maintain it at a high level among all the athletes and the team as a team, which they consider to be a key factor for achieving the set goals.
- Various motivational speeches, messages and awards in the form of finances from the management are considered part of the motivation in order to

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maintain it at the highest level, which are part of the external motivation, and the internal one has the key role for every single athlete.

- In sports clubs where there are sufficient financial resources, operational managers try to maintain motivation with a sports psychologist, who will additionally motivate them through various methods, all with the aim of preventing monotony from occurring, which can lead to various unwanted decisions in athletes.

Keywords: sports clubs, operations manager, athletes, power, authority, motivation, sport, football, motivator.

Introduction

In the present and especially in the time to come, in which the most important resource is people, and at the same time the most important factor of the effectiveness and efficiency of the enterprise and therefore of its competitiveness, growth and development, motivation (all stakeholders, especially insiders) is emphasized as the peak of the interest of all the bearers of responsibility in the company. Motivation can be defined as the process of moving, directing and maintaining human behavior towards a specific goal. The athlete, that is, every person has conscious and unconscious reasons why he behaves in a certain way. Those reasons are defined as motives. Motives are incentives that direct human work towards a specific goal, maintain work and increase its intensity. Motivation can be defined as the process of moving, directing and maintaining human behavior towards a specific goal (Ivancevich&all, 2005). Motives are the driver of human activities, they direct them in a certain direction and maintain them until the goal is fulfilled. Many researchers and operational managers have addressed the question: what drives human activity? Getting the answer to that question is essential for operational managers who can motivate athletes toward achieving high goals. The reason for this is simple: sports clubs achieve their goals in the same way that operational managers and athletes achieve their assigned work tasks.

Defining motivation and motivation in sport

Anyone who knows the reasons for our behavior and how consciousness does not reach them holds in his hands a powerful weapon to influence what we do. That's why this aspect of human psychology, called motivation, causes great interest and is considered one of the most important in personnel management (Uzunov, 1998).

Motivation is a set of concepts used to explain the reasons for human behavior and the logic through which people choose their actions. Motivation is a key factor in understanding human behavior. Motives are internal triggers of action. By understanding human motives, we can direct certain behavior in a desired direction. Knowledge of human motivation is key to understanding overall human functioning within the organization as well. That is why motivation is the most studied (O'Reilly, 1991).

Motivation is the most important psychological component of sports activity. Motivation mobilizes the person to realize his abilities, knowledge and skills. Sport in itself is an inexhaustible source for motivation, for the expression of abilities, but also for expanding the boundaries of the feeling of satisfaction, especially the ultimate experience, which occurs at the moment of self-actualization, which, according to the theory of the hierarchy of human needs (Maslov, 1982) represents a need of the "highest order". High motivation contributes to an increase in mental and physical performance to achieve high competitive results. In such cases, motivation is a positive stimulus and the athlete is obliged to be able, through self-suggestion, to bring himself to a situation of admiration, increase interest in achieving high results, strengthen perseverance - persistence in achieving goals in readiness for everyday overcoming the increased efforts (Keramiciev, 2006).

Personal motives are identified as the main driving forces, both in the process of long-term and difficult training, as well as competition motives, the motive for joy and pleasure, and the motive for the result. Motivation is the basis of every sporting effort and success. Without the desire and determination to improve performance in sports, all psychological factors such as self-confidence, intensity, concentration and emotions have virtually no effect. For an athlete to be the best, he needs motivation to increase his abilities and achieve his goals. To give their best, athletes must persevere in the desire to grow and progress every day as well as make a work plan with a specific time limit that will lead them to achieve the set goals. Motivation in sports is very important because there must be a desire for progress and work even in those moments of fatigue, monotony, pain, depression or any other desire to start doing other things. Motivation must exist in all segments that influence the success of sports: mental preparation, technical-tactical training, nutrition, good sleep, etc. The reason why motivation is so important in sports lies in the fact that it is the only segment that can be absolutely controlled. Motivation directly affects how effective your performance will be, and it is absolutely the only factor that cannot be directly influenced. If you are extremely motivated to improve your performance, then you will find the time and the way to improve it. Motivation affects the level of readiness when the competition itself begins. If we have two teams or players who are identical in techniques, tactics or physical skills then motivation is the deciding factor for the winner. In other words, the winner is the one who is more motivated.

Often when it comes to sports and the motivation in it, we start from the operational manager himself - a coach as he motivates the players. The coach should know how to motivate the athlete as an individual, regardless of whether it will be for a shorter or longer period. If he succeeds in that, the athletes will show more interest in work and training, and if he fails, the athletes will behave the opposite, i.e. they will not give their best. Motivation in sports can best be described as the desire of athletes to achieve success with their results. It is very important for the athlete to know himself, which can motivate him to achieve the set goals. Coaches know how to emphasize that, because motivation and sportsmanship are the ones that need to be maintained even when the athletes are in that period when they experience their decline, which cannot be avoided in the sports career of an athlete. Of course, everything depends on the sport he plays, but since our respondents were football operations managers, motivational speeches before the match itself are very important, even at halftime, the coach should know how to motivate a player who has noticed that he is not giving his best. at most, he thinks he can do it.

In sports during training or competition, there comes a time when the player already feels tired and does not do it with desire. That moment in practice is known as the moment of "boring point". It is something that separates successful athletes from those who have not achieved their goals. Many athletes when they reach this point either give up completely or partially, giving up only work, effort and full commitment to training. Motivated athletes will also reach a "boring point" but unlike others they will keep going.

Signs of low motivation are:

- Lack of desire for training to the extent it should be;
- Less than 100% effort during training;
- Avoiding, shortening or insufficient engagement in training;
- Effort that is not in accordance with the set goals.

"SOP" Formula - Main motivation means spending 100% of your time, effort, energy and focus on all aspects of football. It includes all the aspects that lead to being the best athlete. The main motivation to become the best athlete lies in the "SOP" formula. The letter S represents the direction. Before achieving the main motivation, he must consider all the options that football brings or requires. He has three options, one is to stop playing it, the other is to continue playing football at the level he is at, and the third option is to strive to be the best athlete. The letter O in this formula represents a decision. Of the three directions, he has to decide which one he will take. None of the instructions are good or bad, it's simply the player's choice and decision. Q stands for commitment. When he makes a decision, he must commit to it. If a player's decision is to become the best player then commitment will determine if he has the main motivation or not.

Subject and objectives of the research

The subject of this research are the attitudes and opinions of 20 Macedonian football operational managers - coaches about the power and influence of motivation among their athletes in the sports club where they work.

The objectives of this research are:

- 1) To see who is in charge of spreading the mission, vision and goals of the club, i.e. who is the leader and whether he should create and initiate changes in the sports club.
- 2) To see the characteristics of the leader (captain, coach, manager) in their clubs, ie whether he is positive, honest and full of optimism.
- 3) To see if operational managers - coaches work in the field of motivation among their athletes and how they develop it in order to realize their goals.
- 4) To see the influence and power of leadership on the motivation of athletes.

Methods

The survey method was used for this research. As a measuring instrument, a survey questionnaire was used, which is composed of 10 questions, which give an answer to what is the attitude towards motivation and leadership and how football coaches motivate their athletes in sports clubs. The questions are of closed and open type (9 questions are of closed type and 1 is of open type). The questions are asked clearly and unambiguously and the weight and form are adapted to the category of the respondents. A sample of respondents were 20 Macedonian football operational managers - coaches of different genders and ages. The survey questionnaire was conducted electronically through the www.surveymonkey.com application, and it was completely anonymous. The processing of the data obtained from the survey questionnaire was carried out in the above application, and the results are presented in percentages (%).

Results and discussion

The influence and power of the operations manager on the motivation of athletes is great. Motivation is a significant factor on which the success and work of a sports club depends. Because of that fact, we wanted to determine what are the attitudes of the Macedonian football coaches and how much they see themselves in the role of a leader and how they implement and maintain motivation in their teams. For the stated reasons, we conducted

a survey questionnaire. The results obtained from each question are shown in order. After analyzing the survey questionnaire, we obtained the following data.

When asked who is in charge of spreading the mission, vision and goals in the sports club, we got the following results:

- 35% of the respondents believe that the operational manager - the coach in a sports club should be in charge of spreading the mission, vision and goals in the sports club, he leads the players and he has the best communication,
- 35% of respondents believe that all employees in the club - management own the role of spreading the mission, vision and goals in the sports club and
- 30% of respondents think that it should be the general manager.

The operational manager and leader never takes advantage of his associates or followers, but looks to the best possible way to use his opportunities, the talent he has, his initiative to undertake some changes in the club. That's why we asked the operational managers - the coaches represented in the clubs if that characteristic is correct, that they take over and initiate changes in the sports club, and we got the following results:

- high level, 90% of the respondents answered positively, that operational managers create and initiate changes in the sports club,
- only 10% of the respondents believe that the operations manager should not create the changes in the sports club.

As a very significant characteristic of operational managers - coaches in any field is their positivity at all times, the charisma they possess, optimism, etc. The results of asking operational managers if they are honest, full of positive energy and optimism, we got the following results:

- a high level of 65% of respondents answered positively, that they as operational managers should possess those characteristics, while,
- 25% of the respondents answered that they partially agree, that the operational manager-leader can sometimes possess those characteristics or should possess only a part of them,
- 10% of the respondents do not agree on the possession of the mentioned characteristics.

Motivation - a word that has a very big and special influence on everyone in the sports club and especially on an individual field, and that is to influence and maintain the motivation at a high level in each of the athletes, so that it does not reach the point of boredom which is above stated but also to be able to persevere in achieving the set goals. When we asked operational managers whether they often work and pay attention to the level of motivation among athletes, we got the following results:

- 90% of respondents pay attention to the level of motivation among athletes, as a very significant factor for players, but only in this way will they be able to give the maximum for the team, and therefore they devote part of their time to motivation, while,
- only two of the total number of operational managers or 10% of the respondents do it periodically and only before a match, because they think it is enough to achieve success and realize the set goals.

Fatigue is inevitable in sports and that's why every operational manager - coach should know how to deal with it and how to remove it from the players in the fastest and best way possible so that they can work again with full intensity. When asked what they do in those periods as operational managers when the players are overworked, tired from training and matches, the answers were divided as follows:

- 40% of the respondents give the players a rest, whether it is a day or two to rest and then return to training,
- 40% of the respondents believe that they should be rewarded with external things such as prizes, premiums, some recognitions that will be of great contribution and additional motivation for the players to continue with the same intensity that they maintained and had, while,
- 20% of respondents answered that they take actions to maintain their motivation at the highest level, which contributes to players training, being dedicated to training and matches, being mentally prepared by a sports psychologist.

Given that we previously described the SOP formula and saw how significant its application and impact is, we asked operational managers whether they, as coaches, actually believe that with motivation they help athletes determine their path, decision and commitment to the training itself and football as a sport and whether they as coaches take guidance to help them with that. From the results of this question, 100% of the respondents fully agreed that in this way they will help the players to achieve the goals, directions and convince them that their decisions are theirs and they should stick to them.

Motivation should be constantly developed and maintained at a high level. When asked how they develop motivation in an athlete, we got the following results:

- 90% of operational managers in the clubs answered that they do this by telling them motivational messages and holding speeches that will further motivate them not only before matches but also before and during training,
- 10% of the operational managers think that it can be done and further develop the motivation among the players in such a way as to find an ideal pair for training, who will constantly motivate and improve each other, because working in pairs has shown that is more effective when done every day than when done individually every day.

Captain is a title given to one of the team members. The title is often honorary, but in some cases the captain can have significant responsibility for strategy and teamwork when the game is played on the field. In any case, this is a position that indicates honor and respect to one of the teammates, but we wanted to find out what characteristics the captain should have and possess according to the operational manager - the coach and in what way he determines him to lead his team. From the obtained results, all were the same, i.e. 100% of the respondents agreed that they choose him in such a way that he gives support and help to his teammates, but he is also fully supported by them, to be brave, determined, intelligent and know how to make a correct decision in a certain situation as the captain of the team itself.

In order to achieve success, it is important that athletes focus on the conative characteristics as much as they focus on the body. That's why sports psychology has been gaining momentum lately, helping many athletes improve their skills and reach their potential. With that in mind, we asked operational managers - coaches whether they think that the sports psychology used by athletes is a key factor for players and for building them as professional athletes with the greatest number, that is:

- 40% of respondents believe that this is so and that it is a key factor for a professional athlete, but that the clubs do not have enough finances and conditions,
- 35% of the respondents think that this is completely true and they agree with it, they probably apply it in their clubs and
- 25% of the respondents answered yes, but they do not pay enough attention to each player as an individual, but do it and act on them only collectively and if they consider and have time and finances, they do it individually for some or part of the players.

On the open-ended question to the operational managers what they do to motivate the athletes to realize the set goals, it can be said that the opinions of the coaches somewhat coincided and almost have similar thoughts about motivating their players to achieve it. which is outlined. In order to achieve the set goals, but also to build themselves as professional players, some of them consider that they maintain their motivation with various motivational speeches, messages, financial rewards, this includes premiums. The team spirit is represented to show that they are the best to lift the club to a higher level than it is, to instill the winning mentality and always be hungry and thirsty for new victories. Some of them believe that the hard work, dedication and daily monitoring of all the innovations in the club as well as the players themselves, how they train daily and how much they invest in themselves from training to training, in order to prove themselves in the match that is theirs every weekend as players but subsequently to achieve success for the club.

Conclusions

Based on the obtained results we can conclude that:

- The operational manager - the coach should be as dedicated as possible, if he wants persistence he is the one who should show it first and if he wants some kind of change he should be ready to be the first to do it and take steps for that change. Consistency between words and actions is what characterizes operations managers, which creates trust and motivates the team. The operations manager is the one who provides constant support and assistance to the athletes, taking full responsibility for both the achievements and the problems that may arise during the implementation of the effort, the courage to make difficult decisions, initiate changes and know how to admit their errors if any.
- By creating an atmosphere and understanding, creativity and innovation is achieved by the joint work of all athletes in the team and thus the team atmosphere is created. It is the operations manager who communicates to team members the vision, its meaning and the value it will have when it is completed. In particular, the flow and completion of the effort should be considered from the perspective of individual team members and the vision for the future should be shared with them. It will ensure that team members see the benefits that they will personally have through the realization of the effort which can lead to greater motivation of the entire team.
- The operational manager of the team should be rational and set certain limits, at least his vision for the future, so that any deviation from the results will not lead to disappointment in the future.
- The operations manager is very important and he, as a person, deals with introducing, leading and motivating the team to achieve the future goals and vision of the club together with him. During training, players should learn to use the appropriate motivational tools, depending on the desired organizational culture and goals of the club. By becoming familiar with performance evaluation methods and rewarding the desired behavior and results, players in their future work will be able to create a reward system in accordance with the needs of the team that encourages the desired team atmosphere and maximizes business results. The use of appropriate performance measurement systems and a permanent system of rewarding and motivating directly affect business results, increase cohesion within teams and the organization as a whole, as well as employee satisfaction in general, which returns the club's investments in the development of itself area.

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SPORTS AND RECREATIONAL FACILITIES - DRIVERS OF MODERN TOURISM IN BOSNIA AND HERZEGOVINA

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Abstract: Sport and tourism individually and with each other have become important economic activities of each country.

In the past, the rest and peace of tourists were primary, and today health and active, recreational holidays have taken precedence in the justification of tourist requirements and movements.

There is a noticeable trend of abandoning the concept of "mass consumption" and "mass tourism" because this type of spending on products and services does not meet the needs of modern consumers. Today favors selective forms of tourism: isolated, health, sports and recreation, rural, agritourism, business and all other forms of tourism, which are a combination with nature and return to nature, and benefit from improving, preserving human health and increasing quality of life. By satisfying the needs of modern tourists, through sports and recreational facilities, the number of tourist arrivals will increase, higher employment will be achieved, entrepreneurship will be activated and higher incomes will be generated.

Keywords: tourism, sports, recreation, entrepreneurship, economy.

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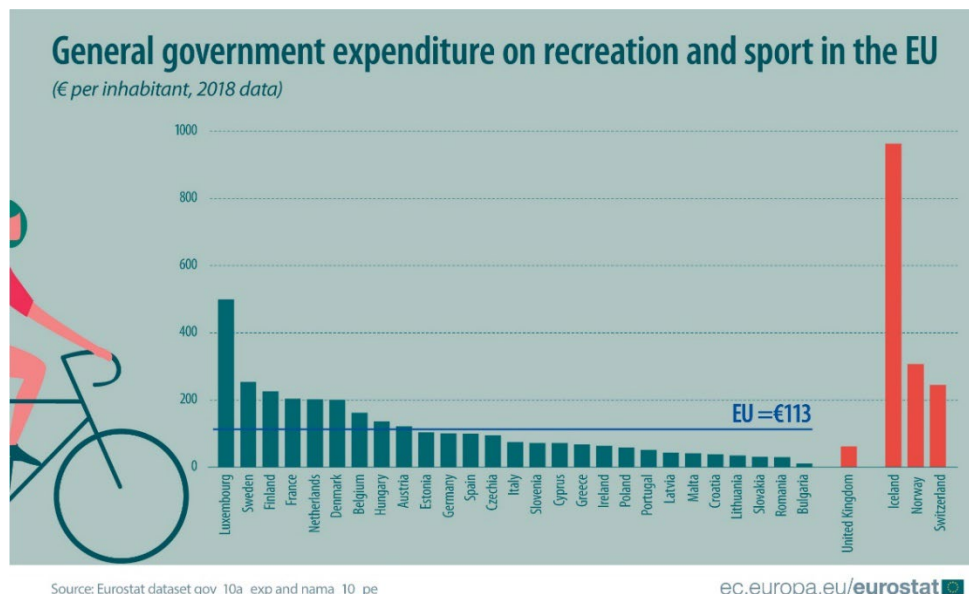
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Introduction

Tourism implies the process of travel and longer stay outside the place of residence in search of rest, recreation, relaxation and pleasure, with the use of commercial services. The health of the individual and society has become a basic status symbol in the modern world, especially after the pandemic that hit the entire planet. The crisis caused by the COVID 19 pandemic has shown that no one is untouchable: the rich, the successful, the young, the old, the educated, the uneducated. Only those who were healthy profited. This opened the door to new types of health and sports tourism and new, combined and innovative contents of annual vacations.

In order to be able to adequately monitor these trends, appropriate infrastructure is needed, both in the destination and in access to the destinations." Investing in sports infrastructure increases the participation of the population of all generations in sports activities, which directly improves the population's health, physical appearance, and the quality of human life. capital and the so-called soft skills in the workplace – self-discipline, endurance, coping with stress and teamwork. All these factors are important factors that have been proven to increase the productivity of workers at the workplace, and higher productivity means higher wages," concludes Globan.

Table 1. State investments in sports and recreation per capita



Source: Eurostat.

In 2018, the EU's 27 Member States spent €50.7 billion of government expenditure on recreation and sport. Overall in the EU, general government expenditure on recreation and sport has remained relatively stable as a percentage of total expenditure since the beginning of the time series in 2001. In recent years, however, slight increases in the shares of total expenditure were visible. Highest share of expenditure on recreation and sport in Hungary, lowest in Bulgaria, Ireland and Malta. In 2018, the ratio of government recreation and sport expenditure to total expenditure varied across EU Member States, from 0.4% of the total expenditure in Bulgaria, Ireland and Malta, to 2.1% in Hungary.

In order to follow these trends, adequately educated personnel are needed, who will increase the interest of tourists in our country, keep them for a long time by providing quality service. Investment in personnel is of great importance for the state, because only educated personnel can cope with the demands of modern tourism.

Research problem

Sports tourism or travel to participate in sports and travel to watch sports. Sports tourism is the temporary travel of people outside their homes and workplaces, which includes experiences that are not in their daily lives. Sports tourism is the experience of physical activity connected with the experience in the place itself (Volić, 2009). Sports tourism is a temporary trip and stay of an individual outside the usual place of residence due to: participating in physical activity, watching physical activity and visiting attractions related to sports (Kesar, 2011). Sports tourism is represented by all forms of active or passive involvement in sports activity, on an individual or organized basis for commercial or non-commercial purposes, which require travel outside the usual place of residence, a form of tourist movements in which sport is the main motive, (Kesar, 2011).

In order to understand more clearly what kind of tourist movements we are talking about, that is, in what conditions sports experts in tourism operate, let us first define what we mean by the term sports tourism. We classify sports tourism in the so-called specific forms of tourism that are based on the motivation for travel, that is, what is important to distinguish them is "the motivation for travel and the content of staying in a certain tourist destination." (Bartoluci, 1985). Thus, we define sports tourism as "tourism in which sport is the main motive for traveling and staying in a tourist destination." (Bartoluci, 2003). Tourists have a wide range of budgets and tastes, which requires a wide range of contents and offers in resorts, hotels, public and private accommodations. Tourism brings economic benefits to countries, because it attracts a large number of visitors who, apart from accommodation and food, spend money on

other needs. Tourism employs the population in transport, hotels, catering, health-care, sports, trade and all production and service activities.

Sports facilities, sports and recreational workers, sports animators can enrich the tourist offer with their organized activities and lead to an increase in employment and economic income. In this way, over time, these places and regions become recognizable and build the image of a desirable destination. Connecting sports and tourism is an ideal combination that benefits the population, the community and the state. Bosnia and Herzegovina has no tradition as a tourist destination, it is a country of unrecognized and untapped opportunities. With an enterprising and creative team of managers, tourism and sports experts, they could become one of the leading tourist destinations in the Balkans.

Sports recreation in tourism

Sports facilities are becoming, today, one of the most important motives when choosing tourist destinations. "Sports and recreation are becoming a growing need of people, for which they are ready to allocate more and more money." (Bartoluci, 2003).

The latest trend in choosing a tourist destination is the so-called. "sports recreation in tourism", as a prerequisite for choosing a certain tourist or business destination. Modern tourists and guests want an active, dynamic vacation, because it affects the following aspects of health:

- Preservation of mental and physical health;
- Improvement of functional and work ability;
- Prevention of all types of diseases;
- Prevention of fatigue;
- Regulating body weight;
- Eliminating and reducing stress;
- Alleviation and/or removal of tension and pain;
- Post-pandemic recoveries.

Engaging in different types of recreation, according to age, affinities, and state of health, significantly affects and improves the biological-health and social-psychological balance, and creates a positive attitude and habit of how to make good use of free time and annual vacation.

Table 2. Sports and recreational tourism

Free choice of sports and recreational content	Organized forms of sports recreation	Programmed sports recreation
Bathing, swimming, diving	Training in all sports	Wellness
Walking, hiking, cycling, hiking	Excursions, tours, orienteering, safari	Medical active vacation programs (MPAO)
Bowling, miniature golf, tennis, badminton, table tennis	Sports and recreational competitions in all sports	Active holiday programs (PAO)
Sailing, hanging, horse riding	Team building	Health-preventive programmed active vacation
Football, basketball, volleyball, fitness centers, gyms	Organized exercise, aerobics, fitness training, breathing exercises (yoga, etc.)	Targeted active vacation programs

Source: Creation of the author

Depending on the geographical and cultural characteristics, climatic conditions, age and age group of visitors, habits, various contents and forms of sports and recreation are organized. Given that the sphere of interest is sports and recreational facilities that require very little investment, it is a development opportunity for small and underdeveloped countries, such as BIH. According to Eurostat statistics, state investments in sports and recreation in the European Union amounted to 51.3 billion euros in 2017, the sports industry contributed 2% to the gross domestic product of the EU, approximately 300 billion euros, which is significantly more than other types of industries.

The increase in sports and recreational content in tourist destinations leads to an increase in the production and sale of various props, the construction of sports fields or just the adjustment of natural paths, forests, rivers and the like, which all increase economic activities, which are caused by the development of tourism, i.e. its multiplicity . The increased influx of tourists requires accommodation and catering services, which is another new economic activity, such as the accommodation industry, or catering and gastronomy.

Recommendations

Bosnia and Herzegovina is a tourist destination with numerous natural, cultural and historical resources and favorable climatic conditions. Years of mixing religion, culture and tradition created the basis for the development of a specific and unique tourist product on the market. According to UNWTO data, Bosnia and Herzegovina is defined as one of the three tourist destinations in the world with a total tourism market growth potential of 10.5% (for period until 2020).

Accommodation in the center of Europe offers the potential to attract a large number of tourists in the area of 3 hours of flying time. Also, internationally recognized and important events such as Sarajevo Film and Glas as a destination with a relatively low cost of services and a rich gastronomic offer attract a large number of tourists.

The tourism market of Bosnia and Herzegovina consists of the following types of tourism: winter tourism, cultural tourism, eco, ethnic tourism, adventure tourism, religious tourism, health tourism and coastal tourism. In addition to active vacations, contents such as different types of recreation, sports preparations throughout the year, organization of sports events, sports camps, sports animations by famous and successful athletes and clubs contribute to the strengthening of sports tourism. Investing in sports infrastructure can significantly increase and strengthen the tourist and sports offer.

The sports offer with hotel accommodation enables athletes, passive and active tourists to spend their vacation in a meaningful way. The tourist offer of such hotels and accommodation facilities includes the possibility of using outdoor or indoor swimming pools, gyms, sports fields, bicycle paths, trim paths, mountain routes, instructions from educated sports and recreational trainers and animators, and the offer of diet or healthy meals.

In order for Bosnia and Herzegovina to become a desirable, recognizable, high-quality sports and tourism destination, it is necessary to:

- Recognize and valorize natural and social contents as a tourist destination, which we have in abundance, but are still predominantly in the form of "raw materials" and predispositions;
- Advertise and promote natural, geographical, climatic, cultural values;
- Mutually connect tourist facilities with sports and recreational activities;
- Promote recreational tourism in our area through the media;
- Promote ecologically preserved space, ecological food and ecotourism as one of the newest and most desirable forms of tourism;
- Work on building and strengthening the tourist image; considering that BiH does not have a tradition of being a tourist destination;

- Educate professional staff (animators, instructors, leaders, trainers, kinesiologists) who deal with the problems of tourism and the problems of sports in tourism;
- To bring all services closer to the lower layers of society and thus mass sports tourism.

All the mentioned contents will not get their valorization in the tourism sector, if they are not promoted in a modern way. Natural resources (unused) suitable for the development and strengthening of sports and recreational tourism in Bosnia and Herzegovina are:

- Wild rivers for adrenaline sports and calm rivers for recreational sports (Vrbas, Una, Drina, Tara)
- Mountain biking, sport hunting, hiking, recreation, paragliding, winter sports (Jahorina, Vlačić, Kozara, Dinara, Bjelašnica)
- Air bungee training for athletes and schools in nature, health tourism
- Medicinal, mineral water spas that are at the top of the demand for health tourism (Mlječanica, Guber, Teslić, Laktaši, Ilidža, Srpske Toplice) and more³⁷.

Table 3. Types of natural resources in Bosnia and Herzegovina according to contents and possibilities of active vacation

Type of attraction	Centers, locations, regions	Contents and objectives
Wellness	Hotels and centers with better equipment	Health protection and improvement, relaxation, recreation, natural agents
Spa centers	Spas, thermal springs, pools with spa water	Diagnostics, therapy, treatment, postoperative recovery, prevention of various diseases, strengthening of the general condition
Health tourism	Sea, spas, air spas, mountains	Thalassotherapy, diagnosis, treatment, therapy after surgery, prevention
Sports tourism	In almost all centers there is some form according to the size of the space	As many types of sports as possible for different ages and categories of tourists

³⁷ Connecting coastal and continental tourism is the chance of our continental cities (eg Trebinje and Mostar), which are overloaded and tourists have no space for sports and recreation. Modern tourists increasingly choose continental destinations with accommodation and food, rest and peace, healthy local food, and use the sea only for swimming.

Nature parks	All protected zones	Eco tours, watching animals in the park, hiking, various tourist tours around the park, depending on additional content
National parks	All national parks	Eco tours, watching animals in the park, hiking, various tourist tours around the park, depending on additional content
Recreational competitions	In all centers	Sports games, regattas, old sports, village Olympics, horse riding and the like
Rural tourism	Rural environments	Farm work, walks, observation of the environment and flora and fauna, learning
Extreme tourism	In suitable locations or nearby	Speleology, parachuting, mountaineering, diving, rafting
Religious tourism	Religious centers, alone or near tourist facilities	Pilgrimages, spiritual healing, visiting religious destinations for scientific and other reasons
Hunting tourism, fishing	Hunting areas	Hunting, fishing, spearfishing

Source: Creation of the author

Considering the large representation of sports and recreational content in our country, which only proves that the area of our country is suitable for any form of sports and recreational activities, sports and recreational tourism as a specific form of tourism is still not at the enviable level at which it should be. be. Bosnia and Herzegovina has a huge tourist potential, which we still need to redirect better so that tourism becomes the primary economic branch of our country. Tourism as an economic branch has perhaps the greatest perspective of all economic branches in the country, and precisely because of this, it is necessary for the state to allocate significant financial resources for its development.

Conclusion

Modern tourist destinations include a rich offer of sports and recreation facilities, which become the main reasons for the arrival of visitors. Free time, vacation, lasting several days or more, is an exceptional opportunity to make up for numerous psychophysical needs that are missing in everyday life. Adequate exercise should be an integral part of rest, especially since in today's working conditions, most workplaces

have such workloads that recovery is achieved faster with active than passive rest (Andrijašević, 2010).

The economic importance is shown by Eurostat data, where state investments in sports and recreation in the European Union in 2017 amounted to 51.3 billion euros. The sports industry participated with 2% in the gross social product of the EU, approximately around 300 billion euros, which is significantly more than other types of industries.

In Bosnia and Herzegovina, after the events of the war, the economic crisis, and the pandemic, a massive action by the authorities and experts is yet to come, to harmonize the tourist offer according to modern market requirements, where the emphasis is placed on active, sports and recreational content. The increasing development of tourism will lead to greater investments in it, and thus to economic growth. How seriously the government has taken the development of tourism shows the introduction of tourist vouchers for all adult citizens in the amount of 100KM that can be used in the country. The degree of utilization of vouchers was high, which shows that tourism in BiH has a perspective. Sports and recreational tourism is one of the fastest growing parts of tourism in the country and as such requires investments from the state. Vouchers and other financial investments and regulations will lead to a serious branch of the economy and thus be a driving force not only for the development of tourism but also for other closely related economic branches.

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BRAND MANAGEMENT ON THE EX AMPLE OF “ADIDAS AG”

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Abstract: Adidas is considered one of the most famous and successful sports brands, which strives for constant development and progress, which is shown by frequent innovations and new models, but also by very original advertising campaigns. In today's business, the brand has become the need of every company, and in the life of every consumer, over time, it has become an indispensable factor.

Adidas has recognized the importance of the brand in modern business, and thanks to this, it will definitely achieve a long-term competitive advantage on the market and be in the leading positions of its markets.

Keywords: brand, brand management, Adidas AG, business case

Introduction

Adidas - the name mentioned in all sectors of sports around the world, using three guiding principles: design the best for the needs of the sport, protect athletes from injury and make the product sustainable and durable.

The subject of research of this paper is the presentation and analysis of how the global company *Adidas* manages its globally known brand. This serves to prove whether customers trust the quality of the brand *Adidas*. Brand management is a strategic process that enables companies to create a strong and distinctive image in the minds of

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consumers. It involves carefully planning and implementing various marketing activities to establish a unique brand identity and ensure its consistent representation across different channels. Effective brand management encompasses a wide range of practices, including product positioning, brand communication, brand extension, and brand equity measurement.

One of the key principles of successful brand management is the establishment of brand positioning. This involves defining the unique attributes and benefits of a brand to differentiate it from competitors and appeal to the target audience. By conducting market research and identifying customer preferences, companies can craft a positioning strategy that leverages their brand's strengths and aligns with customers' needs and motivations. This strategic approach helps to create a distinct and memorable brand image that resonates with consumers, leading to increased brand loyalty and market share.

Another important aspect of brand management is effective brand communication. Companies must develop consistent and compelling messaging across various marketing channels, such as advertising, public relations, and social media. By conveying a consistent brand story and value proposition, businesses can build a strong emotional connection with consumers and reinforce the desired brand image. Integrated marketing campaigns, incorporating both traditional and digital media, play a crucial role in reaching the target audience and effectively communicating the brand's unique attributes and benefits.

Brand management is a critical aspect of marketing strategy that requires careful planning and execution. It involves positioning the brand in a way that sets it apart from competitors and resonates with the target audience. Additionally, maintaining consistent and compelling brand communication helps to build a distinctive brand identity and foster consumer loyalty. Companies that effectively manage their brands can establish a strong market presence, ensuring long-term success in today's competitive business landscape.

Brand management

The American Marketing Association (AMA - www.ama.org) defines *brand* as a name, term, sign, symbol or design, or their combination, to identify the goods or services of one producer or group of producers, or to differentiate them from competitors (Kotler, Keller, 2008). Brand is the signature of the company. When we go shopping, we look for well-known brands that have gained the trust of the majority of people and that have maintained the competitive status for years and survived to occupy the best position in the market. For example, when buying running shoes, the consumer is not interested in the properties that the shoes

have, but how these properties will affect the benefits that the consumer will have while running (comfort, flexibility, adaptability of the foot to the shoe, etc.). The basic parts of a brand are the *name and the sign*. The *name* is the part that is often pronounced, easy to remember, and consists of words, numbers and letters (eg *Adidas, Nike, Puma AG, Reebok, etc.*). Brands permeate every pore of our lives. They penetrate into the economic, social, cultural, sports and even religious spheres (Kapferer, 2012). Kotler, Pfoertsch, 2007, point out the brand as a significant part of the culture of the business world that helps people make both big and small decisions. Brand creation is the most important process in companies, which invest billions of € in their brands. There are many other definitions of brand (Table 1).

Table 1. Brand definition

author	definition
de Chernatony & McDonald, 1992	A successful brand represents a recognizable product, service, person or place, in such a way that the customer experiences a unique added value, which best meets his needs.
Ambler&Styles, 1996	A brand takes into account all elements of the marketing mix. It is defined as a promise in product/service features, that someone will buy, and provide satisfaction.
Davis,S.M., 2002	For the consumer, the brand represents a set of promises that include trust, immutability and expectations.
Meyers, 2003	A brand is not only an object of exchange, but also a means of mutual interaction between stakeholders.
Jobber, 2004	The brand is a confirmation of quality.
Neumeier, 2005	In the traditional understanding, there are 4 tactical objectives of a brand to: identify, inform, entertain or persuade. There is also a fifth (strategic), to make a difference.
Вељковић, 2009	The brand represents the way in which the consumer sees, perceives and understands a specific brand (brand) in all dimensions.
de Chernatony, 2010	A brand is a set of functional and emotional values that allow companies to build a promise to customers of a unique and enjoyable experience.

Source: Created by the author, 2023

Brand history

The first idea of the whole concept was to set certain products apart and distinguish them from others, in order to achieve recognition and easier identification. It was first introduced in ancient times, in ancient Greece and Rome, as well as in Etruria (*Clifton, Simmons, 2003*). The first forms were associated with the marking of products, which primarily referred to markings on pottery, of which there are preserved evidences (*Veljković, Đorđević, 2010*). Buyers could first see advertisements (England) in newspapers in the 17th century. Through the industrial revolution and together with the advancement of the economy, there appeared an increasing need for advertising through print media. *Volney Palmer* in 1843 founded the first advertising agency. Companies may produce goods, but consumers buy primarily the trademark - brand. *Philip Morris* bought *Kraft* (1988) for six times the amount (*Smith, Malone, 2003*). This difference in price was attributed to the brand name, which until then was abstract and immeasurable (*Olins, 2003*). Owners of cows in North America used to leave a clear and visible imprint on the fur of their animals (*De Chernatony et al., 2011*). In 1922 there appeared the entry of the term "brand" into marketing, as a complex term indicating a trade or proprietary name (*Stern, 2006*). The notion of branding stands out as a source of "conflict" among manufacturers, resellers, wholesalers and retailers, who were fighting for a position with customers. The importance of advertising, branding and labeling had been recognized; manufacturers perceive quality as a basic supporting element of branding. *Maynard, et al* in 1927, were specifically aimed towards the channel of distribution of goods from producers to consumers, as part of marketing. In order to reduce the dominant position of wholesalers, the balance of power was transferred to manufacturers. Many large manufacturers had initiated branding, advertising and the use of sales channels. The first television commercial (watch manufacturer *Bulova*) was broadcast in July 1941. Today, this trend is framed in concepts such as brand value. Classic forms of advertising do not play a crucial role in brand building. Retail is strengthening its position and becoming more and more consumer-oriented, which enables it to assume a leadership position. Thanks to the Internet, the balance of power is in the hands of consumers. Buyers decide what level of information search they want to undertake and create brands with suppliers (*De Chernatony et al., 2011*).

Brand management strategy

The importance of branding in the corporate environment also means survival in today's increasingly turbulent market in the era of globalization. There is no way we could talk about survival on the market if market subjects do not work on creating innovations, if they do not renew their offer with new, different, recognizable, i.e. branded values.

Globalization, consolidation of the market and an increasing number of brands in the form of competitors make this area more demanding and complex for all market participants. Consumers represent the measure of brand value and they determine which brands survive and which disappear from the market (O'Shaughnessy, 1987). The study on consumer experience in the USA (*RightNow's Annual Research, 2012*) has made it evident that most consumers are willing to pay a premium price for a suitable brand, if it would provide them with a better experience. In relation to end users, the importance of the brand is reflected in safety, reducing the risk of wrong purchases and building a sense of familiarity. The importance of branding from the consumer's point of view in relation to improving market demand is systematized as follows (Rakita, Mitrović, 2007): (a) recognition, (b) decision-making, (c) loyalty, (d) security and risk reduction, (e) availability of information, and (f) communicativeness. If companies fail to follow the basic principles and steps in the branding process, the set goals will not be achieved, especially in situations where (Yan, 2002): branding is not relevant; what was promised was not "delivered"; brand does not make people happier; no financial value was created, regardless of the economic profile of the customers; branding is all about advertising; brands do not bring humanity to the company; brands do not create community. For successful implementation, it is necessary to follow these steps: (a) segment the market, (b) position yourself in the consumer's mind in relation to the competition, (c) create and plan certain marketing activities with regard to the planned strategy, and (d) implement the planned strategy and measure its sequence and performance in relation to the brand. By implementing segmentation, the company should carefully select consumers who have the same or similar purchasing needs, to whom it will direct its strategy. After that, base on the diversity and uniqueness of your offer in order to satisfy the needs and desires of consumers and provide additional benefits. Achieving such goals brings companies an increase in the market value of their brands. When creating and planning certain marketing activities (adopting a marketing plan), they must be aligned with strategic goals. Once the entire strategic plan has been adopted, we can begin to realize it, that is, we can implement a certain strategy. It is important to constantly monitor the direction and performance of certain planned marketing activities (Sicco van Gelder, 2005). It is important to listen to the market and changes in it, and to constantly review the performance of adopted activities and strategies. Strategic brand management requires a lot of investment in employees. It is then that the customer's trust in the brand increases. When it comes to global brands (Orlović et al., 2014), their management is much more complex, unlike the strategic management of local brands. The strategy differs in relation to culture in different markets (different cultures often create problems for global companies; adapting business, changing certain segments of the strategic plan, etc.), so it is necessary to constantly monitor the position of your brand in a particular market and adjust your marketing strategy accordingly.

Business case: Brand management on the example of the company “ADIDAS”

The history of the “Adidas AG” company

Adalbert (Adi) and Rudolf (Rudi) Dassler founded the *Dassler Schuhfabrik* (shoe factory) in *Herzogenaurach* (a village in Bavaria, Germany) in 1924. Their company, *Gebrüder Dassler OHG* gained international recognition for developing the sport shoes market after *Jesse Owens* won four gold medals at the 1936 Berlin Olympics wearing *Dassler* sneakers (increased brand awareness - *Britannica*). Disagreements in the family led to the end of the brothers' successful partnership (1948). The company name *Adidas* is actually a combination of the founder's first and last name, *adi-das*, as *Adalbert (Adi)*. For a while, Adidas was owned by French business executive *Bernard Tapie* who failed to revive it. The company was sold to investors who brought in *Robert Louis-Dreyfus* as the new CEO. Under his leadership, *Adidas* bought the *Salomon Group* and its brands *Salomon*, *TaylorMade*, *Mavic* and *Bonfire* in 1997. The company changed its name to *Adidas-Salomon AG*. *Herbert Hainer* became the new CEO, and with him the company's focus became even more based on innovation. In 2005, *Adidas* sold *Salomon Amer Sports* but kept the company *TaylorMade*. The following year Adidas bought *Rebook*, including the *Rockport* and *Rebook-CCM Hockey* brands. In June 2006, the company was renamed *Adidas AG*. The *Rockport* brand was sold in 2015 in order for the company to focus primarily on the *Adidas* and *Rebook* brands. After 15 years, *Herbert Hainert* handed over the baton of the chairman of the board to *Kasper Rosterd* in October 2016. *Rosterd* begins to guide the company towards new successes in the digital era. By selling the hockey brand *CCM* and the golf brand *TaylorMade* in 2017, the company further contributed to its strategy of creating novelties and it became focused on footwear and apparel as well as on the main brands *Adidas* and *Rebook*. *Bjørn Gulden* was elected CEO of Adidas AG as of 01 January 2003.

Picture 1. Founders of Adidas and Puma



https://www.whcert.com/?product_id=197041984_71

Competitive environment

Adidas is the partner of renowned athletes and celebrities around the world. The company has around 60,000 employees and operates in 160 countries around the world. *Adidas* is the world's second largest manufacturer of sports equipment after Nike. The table below provides a detailed analysis of *Adidas'* 10 biggest competitors and alternatives: (<https://bstrategyhub.com>)

Table 2. Competitive environment

COMP.	HQ	NOTE
(1) Nike Inc	Beaverton, Oregon, USA	Nike (1964), is the largest and most valuable sports apparel, footwear and equipment company in the world. At the beginning of 2023, Nike had about 76,000 employees.
(2) Puma	Herzogenaurach, Germany	Puma (1947) is one of the world's largest brands of sports shoes, leisure wear and sports equipment. In 2022, Puma had around 18,000 employees and operated over 700 stores worldwide.
(3) N. Balance	Boston, Massachusetts, USA	New Balance (1906) is a company that operates in more than 120 countries around the world including thousands of stores. New Balance is the third most popular baseball brand.
(4) Converse	Boston, Massachusetts, USA	Converse (1908) is a footwear and apparel brand owned by Nike, Inc. It has about 4,400 employees. Converse offers athletic apparel, athletic shoes and accessories.
(5) Reebok	Boston, Massachusetts, USA	Reebok (1958) is a sportswear company that offers athletic footwear, sneakers, track and fashion. The brand was acquired by Adidas for \$3.8 billion in 2005 and sold to Authentic Brands Group (ABG) for \$2.5 billion in August 2021.
(6) U. Armour	Baltimore, Maryland, USA	Under Armour (1996) is a leading manufacturer of branded clothing, footwear and accessories for sports performance. Its innovative Heat Gear, Cold Gear and compression garments empower athletes and consumers alike. It has about 15,000 employees.
(7) Lululemon	Vancouver, Canada	Lululemon (1998) is a sportswear, footwear and accessories company. In 2022, Lululemon had about 29,000 employees.
(8) FILA	Seoul, South Korea	FILA (1911) is a Korean sports and casual wear brand owned by Anta Group, a Chinese company. It is the official clothing and footwear supplier for the BNP Paribas Open.
(9) Asics	Kobe, Japan	Asics (1949) is a Japanese footwear brand that offers high-performance athletic shoes. It has approximately 8,860 employees. Asics has partnered with TikTok influencers and creators to recruit Gen Z and the fashion elite to its fan base.
(10) Gap, Inc	S.Francisco, California, USA	Gap, Inc (1969) is a clothing and accessories company. Gap products can be purchased in 43 countries in over 3,352 stores and online channels. Gap has over 95,000 employees

Source: created by the author

Adidas – sports brand

The image and desirability of the brand are of key importance for *Adidas*, which formulated the guiding principle *"we want to become the fastest sports brand in the world"*. *"Forever faster"* holds true for the range of products and applies to all processes in the company. *Adidas* products are traditionally marked with the three-stripe trademark, which remains an element in the company's newer logos *"trefoil, mountain and circle"*. The name of the brand begins with a small letter to emphasize that the brand produces casual sportswear available to everyone. The whole world recognizes the famous three stripes as the *Adidas* trademark, but the truth is that those three stripes were not owned by the brand managed by *Adi Dassler*. He bought them from the Finnish shoe brand *Karhu*. The sign used by the *Dassler* brothers had two stripes so that was out of the question, four stripes would have been too many, but three was the perfect choice. As legend has it, *Karhu* sold the *Adidas* trademark for two bottles of whiskey and around €1,600. When *Adidas* started designing and producing clothing, it also changed its logo, i.e. it uses three leaves in which the famous three stripes are carefully incorporated.

Picture 2. *Adidas* logo through history



Source: <https://www.logo-dizajn.com/adidas-logo-koliko-logoa-je-dovoljno-i-zasto-je-jedan-malo/>

Despite constant changes, the *Adidas* brand remains loyal to its origins. *Adidas* sports equipment has the greatest impact on brand perception among product categories. Key footwear franchises for the *Adidas* brand include *UltraBOOST DNA LOOP, Predator, Superstar, Adizero, Samba, Gazelle, Spezial* ... Regarding the clothing, the brand has franchises such as *MyShelter Jacket, Tiro Pant, and ZNE Hoodie*. The *Adidas* brand is famous for its quality and modern products and focuses on the upper middle class as well as top customers. *Adidas* implements a price-cutting strategy that a company typically uses to maximize profits by initially charging the highest possible price for an innovative new product and then gradually lowering the price over time to target more price-sensitive customer segments (*Prison Dharma Network, Inc*). Furthermore, *Adidas* uses a competitive pricing strategy considering competitors like *Nike* and *Puma*. A product can increase its value with other factors such as promotion, brand image and quality. *E-commerce* and

digital communication are powerful tools for *Adidas* to interact with consumers. Users of *Adidas applications* ("*adidas running by runtastic*"; "*adidas training by runtastic*") have been rewarded when purchasing. The *Adidas* brand continues to transcend cultures and remain one of the most recognizable and iconic brands, in and out of sports. This holds true regarding credibility, innovation, as well as cutting-edge fashion items that are culturally relevant. They continuously improve *Adidas 'Performance' and 'Lifestyle'*. *Adidas Originals* represents the brand classics, new visionary designs, with products that connect with culture. The brand's 2022 marketing plan has presented a series of activations across all levels of the marketing funnel: (a) *I'mPossible*, (b) *Run for the Oceans* ('RFTO'), (c) *X-Speedportal*, (d) *Members Week*, (e) *Impossible is Nothing*. As for partners and athletes, *Adidas* will continue to work on the biggest stages in the world through the following:

Table 2. Adidas partners and associates

Events with global reach	<i>FIFA World Cup, UEFA Champions League</i> , races/marathons " <i>Atlanta Track Club</i> " i Brooklyn, Cape Town, Rio Marathons, Boston, Mexico City, Berlin Marathons ...
High profile teams	<u>Football national teams</u> : Argentina, Belgium, Colombia, Germany, Italy, Jamaica, Japan, Mexico, Spain ...; <u>football clubs</u> : Arsenal, F.C. Bayern Munich, Flamengo Rio de Janeiro, Juventus, Manchester United, Real Madrid, ...; <u>ragby</u> : the New Zealand All Blacks; <u>olympic federations</u> : British Olympic Association, German Olympic Sports Confederation, American universities University of Miami, Arizona State University, University of Washington, Texas A&M University...
High class individuals	<u>Football stars</u> (L.Messi, K.Benzema, Mo Salah, P.Pogba, P.G.López, G.Donnarumma, S.Gnabry, M.Neuer, J.Bellingham, Heung-min Son, V. Miedema, W.Renard, Jürgen Klopp ...); <u>basketball stars</u> : (C.Parker, D.Lillard, D. Mitchell, J.Harden, T.Young, D.Rose ...); <u>american football</u> (P.Mahomes, A.Rodgers, J.S.Schuster, T.Lawrence ...); <u>tennis players</u> (F.A.Aliassime, M.Sakkari, G.Muguruza, A.Zverev, E.Rybakina, S.Tsitsipas ...); <u>alpine skiing</u> (M.Shiffrin ...); <u>outdoor sports</u> (S.DiGiulian, D.MacAskill ...); <u>athletes</u> (N.Lyles, S.Miller-Uibo, E.Chebet
Cultural partners	Anitta, Bad Bunny, Beyoncé, Blackpink, Craig Green, Deepika Padukone, Ding Yun Zhang, Dinos (Jules Jomby), Grace Wales Bonner, HoYeon Jung, Jay Park, Jeremy Scott, Jerry Lorenzo, Karlie Kloss, Léna Mahfouf, Lena Waithe, Lous and the Yakuza, Pharrell Williams, S.Wotherspoon, Stormzy.

Source:

The *adiClub* membership program has reached 303 million members in around 50 countries, enabling them to build direct relationships with consumers. The main objective in *wholesale* is to gain market share in key trade areas and proactively manage inventory through digital tools. *E-commerce* grew by 10% in 2022. They set new records in engagement activities such as the *Run for the Oceans*. Close to 2,000 of its own retail stores

allow consumers to interact directly with the *Adidas* brand, to try on products, feel inspired by stories and experience what the brand stands for. *Global Operations* manages the development, production planning, procurement and distribution of the company's products. *The first fashion brand in space Y-3* (Adidas fashion line) and designer *Yohji Yamamoto* announced that passengers on the first commercial space flight with *Virgin Galactic* company wore suits and boots of this brand (made of leather and fire-resistant material).

Adidas – concept store

Concept stores are one of the excellent examples of the importance of marketing and innovation in retail. *P. Drucker*, the "father" of business management, pointed out many years ago that the purpose of every business is to create and retain consumers. In comparison to traditional stores, these stores reflect a completely different approach in which they want to offer consumers a carefully selected selection of products, services and experiences, all depending on the theme or imagined concept. With this format, they want to strengthen their brand awareness and increase consumer loyalty. *Adidas* had a total of 2,184 stores in 2021, of which 987 were innovative *concept store formats* (*statista.com*). The newest of them – as an illustrative combination of marketing and innovation – opened its doors in 2022 in the center of Amsterdam. The visual solution of the entire marketing campaign before the opening rationally points to a clear message that it is *Adidas*. The goal of the campaign was to increase awareness of the opening of a new store (114 large digital screens and digital advertising next to the *Ajax* soccer field). In part of the multi-story new *Adidas concept store*, there is a Self Service Kiosk where consumers can order all products, including those that are not available on the shelves. The selected product will be delivered to consumers' home address or they can be picked up at the point of sale. The interior of the new *Adidas concept store* features sports illustrations by many modern Dutch artists.

SWOT analysis of Adidas AG company

SWOT analysis analyzes internal (strengths and weaknesses) and external factors (opportunities and threats). The results of the *SWOT* analysis indicate possible new strategic directions for further improvement of global performance and leadership. <https://bstrategyhub.com/adidas-swot-analysis/>

Table 3. SWOT analysis of Adidas company

STRENGTHS	WEAKNESSES
brand value an iconic brand with a prestigious heritage new production innovation diverse portfolio younger customers prefer Adidas efficient supply chain management strong financial position strong distribution network effective marketing strategy branding through international sponsorships sponsorship of high-profile athletes recommendation of famous people	lack of supply chain expensive products limited product line links with forced labor legal battle for patents allegation of racism neglect of the domestic market
OPPORTUNITIES	THREATS
e-commerce growing sportswear industry investing in smart materials yoga pants culture increased demand for premium sports products diversification into sports equipment global expansion first store in Singapore product development for space sneaker subscription gender neutral collection strategic partnerships collaboration between <i>Mojo Vision</i> and <i>Adidas</i> to improve their new AR contact lens	competition rapid expansion and adoption of e-commerce supplier dominance loss of trademark technological progress trade tensions between the US and China exchange rate global economic uncertainty fake products loss of popularity in China lawsuit against <i>Adidas</i>

Created by: author

Source: Business Strategy Hub, www.bstrategyhub.com

Sustainability strategy of Adidas AG

"Introduction to the 2030 Agenda: A New Agenda for a Sustainable World" was developed to achieve the sustainable development goals (SDGs). It deals with global inequality, environmental problems and the problem of access to technology. The Adidas slogan "through sport we have the power to change lives", aims to expand the boundaries of human possibilities, involve and unite people through sport, and create a more sustainable world. Achieving a truly sustainable business model is a marathon, not a sprint. Adidas offers a company-wide sustainability training program, educating employees on how to think and act sustainably. *The Task Force on Climate-related*

Financial Disclosures' enables companies to improve climate-related reporting, risks and opportunities, as well as key elements: governance, strategies, risk management, metrics and targets.

The *ESG* evaluation by the S&P rating agency in 2022 showed that *Adidas* is among the top ten in the entire S&P *Global Rating Universe*. Managing the impacts on DS along the entire value chain is a key focus of their work. They are committed to decarbonization by reducing absolute energy consumption as well as transitioning to clean energy, as well as constantly increasing the use of sustainable materials and production technologies in their products. They will continue to address efficiency, quality and reduction of water consumption, along with an advanced chemical management program.

They make constant efforts to optimize waste diversion with the aim of increasing the value of waste through recycling or reuse. The impact on DS in connection with the transport of goods (carried out by sea and truck transport) is regularly monitored. The ambition is that 90% of products will be sustainable by 2025 (made of environmentally friendly materials). Polyester, rubber, cotton, ethylene and leather are among the most commonly used materials for *Adidas* products in 2022. In the sports industry, preserving and restoring *biodiversity* is a complex challenge that requires strong collaboration between multiple actors, including direct and indirect suppliers and innovators. They are committed to using sustainable packaging materials and reducing impact and optimizing box size and number of shipments.

Most of the packaging is paper-based (sneaker and gear boxes) and is made from recycled content. For many years, they have had carrier bags distributed in retail stores made from recycled paper. *Product safety is imperative*. The Product Safety Policy ensures consistent application of product safety and compliance standards. Being a sustainable business means achieving a balance between the expectations of shareholders, the needs and concerns of their employees, consumers, suppliers, employees in their supply chain and DS. The famous sneaker model in which generations of fans of the brand "*with three lines*" grew up, now gets its own green suit.

The *Adidas Originals* brand presented to the public a new-old model (sustainable) of *Stan Smith* sneakers (made of 50% recycled materials). The form of this *evergreen* model remains unchanged, and what is new is the use of technology thanks to which each pair will now be made of 50% recycled materials, and reduces the use of "*virgin plastic*", thus fulfilling the promise that by 2024 completely eliminate the use of this harmful material. The new sneaker models are made from primegreen sole, a recycled material that sits on a white recycled rubber sole.

As for the visual details, the original, cute design interventions on the women's sneaker models that are inspired by planet Earth stand out. Plastic pollution has reached alarming proportions, and estimates say that every individual receives one ton of plastic, of which even 80% is not recycled, as a result of which it ends up in DS and literally becomes a part of us.

The *Adidas* company states that their packaging in which they sell their pair of sneakers is a recognizable blue box, made of 90% recycled paper. One green step further in that direction is an action that has not only an eco, but also a humanitarian character.

Adidas AG – activities report - 2022

Table 4. "Adidas AG" - financial report (IFRS) for the period (2018-2022)

↗ Revenue data (in millions of €)	2022	2021	2020	2019	2018
Net sales	22,511	21,234	18,435	23,640	21,915
total profit)	10,644	9,222	12,293	10,644	11,363
Income from copyrights and commissions	112	86	61	154	129
Other operating income	173	28	42	56	48
financial expenses)	10,260	8,892	8,580	9,843	9,172
EBDITA	1,874	3,066	1,967	3,845	2,882
Operating profit	669	1,986	746	2,660	2,368
Net financial result	281	133	167	102	10
Income before taxes	388	1,852	578	2,558	2,378
Income tax	134	360	117	640	669
Net income attributable to shareholders	612	2,116	432	1,976	1,702
↗ Income statement indicators					
Gross margin	47.3%	50.7%	50.0%	52.0%	51.8%
Operating margin	3.0%	9.4%	4.0%	11.3%	10.8%
Income tax rate	34.5%	19.4%	20.2%	25.0%	28.1%
Net income attributable to shareholders as a % of net sales	2.7%	10.0%	2.3%	8.4%	7.8%
↗ Net sales by product type (in millions of €)					
Shoes	12,402	11,336	10,129	13,521	12,783
Clothes	8,732	8,710	7,315	8,963	8,223
Accessories and equipment	1,493	1,187	991	1,156	910
↗ Balance sheet (in millions of €)					
Total assets	20,296	22,137	21,053	20,680	15,612
Supplies	5,973	4,009	4,397	4,085	3,445
Receivables and other current assets	4,961	4,072	3,763	4,338	3,734
Cash flow	2,475	4,978	3,328	2,179	2,979
Adjusted net borrowings	6,047	2,082	2,424	2,676	959
Share capital	4,991	7,519	6,454	6,454	6,377

↗ Balance sheet indicators (in millions of €)					
Adjusted net borrowings/EBITDA	3.2	0.7	1.2	0.7	0.3
Average operating capital in % of net sales	24.0%	20.0%	25.3%	18.1%	19.0%
Financial strength	121.2%	27.7%	37.6%	39.4%	15.0%
Capital ratio	24.6%	34.0%	30.7%	32.9%	40.8%
Return of capital	12.3%	28.1%	6.7%	29.1%	26.9%
Return on invested capital	5.3%	21.2%	8.0%	27.9%	45.1%
↗ Data on shares					
Share price at the end of the year (in €)	127.46	253.20	297.90	289.80	182.40
Dividend (in €)	0.7	3.3	3.0	0.0	3.35
Number of open shares at the end of the year (in thousands)	178,537	191,595	195,066	195,969	199.171
↗ Employees					
Number of employees at the end of the year	59,258	61,401	62,285	65,194	57,016
Personnel costs (in millions of €)	2,856	2,659	2,325	2,720	2,481

Calculated by: author

Source: <https://bstrategyhub.com/adidas-swot-analysis>

Adidas Annual Report 2022 provides a comprehensive overview of financial, environmental and social performance. The management report contains forward-looking statements, and the outlook is based on estimates. Such statements are subject to uncertainties beyond the company's control. In the event that underlying assumptions prove incorrect or described risks or opportunities materialize, actual results and developments may differ materially (negatively or positively) from those expressed in such statements. *Adidas* has all the conditions to win: a great brand, credibility, authenticity, innovation, collaboration, highly talented people and a global network.

In 2022, the entire industry was suffering from high inventory levels. As a result, many markdowns are occurring in the market. Good results are recorded especially in the area of performance. They progressed in athletics, golf, and basketball as well. In terms of lifestyle, they have collaborations with *Gucci*, *Prada*, *Moncler*... They are certain that they can - and will - turn this into a very successful formula. *Adidas* focuses on the core of the business: design, development, procurement, marketing, sales and delivery of products. It is wrong to set priorities and say that one market is more important than another market; they should be strong in each market and adapt their approach to each of them individually. They should be the market leader in Europe. They are also aware that if you are not successful in N. America, you are not really a global brand. China is the engine of growth. L.America is on the rise. The markets such as Korea and Japan are extremely focused and fashion oriented (growth opportunities). In order to win in any market, they need to know more closely what works and what doesn't. If they have a good product and the seller wants it, consumers are likely to buy it. If the

seller doesn't want it, then the consumer probably doesn't want it either. You cannot tell the consumer what they want. They need to listen to what consumers want from them. They are influenced by global athletes, celebrities and products, but must accept that there are local influences as well. They have to find that balance. During *Covid-19*, the markets moved further apart from each other. China was open and closed at the same time. The USA was open and Europe was closed. This meant product launches and the flow of industry from global to local. The political tensions and economic chaos of the last three years have also contributed to this. Things are changing fast and they have to keep up with these changes to stay relevant in the eyes of consumers. During *Covid-19*, people are returning to sports. One becomes aware of health and acceptance of individual sports, especially outdoors, such as walking, running, cycling, yoga, pilates ..., and it is very good for them! The workplace is becoming more casual, with people wearing sneakers and branded sweatshirts while working. Geopolitical and macroeconomic tensions are a challenge for companies that have seriously affected *Adidas*' bottom line. The war in Ukraine, rising energy and commodity prices, continued supply chain constraints, rising inflation (reduced household purchasing power and weakened consumer confidence), tightening monetary policy (increased interest rates), slowing consumer demand ... as well as the overall result, had significant impact on the company's operations. In this challenging environment, *Adidas* recorded solid growth in its Western markets as well as in Asia Pacific. The company continued to invest in the creation and marketing of its products, as well as in boosting its sustainability efforts and further improving its digital business. Global economic growth slowed in 2022, with an increase in global gross domestic product (GDP) of 2.9%. Despite all the challenges, global demand has benefited from major sporting events, such as the Olympic Games in Beijing 2022, the UEFA Women's EURO 2022 in England or the FIFA World Cup in Qatar 2022. *Adidas* received a strong investment grade for the first time as well as *Standard & Poor's* and *Moody's*.

Employees represent the key for the success of *Adidas*. Their performance, well-being and personal development has a significant impact on brand desire, consumer satisfaction and, ultimately, financial performance. Embedding "*diversity, equality and inclusion*" into the culture provides a real competitive advantage. In 2022, they launched a new DEI strategy for "*creating equal conditions for all*", based on three key pillars: people, culture and responsibility. The strategy contains four key dimensions of diversity (gender, LGBTQ+, race and ethnicity, and disability). *Adidas* recognizes its responsibility to respect human rights. A commitment to ensuring fair labor practices and safe working conditions in manufacturing facilities throughout the global supply chain are fundamental to the human rights approach. *Adidas* company is recognized as an excellent place to work: a) Forbes # 16 (global, 2022); b) Stern magazine # 5 (global, 2023). Active management of liquidity, cash flow and operating working capital

remains a key focus. The membership program offers personalized experiences and rewards consumers. They have developed a comprehensive performance measurement system. Key performance indicators and other important financial indicators are regularly monitored and compared to initial targets as well as ongoing forecasts on a monthly basis.

Conclusion

In the industry of sports shoes, clothing and accessories, due to technological discoveries and advances, *Adidas* successfully uses the opportunity to deepen its relationship with consumers, spreading its culture, values and lifestyle. They use environmentally friendly innovative ideas and technologies for new products. The sports brand *Adidas* uses multiple forms of promotion, such as advertising, personal selling, public relations and social media. Through their innovative strategies and various campaigns, they send clear messages to consumers about their brand, as well as the reasons for buying. The issue of brand management has been very little researched in the territory of the Republic of Serbia. Domestic authors mostly consider the issue of brand management as part of the research of a larger problem. This paper provides useful insights for people who are responsible for brand management in general and it can serve as a secondary source for future authors in further research on this topic. In addition to its contributions, this research has some limitations (sample size) that could be overcome in future research. Furthermore, it would be useful to include some new findings (assertions) in the analysis in order to obtain a more comprehensive analysis. Based on the business data presented, it can be said that *Adidas* manages the brand well.

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THE DETERMINANTS OF SERVICE QUALITY IN SKI TOURISM

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Abstract: Regarding the fact that skiing is the most popular winter sport in Europe, the aim of the paper was to analyse the main determinants of service quality in ski tourism.

When defining the research process, it was noted that literature review has recognised significant studies dealing with the concept of ski tourism from different aspects such as tourist motivation to travel, ski tourism sustainability and climate change, marketing strategies or ski tourism infrastructure. However, there is a certain research gap in exploring the determinants of service quality in winter sports. Therefore, the main research question in this paper is to identify the significant factors that influence the service quality in ski tourism and affect tourist satisfaction levels.

The research is based on a sample of 157 recreational skiers who visited the Republic of Serbia during winter seasons in years 2022 and 2023. In the interpretation and processing of data, descriptive statistics and t test were used. The findings indicated the diversity of ski tracks, landscape, nature and hospitality as the most significant determinants of service quality in ski tourism.

Keywords: skiing, ski tourism, winter sports, service quality

Introduction

The modern concept of quality emphasises the customer as the only authoritative factor for the assessment of service quality (Đoković & Celik, 2021). In accordance with this approach, the paper analyses the determinants of service quality in winter tourism with special emphasis on ski tourism. Bieger et al. (2002) define the tourist destination of winter sports as the geographical, economic, and social unit, consisting of organisations, companies, activities and infrastructure, having as a goal to enable the satisfaction of specific needs of winter sports tourists.

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The term ski tourist refers to a tourist who travels outside its residential place, with the intention to engage in the ski activities, as well as to experience other attractions related to vacation and stay in a ski tourism destination. According to Flagestad and Hope (2001) the ski tourist destination is consisted by the following components:

- Ski products as ski tracks, ski schools, ski guides, rental of ski equipment, service of ski equipment;
- Accommodation/catering capacities like hotels, motels, apartments, restaurants;
- Other contents of a destination, beside skiing like entertainment, events shops;
- Infrastructure and services such as transportation, health services, banks, police;
- Elements of sustainable development such as nature and eco approach, cultural heritage, social structure, design, and arrangement of a destination.

When defining the research subject, it was considered that the globalisation of winter tourism, stimulated by the international ownership of hotels and resorts, new digital reservation systems, as well as digital marketing in general, innovations in infrastructure and services influenced the habits and behaviour of tourists. An interesting insight into this subject was made by Downes (2015) who indicated that skier visits have generally increased at areas that have invested in new lifts, improved base facilities, and expanded ski terrains.

Furthermore, it was noted that literature review has recognised significant studies dealing with the concept of ski tourism from different aspects such as tourist motivation to travel, ski tourism sustainability and climate change, marketing strategies or ski tourism infrastructure. However, there is a certain research gap in exploring the determinants of service quality in winter sports. Therefore, the main research question in this paper was to identify the significant factors that influence the service quality in ski tourism and affect tourist satisfaction levels.

Ski tourism in Europe

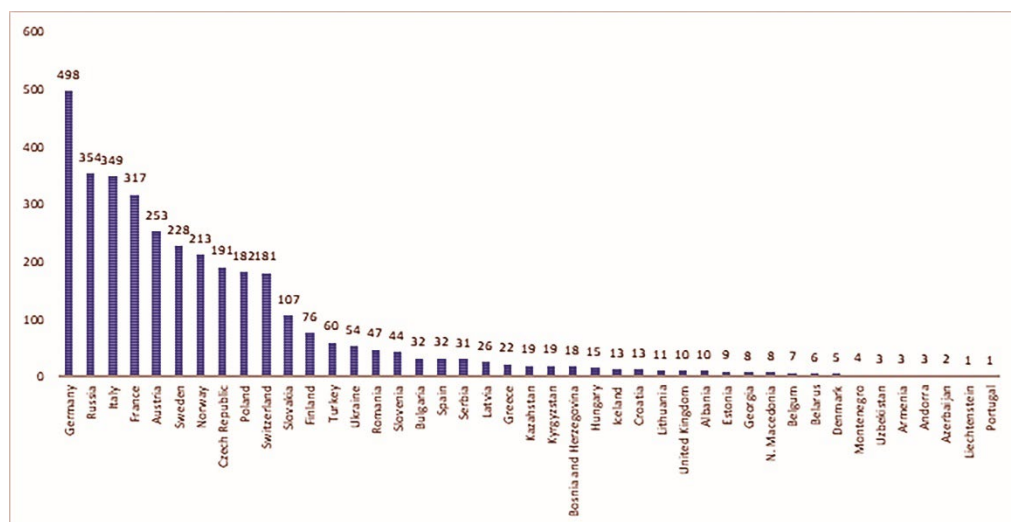
Based on the literature review, it can be concluded that the origin of ski tourism is related to Norway (Huntford, 2009). In 1843 the local newspaper of the Norwegian port Tromsø published an advertisement to promote skiing among the citizens, encouraging them to participate in ski competitions, emphasising the ride along the determined track and the return to the starting point. This act was the first recorded advertisement in the history of skiing, and it has marked the beginning of the skiing era (Mladenović, Jovanović, 2018). By the end of the 1800s, skiing techniques and equipment have been developed, but also the skiing as a sports discipline. However, skiing begins to flourish just in the second half of the 1900s, when totally equipped ski stations were built all over the Europe (Mladenović, Jovanović, 2019). During this period, the first skiing organisations and clubs emerged. In this regard, the Great Britain especially took the lead, where the first ski club was founded

in 1903. The Ski Club Great Britain (GB) is still active and successful. The turnover of the organisation has grown in the past several years, reaching nearly six million British pounds in 2019 (Statista, 2022) . Another significant contribution to the development of ski tourism was made by Henry Lunn, who organised an excursion for English skiers to the Swiss Alps in winter 1904 -1905. In that time the trip was an ambitious voyage that traced the path for further growth of skiing. Having in mind this contribution, Lunn was considered to be the initiator of the mass winter tourism (Huntford, 2009).

Nowadays, ski tourism has evolved into an important segment of the winter tourism industry in Europe. Its development was encouraged by the popularisation of skiing as a sport, as well as the growth of the number of people who ski professionally or recreationally. According to recent data presented by Statista (2023) the highest number of skiing participants in 2021 was recorded in Germany (14.6 million). However, the share of people who ski in European countries was the highest in Liechtenstein and Austria with 36 percent of population taking part in the sport. The same statistical survey presents that in Serbia there are officially 211.000 skiing participants, in Croatia (227.000), Slovenia (299.000), Bosnia and Herzegovina (175.000).

In the context of this research, it is also useful to analyse ski areas in Europe and determine the place of Serbia in this market. The findings presented in Figure 1 demonstrate that Serbia has significant number of ski areas (31) in comparison to other European countries. This number is particularly dominant regarding neighbouring countries such as Bosnia and Herzegovina (18), Hungary (17), Croatia (13), Albania (10), North Macedonia (8) and Montenegro (4), except Slovenia that has 44 ski areas.

Figure 1: Number of ski areas in Europe in 2021, by country



Source: Statista (2022)

Background of the study

Having in mind that skiing is the most popular winter sport in Europe, the aim of the paper was to analyse the main determinants of service quality in ski tourism. The study was focused on the segment of recreational ski tourists, which has certain specificities. Theodorakis et al. (2009) in their study conducted a segmentation of recreational ski tourists according to motives, dividing them into four categories: beginners, lovers, naturalists, and tourists with multiple interests. Among the four categories of ski tourists, the authors have identified significant differences both in terms of loyalty and participation in the activities. The category of ski lovers had statistically higher results in engagement in activities compared to the remaining three groups of tourists. Another study made by Alexandris et al. (2006) has measured service quality in skiing resorts using Brady and Cronin's three-dimensional service quality model (physical environment quality, interaction quality, outcome quality). The starting point in this study was the fact that services are intangible which brings attentions to other aspects of satisfaction such as social interactions with the staff and hospitality, the quality of physical servicescape regarding natural environment, the ski tracks, landscape and the so called outcome quality which is related to tourist experience. Furthermore, Dickson and Faulks (2007) have explored customer satisfaction in ski areas, indicating that important factors which affect ski tourist decisions are safety and snow quality, the variety of tracks and space outside of tracks, but also other factors that are not directly related to skiing. They include shops, restaurants, and the possibility to participate in other recreational activities. In addition, Miragaia et al. (2016) have explored the satisfaction of ski tourists in ski destinations regarding the following determinants: capacities and equipment, characteristics of ski tracks, type of service in ski destination, restaurants, accommodation, and social activities, as well as the accessibility to a ski destination. This survey was based on a factorial analysis of selected determinants of service quality in ski tourism which was successfully tested in practices. Having in mind the comprehensiveness of such study, it was used as a role model in designing the questionnaire for this research. However, the survey was additionally enriched with two service quality determinants referring to servicescape and nature.

Methods and sample

The survey was conducted on a sample of 157 recreational skiers who visited the Republic of Serbia during winter seasons in years 2022 and 2023. For the purposes of this research, an anonymous survey was constructed. The first part of the questionnaire referred to respondents' particulars (age, gender, country of residence). The second part of the survey included 18 statements (variables) referring to specific determinants of service quality in

ski tourism. The respondents used a five-point scale (1 = disagree; 2 = slightly disagree; 3 = neither agree nor disagree; 4 = slightly agree; 5= agree) when ranking the statements.

In the interpretation and processing of data, descriptive statistics and t test were used.

In terms of gender, respondents were equally represented in the sample (N=157), which was important for the objectivity of conclusions about consumer behaviour in tourism (Figure 2). However, a slight majority were members of the male population (52,9%).

Figure 2. The sample structure by gender

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	83	52.9	52.9	52.9
	female	74	47.1	47.1	100.0
	Total	157	100.0	100.0	

Source: Authors' calculation in SPSS

In the age structure of the sample (presented in Figure 3), the majority of respondents belonged to the 36-45 age category (58%) followed by the 47 -56 age group (20,4%).

Figure 3: The sample structure by age

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 -35	19	12.1	12.1	12.1
	36-46	91	58.0	58.0	70.1
	47 -56	32	20.4	20.4	90.4
	57 -65	15	9.6	9.6	100.0
	Total	157	100.0	100.0	

Source: Authors' calculation in SPSS

Regarding the country of residence, the respondents were from the following countries: Serbia (56,1%), Bosnia and Herzegovina (17,8%), Russia (9,6%), Montenegro (7,6%), North Macedonia (5,1%), Croatia (3,8%). Detailed data on this variable are shown in Figure 4.

Figure 4: Respondents' countries of residence

Country of residence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Serbia	88	56.1	56.1	56.1
	Bosnia and Herzegovina	28	17.8	17.8	73.9
	N.Macedonia	8	5.1	5.1	79.0
	Montenegro	12	7.6	7.6	86.6
	Russia	15	9.6	9.6	96.2
	Croatia	6	3.8	3.8	100.0
	Total	157	100.0	100.0	

Source: Authors' calculation in SPSS

Research results

The respondents have ranked the importance of 18 variables that affect service quality in ski tourism. The variables have included different aspects such as facilities of ski resorts, snow conditions and ski tracks, additional services including shops and restaurants, accommodation, social life, landscape, and nature. The findings presented in Figure 5 indicated that the highest means in respondents' answers are recorded for the following variables: nature ($M=4.9873$, $SD=.11250$), landscape ($M=4.9618$, $SD=.19233$), competence of the employees and hospitality ($M=4.9618$, $SD=.19233$) and diversity of ski tracks ($M=4.8599$, $SD=.34823$). On the other hand, the lowest mean was recorded for parking ($M=1.5159$, $SD=1.08961$).

Figure 5: Determinants of service quality in ski tourism – Descriptive statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Lift maintenance and functioning	157	2.00	4.00	2.8471	.60091
Facilities quality	157	2.00	5.00	3.8025	.73763
Parking	157	1.00	5.00	1.5159	1.08961
State of equipment	157	1.00	4.00	2.6688	1.10005

Snow conditions	157	3.00	4.00	3.4140	.49413
Diversity of ski tracks	157	4.00	5.00	4.8599	.34823
Quality of the slopes	157	2.00	5.00	3.3822	1.02866
Competence of the employees and hospitality	157	4.00	5.00	4.9618	.19233
Health and safety services	157	3.00	5.00	3.8280	.39514
Supermarkets and shops	157	1.00	4.00	2.9427	.81052
Restaurant quality	157	2.00	5.00	3.0828	.99332
Restaurants prices	157	2.00	5.00	3.3248	.95553
Accommodation quality	157	2.00	4.00	3.1401	.58242
Accommodation prices	157	3.00	4.00	3.6815	.46737
Nightlife	157	1.00	4.00	2.6306	.98896
Meeting different people	157	2.00	4.00	3.5287	.51342
Landscape	157	4.00	5.00	4.9618	.19233
Nature	157	4.00	5.00	4.9873	.11250
Valid N (listwise)	157				

Source: Authors' calculation in SPSS

In addition, the analysis has included the respondents' answers regarding their gender, with special emphasis on identified variables with high means. The results presented in Figure 6 demonstrate slight differences in answers between the genders. For variables landscape ($M=5$, $p=.000<.05$), diversity of ski tracks ($M=5$, $p=.000<.05$) and competence of the employees and hospitality ($M=5$, $p=.000<.05$) higher means were evidenced within the male respondents. However, a slightly higher mean value in the responses of the female population from the sample was recorded for the variable nature ($M=5$, $p=.007<.05$).

Figure 6: Differences in respondents' answers by gender

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Nature	Male	83	4.9759	.15428	.01693
	Female	74	5.0000	.00000	.00000
Landscape	Male	83	5.0000	.00000	.00000
	Female	74	4.9189	.27482	.03195
Diversity of ski tracks	Male	83	5.0000	.00000	.00000
	Female	74	4.7027	.46019	.05350
Competence of the employees and hospitality	Male	83	5.0000	.00000	.00000
	Female	74	4.9189	.27482	.03195

Independent Samples Test										
			Levene's Test for Equality of Variances		t-test for Equality of Means					
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	% Lower Upper
Nature	Equal variances assumed		7.586	.007	-1.343	155	.181	-.02410	.01794	-.05954 .01134
	Equal variances not assumed				-1.423	82.000	.159	-.02410	.01693	-.05778 .00959
Landscape	Equal variances assumed		34.789	.000	2.689	155	.008	.08108	.03015	.02152 .14065
	Equal variances not assumed				2.538	73.000	.013	.08108	.03195	.01741 .14475

Diversity of ski tracks	Equal variances assumed	416.633	.000	5.888	155	.000	.29730	.05049	.19756	.39704
	Equal variances not assumed			5.557	73.000	.000	.29730	.05350	.19068	.40391
Competence of the employees and hospitality	Equal variances assumed	34.789	.000	2.689	155	.008	.08108	.03015	.02152	.14065
	Equal variances not assumed			2.538	73.000	.013	.08108	.03195	.01741	.14475

Source: Authors' calculation in SPSS

The findings in this research have also indicated that the quality of facilities affect respondent's satisfaction in ski tourism. In regard to this conclusion, further analysis compared means between tourists from different countries of residence. The results presented in Figure 7 demonstrate that respondents from Serbia (M=4.0114) and Russia (M=4) particularly value the facilities quality in ski resort which significantly affect their perception of service quality. On the other hand, the lowest mean for this variable was recorded within respondents from North Macedonia (M=2.75).

Figure 7: Respondents' answers regarding facilities quality by country of residence

Report			
Facilities quality			
Country of residence	Mean	N	Std. Deviation
Serbia	4.0114	88	.66944
Bosnia and Herzegovina	3.5357	28	.50787
N.Macedonia	2.7500	8	1.03510

Montenegro	3.7500	12	.45227
Russia	4.0000	15	.53452
Croatia	3.0000	6	1.09545
Total	3.8025	157	.73763

Source: Authors' calculation in SPSS

Conclusion

Starting from the economic and social importance of ski tourism in Europe and Serbia, the paper has explored the basic determinants that tourists value when perceiving the quality of tourist service in ski resorts. According to literature review that was used in this research, the most important determinants of service quality in ski tourism refer to ski tracks, ski resort facilities, accommodation and additional services, the competences of human resources and natural surroundings of the service. In this regard, the paper has classified different scientific approaches to the concept of service quality in ski tourism and demonstrated measurement models and surveys that have been successfully tested in practice. Therefore, the theoretical background was used in designing the questionnaire that was applied in the empirical research. The survey was based on a sample of recreational skiers (N=157) who visited the Republic of Serbia during winter seasons in years 2022 and 2023. The results indicated the diversity of ski tracks, landscape, nature, the competence of employees and hospitality as the most significant determinants of service quality in ski tourism. In addition, the research has shown that the respondents also value the quality of facilities as important aspect of ski tourism, which is particularly evidenced within the respondents from Serbia and Russia.

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PROMOTIONAL ASPECTS OF SPORTS PRODUCTS

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Abstract: Equating promotion with marketing is incorrect but common. One of the reasons is that each of the elements of the marketing mix in the sports market, as the most famous concept in this area, has promotional characteristics. As the first element, the sports product has several contexts in which its promotional potential can be shown. Whether it will be used as a whole or not depends on the success of the activities that make up the brand creation process. From the product to the creation of the brand, it is necessary to implement a set of activities, usually over a long period, a significant part of which is promotion, not only through the instruments that make up its mix but also with the help of elements of the tangible and intangible part of the product. Considering the specifics of the sports market, this paper aims to define the promotional capabilities of sports products. The basic assumption is that the sports product possesses a significant set of promotional capabilities that are important for creating its recognition. This paper is theoretical, while the analysis presented indicates the existence of promotional aspects of the sports product while respecting the specifics of the sports market.

Keywords: sport events, athletes as brands, physical product, service, marketing mix.

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Introduction

The sports market is specific regarding certain characteristics compared to other markets (Krajnović et al., 2016). Those specificities stem from the characteristics of its two essential parts, namely the primary and secondary segments (Ratković et al., 2022; Ratković et al., 2022a). The specifics of the primary sports market directly stem from the essential characteristics of its participants, i.e., athletes who play a vital role in the realization of sports events but who themselves are the subjects on which marketing and promotional tools are applied (Savić et al., 2017). The secondary market is where manufacturers and traders of sports clothing, footwear, and props participate as well as sports service providers, such as those represented in the fitness industry. The significant part of the fitness industry in the overall sports market is a unique feature of the secondary sports market (CompanyWall, 2022; Grand View Research, 2023; Tsitskari, Tsakiraki, 2013; Somphong, 2020; Wang, Chiu, 2022; Thompson, 2022). The third market is the sports market support, which is the subject of analysis in situations where certain participants, who usually have no contact points with the sports market, take a specific part in it. The most common example is sponsorship-based partnerships (Zdrilic et al., 2017; Ratković, Dašić, 2018; Kos Kavran et al., 2020). In addition to the above, the significant role of the media in the primary sports market is another peculiarity because it is the media, with an emphasis on social media, that influences the success of the positioning of participants in this part of the sports market (Siguencia, 2017; Nisar et al., 2018; Kalinová, Kovaříková, 2023).

This paper focuses on defining the promotional aspects of sports products in the primary and secondary markets. A sports product means a sports event, an athlete, a physical product, and a service. For precise analysis, it is necessary to list all the peculiarities of both mentioned segments of the sports market and then focus on discovering those that have implications in creating the promotional potential of sports products, with the goal of creating a brand. The paper aims to define the promotional aspects of the sports product. H0 stands out as the primary hypothesis: *The sports product has a significant set of promotional capacities.*

Following the above, the beginning points in this paper are the relations connected to the sports market, sports products, promotions, and sports brands. The paper will point out the peculiarities of the sports market, and the promotional capacities of sports products, considering their diversity based on the part of the market where they come from, as well as the total promotional capacities that come from the set of promotional tools and from the mentioned product potentials, which are used in the process of creating a sports brand.

The context of the analysis of the promotional aspects of the sports product based on the specifics of the sports market

Decisions about promotion, as well as on all other marketing mix elements, cannot be made separately from decisions on other elements as they are linked to information obtained through research processes. Respecting the promotion capacities in the sports market, especially in its primary segment, it is necessary to identify the promotion capacities of other marketing mix elements. As the subject of this paper is the promotional potential of the product, the focus of the analysis of the context in which these potentials are manifested will be the basic starting point. In this sense, it should be emphasized that the sports market includes the primary and secondary segments, as well as individual participants of the support market, in the conditions when they establish certain forms of partnership (Ratković et al., 2022; Ratković et al., 2022a). One of the most common is the sponsorship relationship in the primary sports market (Segovia, Kennett, 2022). The primary and secondary markets, including the media, and entities from the support market in situations where they establish cooperation with the primary market, comprise the sports industry.

The first peculiarity of the sports market stems from the definition of the types of sports products. Namely, a sports product means a tangible physical product such as a pair of sneakers or an exercise device, but also the athlete himself, which is the object of investment and has a specific value. Also, it has a loyal audience and a particular image and can be a globally recognizable brand (Dašić et al., 2021; Ratković, Dašić, 2018; Dugalić, Ivić, 2015). The characteristics mentioned above are also present in sports products like the examples mentioned, except that it is about customers instead of the audience.

In addition to the uniqueness of sports markets, which stems from the fact that the athlete is also a product, another unique feature is that this market has a significant presence in sports events. Regarding these events, as well as the athletes who are the core of their offer, the importance of the media should be emphasized. Namely, sports events and athletes could only be globally known if they had the support of the media. The connection between these three focuses of the primary sports market is crucial for successfully realizing their promotion and self-promotion. In addition to the role of the media as a creator and sender of a message about an athlete or a sports event, they are also used in self-promotion with the help of social networks (Kalinová, Kovaříková, 2023; Dašić et al., 2021).

Another important peculiarity of the sports market stems from its second part, which is the fact that the fitness industry occupies a significant share and growth present at the global level (Tsitskari, Tsakiraki, 2013; Somphong, 2020; Walter, 2022; Chiu, 2022).

The peculiarity of the sports service, a product of the fitness industry, stems from the very characteristic of the service, which is primarily intangible and whose quality depends to a significant extent on the service providers. Moreover, precisely in this lies its promotional capacity, which is the readiness, skills, and knowledge of employees who produce and deliver services to promote that same service (Ratković, 2009). Their importance is more significant because the potential of direct relations with service users can be used to promote both the service itself and the individual who produces and provides it, as well as the fitness centre itself. However, the main peculiarity of the second part of the sports market is that its growth is directly related to the success of development and the level of popularity of the overall primary market and its parts.

Without going into further specifics of the sports market, the context of this analysis of the promotional capacities of the sports product can be concluded by emphasizing the importance of the integration of digital technologies into the sports industry and the emergence of a new market called eSports (Reitman, 2020; Cheng, 2023). The promotional capacities of this environment are available to many businesses, which means they are potentially profitable if the target group is in that environment. The product itself of this market has significant possibilities of integrating promotional techniques precisely because it is used in a digital environment.

The promotional capacities of the elements of the marketing mix, in this case, the so-called 5P, are found in the elements of the expanded version of the total offered product, in the marketing strategy of price creation, as well as in the advantages of arranging the point of sale, employee satisfaction and knowledge, and finally in specific promotional techniques. Among these techniques, public relations and sponsorship occupy a special place in the sports market, but also publicity, fairs and exhibitions, personal selling, sales promotion, economic propaganda, etc. (Ratković et al., 2014). Public relations and sponsorship are the most common promotional techniques in the primary sports market (Zdrilic et al., 2017; Ratković et al., 2022).

The prerequisites for creating a sports brand are several factors that can be realized as continuous processes. In other words, consistency, in terms of continuity and quality, is the common basis for creating a brand. In addition to quality, continuity, internal marketing, leadership, total quality management, positioning, and repositioning over a longer period, a good combination of communications is a fundamental prerequisite for creating and brand management (Milenović, Ratković, 2021). These communications include decisions about the media, messages, and different techniques. However, they also contain all the potential of the sports product itself, then prices, but also points of sale, employees, etc. The subject of analysis in this paper is the promotional potential of a sports product, keeping in mind that a product can

be a sports event, an athlete, a physical product, but also a service, as well as taking into account all the specifics of the sports market, especially those arising from the categories of sports products as mentioned earlier, the following part of the paper will discuss the elements of the product that can have a promotional potential.

Identifying key promotional aspects of sports products

A sports event as a product has promotional capacities based on the preparation of the location where it takes place, but also based on the athletes participating in its realization, who at the same time represent a promotional resource. The audience's perception of the environment determines the success of the promotional elements found in the preparation of the location where the event takes place and the overall organization of the event. The perception of a sporting event directly affects its image (Cevallos, 2020). On the other hand, for those who follow the same event through social networks or TV, the promotional capacities of the sporting event are closely related and depend on the quality of the broadcast, that is, the quality of the chosen media. In both cases, the image and recognition of the athletes participating in the event are positively correlated with its aspect of self-promotion. At the same time, sporting events have the potential to promote the destinations where they take place, and by improving their image, better success in destination branding can be achieved.

In addition to its role as a promotional potential of a sports event, an athlete also represents a product with its value, image, and fans. Globally famous athletes are global brands that have gained their recognition both through the application of various promotional techniques, adapted to the fact that they are people, not physical products, and through their self-promotion, which is based on their professional skills, but also on highlighting the values that are important to society. In today's environment, this process is most certainly based on the promotional capacities of social networks managed by the athlete or his team. In addition to managing social networks, for the purpose of self-promotion, an athlete should be skilled in communication in all other environments, both media and personal (Ratković, Dašić, 2018). This skill represents his essential promotional potential, and it depends directly on him.

Athletes have a promotional potential many times greater than the promotional capacity of a sports event. The promotional capacity can be found in the following roles of an athlete: as a promoter of his sponsor, media in brand promotion (Dugalić, Ivić, 2015), as a club promoter, promoter of socially responsible topics, promoter of the state and nation, and promoter of his brands.

For sports events and athletes, the prerequisites for creating a brand are not entirely the same as for physical products and services. Nevertheless, each of those mentioned in the last part of the paper can be used in an adapted form concerning the specifics of these two products of the primary sports market (Cevallos, 2020).

A specific set of services accompanies each physical product; most often, each service is accompanied by a physical product. In the first case, more significant promotional capacity is found in accompanying services, while in the second case, it is more present in services. Physical products consist of tangible and intangible parts. Their tangible part is what comes out of production, after which the intangible part is added, and after that, by including promotional techniques and other mentioned promotional potentials of the marketing mix and marketing instruments in general, that sports product has a chance to become a brand. The intangible part of the product from which the promotional capacity derives consists of delivery, assembly, after-sales service, brand, warranty, and image. The tangible part of the product is not only the product's core but also the packaging, quality, and design. All the mentioned elements of the tangible and intangible parts of the sports product are, to a certain extent, promotional capacities because they all communicate with the market and influence the perception of the target groups.

The overall promotional capacities of a sports product are its identity, so any other promotion strategy must be based on the message sent by such a product. The case is the same with sports services, only that the employees as producers and service providers have a greater power of integrated promotion and a holistic approach since the service is produced, sold, and consumed in one place. Both with physical products and services, the role of employees is significant. However, services are still much more critical, given that they are integrated into production and delivery. Additionally, with services, the environment in which they are sold is much more important, and this element also represents its significant promotional capacity, which cannot be analyzed separately (Renko, Grgic, 2012; Sokolović-Mladenović et al., 2015). Therefore, in addition to the employees, who are the potential of the tangible part of the service, the delivery process, quality, design, and the physical product accompanying it are also essential elements that represent its promotional potential. In addition to the location in which it is sold, an intangible part of the service is the brand and image.

Regarding sports brands, there is a trend of association to achieve better positioning based on the synergistic effect of joint activities, among which is promotion. The literature sees this type of association as a partnership for profit (Ratković, 2021). It is considered that the sports market is ideal for achieving positive effects of partnership, regardless of whether one party is a sports entity and the other from another market or both are from the sports market. For example, announcing the latest collaboration

between two well-known sports brands, Les Mills and Adidas, is expected to produce a synergistic effect in the promotion and other aspects of this relationship. Another interesting example that certainly has the effect of a partnership in promoting its brands is the collaboration between G2Esport and the fashion brand Ralph Lauren. This collaboration was achieved by including the famous gamer Martin "Rekkles" Larsson in the Wimbledon campaign, which Ralph Lauren did.

Conclusion

A sports product's self-promotional potential, whether a sporting event, athlete, physical product, or service, is part of the overall promotion plan. These potentials are parts of products that represent their identity, and the overall message intended to be marketed to target groups is based on them. At the same time, this process is the essence of the product branding process. Also, putting certain product features into the function of promotion is not a process complementary only to the application of promotional instruments but also to a broader range of marketing potentials. They come from other marketing mix elements and the overall potential of marketing tools and processes.

The theoretical analysis presented in this paper considers the specifics of the sports market, which derive from the first two mentioned products, that is, from the characteristics of the sports event and the athlete in the role of the product. In addition, to explain the promotional potential in more detail, the paper also reviewed the broader context of the place of sports products in the sports market. From all the above, it can be concluded that the sports product has a wide range of promotional capacities and that depending on the type of product, that set is based on the very core of the product, such as athletes and sports events, or on the features that result from the expanded version, as with physical products. In the case of sports services, promotional opportunities arise mainly from their characteristics, which are part of extended versions of the service, but also from their core since employees are their integral element.

Following the above, it is considered that the primary hypothesis H0: *The sports product has a significant set of promotional capacities*, has been confirmed. Further directions of theoretical analysis on the promotional aspects of sports products could lead to individual analyses of all mentioned here, especially athletes, given that their role in the sports market from the marketing side is multiple.

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PROMOTION OF SPORTS AND FITNESS THROUGH HEALTH IN SERBIA

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Abstract: The modern consumer, today, is faced with an increasing amount of leisure time and a rising standard of living. These factors contribute to the emergence of a need for services, especially those that enhance health, increase vitality, and promise a long and quality life. Sport is one such activity. In this work presented to the scientific reading audience, we aim to showcase conducted research that discusses the impact of an increased standard of living on the growing demand for fitness center services. Additionally, we wanted to illustrate the majority of factors influencing users' choices for specific fitness centers. The research also examined all other relevant factors affecting the decision-making process that are not directly related to sports. The study involved 176 participants, and data analysis was performed using IBM SPSS software. Descriptive statistics were used to describe patterns, independent samples t-test, one-way analysis of variance (ANOVA), and the HI-square test were employed to examine differences between groups, and Pearson's correlation analysis was conducted to explore the relationships between variables.

Keywords: Marketing, Sport, Consumer, Promotion, Serbia

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Introduction

In the life of a modern person, engaging in sports is of exceptional importance. Today, the quality of life and the improvement of health are significantly influenced by the quality of physical activity. There are numerous positive aspects of engaging in sports, and almost none against physical activity. In children, sports demonstrate that it is never too early to start adopting the principles of discipline and work habits that sports certainly develop (Ratković, Dašić, 2018). Emotional development contributes to the fact that active young athletes quickly resocialize and adapt to new society and environment. Positive aspects of regular physical activity are observed in both physical and mental health, as well as psychosocial development (Jovanović, et al., 2023). People suffering from serious illnesses find it easier to cope with their health conditions if they were previously active athletes or are still involved in sports. All these reasons have led to the adoption of the Global Strategy on Diet, Physical Activity, and Health by the World Health Organization in 2004, as well as the Resolution on the Improvement of Health and Healthy Lifestyles.

The latest initiative of the World Health Organization to include physical activity among domestic priorities is currently of great importance, aiming to combat the global increase in non-communicable diseases in both developed and developing countries. This represents a new challenge and a significant opportunity for the sports movement as a whole, particularly in terms of making sports accessible to everyone (Ratković, 2023). There are numerous reasons supporting engagement in sports. Sports and physical activity act preventively against childhood and adult obesity. Additionally, sports and physical activity develop self-awareness, reduce anxiety, and alleviate stress (Pugh, et al., 2020). Teaching a child how to win and accept defeat instills fair play in both the game and life, fostering friendships. Children involved in sports tend to have healthier eating habits (Franjić, 2023), smoke less, consume less alcohol, and experience fewer illnesses (Mansfield, Piggan, 2016; Ley, 2020; Bhan, et al., 2020; Micheli, L., Mountjoy, M., Engebretsen, L. et al., 2011).

Sports programs initiate the development of skills, teamwork, self-discipline, and better socialization in young people (Donaldson, Finch, 2011; Mountjoy, Junge, 2013; Kokko, et al., 2015; Penezić, 2021). Sport and physical activity fulfill the social lives of young individuals, shielding them from negative social phenomena and crime, fostering a more positive approach to life. The promotion of sports and fitness is of utmost importance in today's society. Engaging in physical activities not only contributes to a healthy lifestyle (Vlajković, 2023), but it also brings numerous benefits to individuals, communities, and even nations as a whole. Regular participation in sports and fitness activities helps individuals improve their physical strength and endurance, enhance their mental well-being, and develop important life skills such as teamwork and discipline.

Lastly, the promotion of sports and fitness yields extensive benefits for communities and nations as a whole (Dašić, Jeličić, 2016; Radaković, Marinković, 2021). It encourages social interactions and bonds between individuals, fostering a sense of belonging and inclusion. Sports also impart crucial life skills such as teamwork, sportsmanship, discipline, and goal-setting, which are essential not only in athletic pursuits but also in professional and personal lives (Mountjoy, et al., 2017). Furthermore, the popularity of sports can lead to economic growth, attracting tourism and investment, and strengthening national identity and pride (Sørensen, et al., 2022).

The work presented to the reading audience aims to elucidate and contribute to acquiring fundamental concepts regarding what drives and generates consumption in sports and how consumers behave in this field. Consumer behavior in sports involves not only understanding professional athletes but also amateur athletes who differ from the former in their motives for engaging in sports. Understanding the motives of consumption in sports enables the effective combination of elements of the marketing mix and optimal positioning of products or services in the market.

Methodology

The conducted research involved 176 respondents. The gender structure of the respondents is random, with a predominance of female respondents, totaling 113 females, while male respondents are 62. Regarding the age structure, the range is from 15 to 75 years. The income per capita ranges from 50,000 dinars to 100,000 dinars, with the fewest respondents having an income exceeding 150,000 dinars monthly.

Data processing was carried out using IBM SPSS (Statistical Package of Social Science) software version 25. Descriptive statistics were used in the paper to describe samples, independent samples T-test, one-way analysis of variance (ANOVA), and the Chi-square test to examine differences between groups. Pearson's correlation analysis was used to examine the relationship between variables. A significance level of 0.05 was used as the threshold value.

More than half of the respondents have an income ranging from 50,000 to 100,000 dinars, while the fewest respondents have higher earnings exceeding 150,000 dinars monthly (Table 1).

Table 1. Sociodemographic characteristics of the respondents

	Frequency	Percent [%]
Gender		
Male	62	35.4
Female	113	64.6
Salary amount		
Less than 50000 din.	32	19.2
50000-100000	88	52.7
100000-150000	27	16.2
More than 150000	20	12.0

As part of the research, we aimed to examine whether there are statistically significant differences in the agreement level of respondents with the given statements based on their income. One-way analysis of variance (ANOVA) was employed to investigate differences concerning income levels. The significance level of the ANOVA test is higher than the observed statistical level for all statements and the overall score, leading us to conclude that there is no statistically significant difference concerning income levels (Table 2).

Table 2. Differences in relation to the income of respondents

	Category	Middle value	F	P
Mental health is affected by training.	Less than 50000 (N=32)	4.53 ± 0.62	1.469	0.225
	From 50000 to 100000 (N=87)	4.70 ± 0.46		
	Od 100000 to 150000 (N=27)	4.51 ± 0.57		
	More than 150000 (N=20)	4.70 ± 0.47		
I train to maintain a youthful appearance.	Less than 50000 (N=32)	3.56 ± 1.10	0.326	0.806
	From 50000 to 100000 (N=87)	3.64 ± 1.00		
	From 100000 to 150000 (N=27)	3.51 ± 0.97		
	More than 150000 (N=20)	3.78 ± 0.85		
In my diet, I take care of the intake of fruits and vegetables.	Less than 50000 (N=32)	3.81 ± 0.93	0.716	0.544
	From 50000 to 100000 (N=87)	3.90 ± 0.81		
	From 100000 to 150000 (N=27)	4.11 ± 0.80		
	More than 150000 (N=20)	4.00 ± 0.72		

Healthy food and regular training are prerequisites for good health.	Less than 50000 (N=32)	4.46 ± 0.71	0.684	0.563
	From 50000 to 100000 (N=87)	4.50 ± 0.58		
	From 100000 to 150000 (N=27)	4.51 ± 0.57		
	More than 150000 (N=20)	4.70 ± 0.57		
Famous person are important for promoting a fitness center.	Less than 50000 (N=32)	2.56 ± 1.07	0.764	0.516
	From 50000 to 100000 (N=87)	2.73 ± 1.14		
	From 100000 to 150000 (N=27)	3.00 ± 1.14		
	More than 150000 (N=20)	2.80 ± 1.00		
The friendliness of the staff is important to my overall satisfaction with the training.	Less than 50000 (N=32)	4.29 ± 0.64	1.044	0.375
	From 50000 to 100000 (N=87)	4.07 ± 0.69		
	From 100000 to 150000 (N=27)	4.25 ± 0.65		
	More than 150000 (N=20)	4.05 ± 0.88		
Fitness center employees are a good source of information about healthy living?	Less than 50000 (N=32)	3.93 ± 0.67	1.632	0.184
	From 50000 to 100000 (N=87)	3.71 ± 0.81		
	From 100000 to 150000 (N=27)	3.48 ± 0.80		
	More than 150000 (N=20)	3.70 ± 0.73		
Total score	Less than 50000 (N=32)	3.85 ± 0.41	0.165	0.920
	From 50000 to 100000 (N=87)	3.89 ± 0.40		
	From 100000 to 150000 (N=27)	3.91 ± 0.40		
	More than 150000 (N=20)	3.93 ± 0.38		

* Statistical significance at the level of 0.05

Results and Discussion

As part of the research, we aimed to examine whether there are statistically significant differences in the agreement level of respondents with the given statements based on the type of training they undergo. One-way analysis of variance (ANOVA) was used to investigate differences concerning the type of training. The significance level of the ANOVA test is lower than the observed statistical level for the statement related to the impact of training on mental health, leading us to conclude that there is a statistically significant difference concerning the type of training. Respondents who engage in training exhibit a higher level of agreement compared to those who do not train (Table 3). The significance level of the ANOVA test is higher than the observed statistical level for the other statements and the overall score, leading us to conclude that there is no statistically significant difference concerning the type of training (Table 3).

Table 3. Differences in relation to the type of training of the respondents

	Category	Middle Value	F	p
Mental health is affected by training.	Yes, I train recreationally (N=155)	4.62 ± 0.52	3.374	0.037*
	Yes, I train professionally (N=15)	4.66 ± 0.61		
	No (N=15)	4.00 ± 0.70		
I train to maintain a youthful appearance.	Yes, I train recreationally (N=155)	3.59 ± 0.99	1.202	0.303
	Yes, I train professionally (N=15)	3.80 ± 1.08		
	No (N=15)	3.00 ± 0.70		
In my diet, I take care of the intake of fruits and vegetables.	Yes, I train recreationally (N=155)	3.94 ± 0.80	0.238	0.789
	Yes, I train professionally (N=15)	3.93 ± 0.92		
	No (N=15)	4.20 ± 1.09		
Famous person are important for promoting a fitness center.	Yes, I train recreationally (N=155)	4.50 ± 0.61	0.124	0.884
	Yes, I train professionally (N=15)	4.56 ± 0.51		
	No (N=15)	4.60 ± 0.54		
Celebrities are important for the promotion of the fitness center.	Yes, I train recreationally (N=155)	2.74 ± 1.13	0.007	0.993
	Yes, I train professionally (N=15)	2.75 ± 1.00		
	No (N=15)	2.80 ± 0.44		
The friendliness of the staff is important to my overall satisfaction with the training.	Yes, I train recreationally (N=155)	4.12 ± 0.69	1.553	0.215
	Yes, I train professionally (N=15)	4.37 ± 0.71		
	No (N=15)	3.80 ± 0.44		
Fitness center employees are a good source of information about healthy living?	Yes, I train recreationally (N=155)	3.70 ± 0.76	0.712	0.492
	Yes, I train professionally (N=15)	3.86 ± 0.91		
	No (N=15)	3.40 ± 0.54		
Total score	Yes, I train recreationally (N=155)	3.88 ± 0.38	0.779	0.460
	Yes, I train professionally (N=15)	3.94 ± 0.51		
	No (N=15)	3.68 ± 0.23		

* Statistical significance at the level of 0.05

As part of the research, we wanted to examine whether there is a difference in respondents' responses based on gender regarding training. The Hi-square test was used to investigate differences concerning gender. Based on the results of the relationship between gender and type of training ($\chi^2=0.406$, $df=2$, $p=0.816$), we conclude that there is no significant difference in the type of training based on gender (Table 4).

Table 4. Relationship between gender and type of training

		Type of training			
		Yes, I train recreationally	Yes, I train professionally	No	In total
Gender	Male	53	6	3	62
		85.5%	9.7%	4.8%	100%
	Female	101	10	2	113
		89.4%	8.8%	1.8%	100%
In total		154	16	5	175
		88.0%	9.1%	2.9%	100%

Based on the results of the relationship between gender and the number of weekly training sessions ($\chi^2=0.406$, $df=2$, $p=0.816$), we conclude that there is no statistically significant difference in the number of training sessions based on gender (Table 5). Based on the results of the relationship between gender and training method ($\chi^2=23.592$, $df=3$, $p<0.005$), we conclude that there is a statistically significant difference in the training method based on gender, where men predominantly train alone, and women train more in groups and with personal trainers compared to men (Table 6). Based on the results of the relationship between gender and the use of a training application or program ($\chi^2=1.015$, $df=2$, $p=0.602$), we conclude that there is no statistically significant difference in the use of a training application or program based on gender (Table 7).

Table 5. Gender ratio and number of training sessions per week

		Number of training sessions per week			
		Once a week	Twice a week	Three or more times a week	In total
Gender	Male	3	15	43	61
		4.9%	24.6%	70.5%	100%
	Female	8	29	75	112
		7.1%	25.9%	67%	100%
In total		11	44	118	173
		6.4%	25.4%	68.2%	100%

Table 6. Relationship between gender and method of training

		Method of training				
		Alone	A group	With a personal trainer	Online/video striming	In total
Gender	Male	46	11	3	1	61
		75.4%	18.0%	4.9%	1.6%	100%
	Female	42	40	24	6	112
		37.5%	35.7%	21.4%	5.4%	100%
In total		88	51	27	7	173
		50.9%	29.5%	15.6%	4.05	100%

Table 7. The relationship between gender and the use of a training application or program

		Using an app or exercise program			
		Yes	No	I'm planning	In total
Gender	Male	17	44	1	61
		27.4%	71.0%	1.6%	100%
	Female	32	76	5	113
		28.3%	67.3%	4.4%	100%
In total		49	120	6	175
		28.0%	68.6%	3.4%	100%

Based on the results of the relationship between gender and supplement use ($\chi^2=3.979$, $df=1$, $p=0.046$), we conclude that there is a statistically significant difference in supplement use based on gender, where men use supplements more than women (Table 8).

Table 8. Relationship between gender and the use of supplements

		Use of supplements		
		Yes	No	In total
Gender	Male	30	32	62
		48.4%	51.6%	100%
	Female	36	77	113
		31.9%	68.1%	100%
In total		66	109	175
		37.7%	62.3%	100%

Conclusion

Modern sports have become a part of almost all aspects of social life. They are an integral part of the economy, culture, healthcare system, educational programs from kindergarten to universities, and of course, many marketing campaigns. This has created an excellent foundation for the development of the sports economy and a specific branch, sports marketing. The constant commercialization of sports has forged an inseparable connection between profit and sports, leading to various scientific disciplines exploring the relationship between economics and sports, as well as the fundamental economic principles of sports (Dašić, et al, 2021). The public's interest in sports is continually growing, along with the desire for better sports results. Sports organizations especially leverage this fact to promote specific products or services, and even service packages, to increase the profits of sports organizations. The promotion of sports and fitness is a vital cornerstone of a healthy society. Engaging in physical activities contributes to improved physical health, mental well-being, and the development of important life skills. Additionally, it benefits communities and nations by creating social interactions, fostering skills and values, and promoting economic growth. Governments, educational institutions, and communities should collectively work together to encourage individuals of all ages to embrace an active lifestyle and reap the benefits of sports and fitness.

In this study, a significant number of respondents were surveyed, a total of 176, ranging in age from 15 to 75 years, and it was determined that people engage in sports for various reasons today. The most common reasons for participating in sports are health-related, for entertainment, and for the female segment of the surveyed population, aesthetic reasons also play a role. The male population tends to start engaging in sports earlier, shows more persistence, uses supplements, and primarily exercises independently in gyms.

The female population tends to start participating in sports somewhat later, utilizes the services of personal trainers, group training sessions, or online training. This population is characterized by a willingness to invest more money in both equipment and trainers and training sessions. They trust online marketing and are more susceptible to adopting information from social media.

In general, both male and female populations are active in sports, with the highest participation occurring between the ages of 20-25. Consequently, the promotion of sports activities and products plays a moderately significant role in the selection of sports products, which is a key conclusion drawn from the research goals of this study.

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POSSIBILITIES OF SUSTAINABLE DEVELOPMENT OF SPORTS TOURISM IN SERBIA

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Abstract: The development of sports tourism in the modern age is linked to the concept of sustainability. Sports tourism is a specific form of tourism that involves the use of ecological, economic and social principles of sustainability. Recreational sports in today's conditions become an integral part of the lives of both people at home and those who go on trips, so tourist destinations have turned to the development and improvement of sports tourism. Destinations located in areas of rural development have enormous potential for the development of sports tourism, and they have the greatest potential if they are in the initial stages of development. Serbia is well-known in the world of sports, so the development of sports tourism can be recognized in neighboring countries and in other countries that have insufficiently used this market. It is Serbia that can provide education in the field of sports tourism to neighboring countries. The countries of the Western Balkans are undervalued in the context of tourism development, so in the coming period it is necessary to determine which elemental services would provide a faster incentive for more intensive development. For the purposes of this paper, research was conducted that will provide answers about the possibilities of sustainable development of sports tourism in Serbia. The total number of respondents is 200. The survey was conducted online and included all regions in Serbia.

Keywords: sports tourism, tourist destination, research, concept of sustainable development and Serbia

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Introduction

Sport and tourism have become closely related in recent years. More and more people actively or recreationally engage in sports, mostly to maintain or improve their own health. Likewise, sports and sports facilities have become one of the main reasons for tourist arrivals in certain destinations. On the other hand, sustainable development has become the main topic of most research considering the development of tourism itself and its mass. Climate changes, the constant growth of the world population and the increase in the number of trips, raise the question of how many possibilities there are for the growth and development of tourism and how far destinations can provide tourists with the best service, at a favorable price, and give them maximum satisfaction at a given moment. As a tourist destination, Serbia has many parts: a spa and a mountain area that stands out for its specific features. Serbia counts more and more arrivals and overnight stays from year to year. Natural beauty, lowlands, cultural heritage and unexplored areas are a good prerequisite for the improvement of both tourism and sports tourism. The primary research conducted for the purposes of this paper analyzes the motives and attitudes of potential tourists regarding the motivation for visiting Serbia. Likewise, the goal of the research is to examine how and to what extent new contents and a greater offer of sports tourism influence the selection of the Continental Region as a potential destination and whether such a form of tourism is sustainable. Please strictly follow the formatting instructions and styles provided in this manual. Do not change the font size or line spacing to fit more text into the limited number of pages. The subject of the thesis is to investigate the possibilities of sustainable development of sports tourism in Serbia as a tourist region. The aim of the paper is to show all the possibilities for sustainable development in the territory of Serbia and the possibility for the development of sports tourism.

The concept and importance of sports tourism

Sports tourism, active vacation, sustainable development, sustainable tourism, trends in tourism, these are all terms that are used more and more often in the tourist world. Sports tourism can be said to be a term that has almost as many definitions as there are authors who mention it. In the period from 1993 to 2014, sports tourism was defined 31 times (Sobry, et al., 2016). One of the authors who define it is Bartoluci, who states that sports tourism is a specific form of tourism in which sport is the main motive for the travel and stay of tourists in a certain destination (Bartoluci, et al., 2016). Along with Bartolucci, we should also mention Gibson's approach, which distinguishes "three domains of sports tourism: active sports tourism, which refers to travel with the aim of participating in sports; then there is event sports tourism, which refers to travel with the

aim of watching a sports event; and finally, nostalgic sports tourism that includes visits to sports museums, famous sports arenas and finally sports themed cruises (Gibson, 1998). Sports tourists travel outside their place of permanent residence for more than 24 hours, but less than one year mainly for: participating in physical activity, watching physical activity or visiting sports-related attractions (Kesar,2019). The definition of a sports tourist is the one that states that it is "an individual who participates in sports on vacation (Gibson, 1998). Along with the definitions of sports tourism, it should be pointed out that sports tourism distinguishes between hard and soft sports tourism. Hard sports tourism is a form of tourism that attracts a large number of visitors to a specific place to witness a specific sporting event such as Formula 1 races or the World Cup (Singh et al.,2016). Soft sports tourism represents all tourists who travel to participate in recreational activities such as hiking, skiing or even rafting (Singh et al.,2016). Sports tourism is "a significant travel activity regardless of whether it is a primary, secondary or tertiary feature of the trip. In addition, Robinson points out that "sports tourism can be divided into two areas of focus: the difference between those who travel primarily for sport (sport tourism) and those where sport appears as a secondary option (sport tourism)" (Robinson, et al.,2004).

Kesar conceptually defines sports tourism as shown in Table 1.

Table 1. Definition of sports tourism

	SPORTS TOURISM	TOURIST SPORTS
BROAD MEANING	Passive or active participation in a sporting event	Visitors who are actively or passively involved in sports as a secondary activity
NARROWER SENSE	Recreational sports outside the domicile	Visitors who participate in some form of sports recreation, and the participation is accidental

Source: Kesar, 2019

The urbanized way of life encourages people to play more and more sports and actively participate in sports activities. In the same way, playing sports improves people's health, boosts immunity and helps fight various diseases. Although people still perceive 3S (sun, sea, sand) tourism, there are more and more people who are looking for a more active vacation, destinations with various activities and opportunities to practice certain sports or even destinations that organize sports events. Sports help

people to deal with everyday stress, busy lifestyles, noise, social and media pressures and similar life problems.

Sports tourism has three dimensions. The first dimension is substantive, in which sports tourism is observed through various activities. The second is the spatial dimension, which is determined based on whether sports tourism takes place outdoors or indoors. The third dimension is the temporal dimension in which sports tourism is defined based on the season or term in which it takes place.

According to the demands, preparedness of the participants, danger and risk, Kesar sports tourism is divided into two basic segments:

- recreational (soft-recreational) – swimming, trekking, bicycle tours, golf, tennis, aqua aerobics
- hard-adventure – extreme sports; rafting, paragliding, mountain biking, free climbing, bungee jumping (Kesar, 2019).

Sports tourism appears in the following forms:

- competitive sports tourism
- winter sports and recreational tourism
- summer sports and recreational tourism.

The concept of sports tourism was explained in the previous subsection, and in order to more easily connect the concepts of sports tourism and trend, it is necessary to define the concept of trend. A trend is most often associated with a certain change in a phenomenon in the future, in this case, that phenomenon is tourism. "Trend means the direction of development of some phenomenon in time (in relation to the previous state) or in relation to some other phenomenon (in relation to something)". Trends can indicate two changes, dynamic change and static change (Hendija, 2016).

There are several types of trends in tourism that are interrelated. They are the most represented according to the place of origin in the tourist market, namely tourist demand trends and tourist supply trends. Čavlek describes tourist demand trends as changes in people who participate or would like to participate in tourist movements, and tourist supply trends as changes in the market of goods suppliers. and services offered at certain prices to meet tourist needs.

Hendia states that sports and sports tourism have become one of the newer qualitative trends in the tourist market. However, both in tourism in general and in sports tourism there are trends that can be observed in a broader sense (tourism as a whole) and in a narrower sense (sports tourism). Some of the trends that concern tourism itself, and are also visible in sports tourism, are (Hendija, 2016):

- climate change
- demographic changes
- trips to destinations of preserved nature
- encouraging sustainable tourism
- technology development
- an offer aimed at an active and healthy life.

The development of technology on the one hand helps in the development of man and his way of life, but it also affects the health of each individual and how that individual spends his daily life. Online platforms that can be accessed from the comfort of a comfortable armchair, as much as they help, they also reward people in such a way that people move much less. With the advent of digital media and channels, all information is available in just a few steps. Destinations use such channels to promote their offer and new contents. New trends in sports tourism resulted from the development of technology such as virtual sports, more precisely e-sports. These include new sports such as bungee jumping, paragliding and skydiving. Likewise, sports events, such as the Olympic Games or the World Championships, become one of the main reasons for travel. Considering that tourists choose destinations and decide to travel based on their motives and habits, more and more destinations and service providers offer the possibility of a vacation focused on an active and healthy life, which is the complete opposite of traditional habits and forms of travel. In addition, a large number of destinations invest in improving their offer based on the sustainable development of the destination and tourism itself.

Sustainable development has become a major topic in the last thirty years, mostly thanks to the development of man, society, and technology. By 2015, over 5,000 scientific and research papers related to the concept of sustainable development were published (Ruhanen, et al., 2015).

The consequence of the great interest in this topic is climate change, which is already visible to the naked eye, and mass travel of people, more precisely mass tourism. With the development of technology, man also developed. However, although life has become much easier and more efficient, there have been negative consequences in nature and the environment. The number of people is constantly growing, new residential buildings, business centers are being built, an increasing number of people are traveling to destinations that, along with the local population, cannot accept all those tourists. People travel to destinations that only the local population knew about. Why? Urban life, information available everywhere, media and similar digital channels have made it possible to choose destinations and escape from everyday life. They are looking for undiscovered places, beautiful nature where one day hotels or luxury resorts will be built, and all this so that people can enjoy and forget about their everyday life. This is

where the problem arises. Selfishness and hunger for money caused man to worry about his development and how to make life easier for himself, while forgetting what development means, and even more importantly, sustainable development.

Development must ensure positive change in the future, and for this to be possible it must be sustainable (Krajinović, 2015). Relatedly, such development should meet the needs of current generations without diminishing the possibility for future generations to meet their needs in the same way (Higgins-Desbiolles, 2018). In order to achieve sustainable development, there must be an optimal balance between environmental protection, social equality and economic well-being, while satisfying traditional product requirements (Krajinović, 2015).

Numerous factors and indicators relate to the overall level of sustainability in the destination. It was mentioned that the business sector is not the only one responsible for the implementation of the concept of sustainable development, but synergy is needed between business entities, the public sector, social communities and individuals. Their cooperation can influence the quality and success of the implementation of sustainable development, both in the entire economy and in tourism, which represents a mass social activity (Amerta et al., 2018).

Definitions of the terms sustainable development and sports tourism were explained in previous chapters. However, what about the term sustainable development of tourism? Lately, the development of tourism in the world has been observed exclusively from a sustainable aspect, namely the protection of natural and cultural heritage (Amerta et al., 2018).

Due to the desire for the highest possible profit, better image and reputation on the tourist market, numerous destinations neglect their opportunities and their own carrying capacities. Carrying capacity is a term used to explain the maximum number of people who can visit a tourist destination at the same time, without causing unacceptable effects on the physical, economic and sociocultural environment and an unacceptable decrease in visitor satisfaction (UNWTO 2018).

Amerta states that the basic principles of sustainable tourism development are:

- maintaining the quality of the environment
- benefits for the local community and tourists
- maintaining the connection between nature and tourism
- maintaining the connection between the local community and the environment
- creation of dynamic conditions adapted to carrying capacities
- the unique mission of all investors towards sustainable development.

The most difficult task of any destination is to provide quality service, to satisfy the needs of tourists, but also to satisfy the needs of the local community, to ensure the attractiveness of the destination, without harming biodiversity. In addition, it is necessary to create an image of the destination in order to be recognized on the tourist market.

Sustainable development of sports tourism is a demanding and complex task. Sports tourism opens up new jobs and the opportunity to make a profit. Depending on the nature of the sports tourism product, more precisely the activities that can be carried out in the destination, the local community and the population participate in the implementation of these activities through the sale of related equipment, giving instructions and leading tours. In order for this to be possible, cooperation between the private and public sectors is needed, as well as the involvement of the local community, which ultimately results in the quality development of a particular destination. In this way, the destination encourages the employment of the population and the productivity of the entire community.

Sports tourism improves the attractiveness and popularity of the destination, and expands the tourist offer. This prolongs the stay of tourists and their consumption, but also achieves the dispersion of tourists within the destination, which reduces the pressure on traditional services and thus promotes the sustainable development of the destination itself. Thanks to this, the sustainability and sustainable economic development of the destination is promoted and a positive image of the destination is created.

Sports are mostly associated with football, basketball, the Olympic Games and the World Championships. Higham claims that destinations that want to develop sports tourism should focus on smaller sports competitions and sports activities in order to achieve sustainable development, instead of large sports events (Higham, 2018). Kurtzman divided sports tourism activities into 5 categories, with each category subdivided.

The first category of sports tourism activities are sports manifestations (Kurtzman, 2005).:

- Olympics
- Regional/National/International sports competitions
- World Championships • Marathons
- League competitions (professional and amateur)
- Friendly competitions
- Races/Regattas
- Sports festivals.

The next category according to Kurtzman is sports attractions (Kurtzman, 2005):

- Sports Museums/Halls of Fame
- Sports conferences
- Sports theme parks
- Bungee jumping
- Rafting on rapid waters
- Golf courses, ski resorts
- Stadiums
- Sports schools.

The third category of sports tourism activities are sports tours (Kurtzman, 2005):

- Professional sports tours
- Sports school tours
- Tours of sports institutions/locations/events
- Safari games
- Training tours
- Cycling and walking tours
- Trekking/mountaineering tours
- Ski trips
- Adventure tours
- Diving.

Then, there is the category of sports resorts (Kurtzman, 2005):

- Golf resorts
- Ski resorts
- Fitness and Spa resorts
- Tennis resorts
- Backpacks
- Multifunctional sports resorts
- Sports hotels.

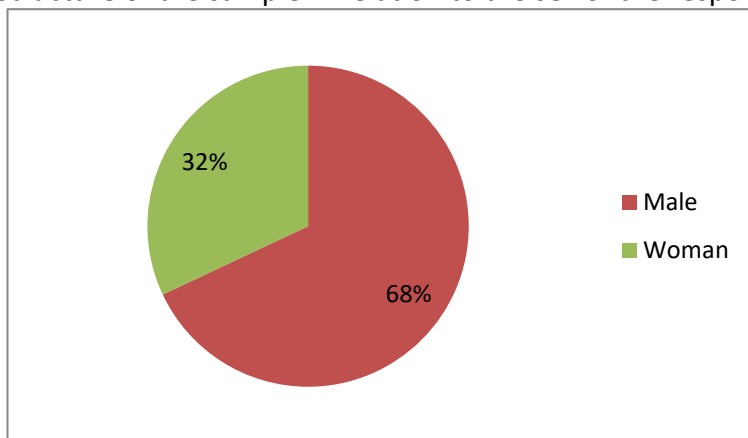
The last category of sports tourism activities are sports cruises (Kurtzman, 2005).

- Luxury sports cruises
- Golf/tennis cruises
- Cruises with sports conferences
- Canoeing/kayaking
- Sailing
- Fitness and health cruises.

Research results

The total research sample consists of 200 respondents of different gender, age, level of education, occupation and amount of monthly income. The research was conducted in the period from the beginning of October to the end of November 2023, in such a way that respondents were sent an invitation to participate in the research via email.

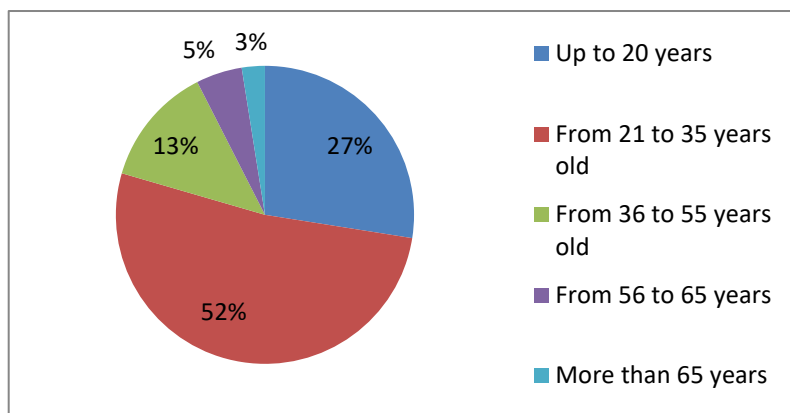
Figure 1. Structure of the sample in relation to the sex of the respondents



Source: Authors

When it comes to the gender of respondents, 32% of female respondents and 68% of male respondents participated in the research (Figure 1).

Figure 2. Structure of the sample in relation to the strict structure of the respondents

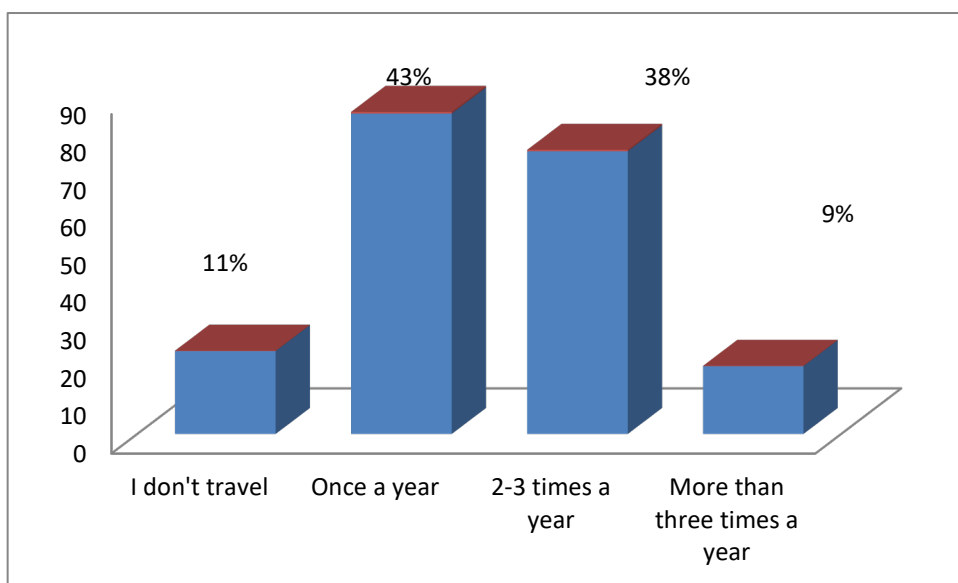


Source: Authors

When it comes to the age of the respondents, the majority of respondents are in the age category of 21 to 35 years (52%), followed by respondents aged up to 20, who make up a little more than a quarter of the sample, and then respondents aged 36 to 55 (13%) . The smallest percentage of the research sample consists of the oldest respondents, aged over 65 (3%) and aged 56 to 65 (3.0%). The sample is not uniform according to the age of the respondents.

The structure of respondents in relation to work status makes up 68% of respondents, then student status 18%, freelancer 13% and Unemployed only 3%.

Figure 3. Structure of the sample of respondents in relation to travel in Serbia



Source: Authors

The largest number of respondents traveled once a year, and also a larger number traveled 2-3 times during this calendar year.

The structure of the sample in relation to playing sports indicates that 88% of respondents play some kind of sport. Only 12% have no activity. According to the survey, 78% of respondents have an active vacation. They mostly swim, bike, run and engage in some activity. In the survey, 54% of them expressed the need for rest, 20% for entertainment, and 19% of respondents travel to do sports.

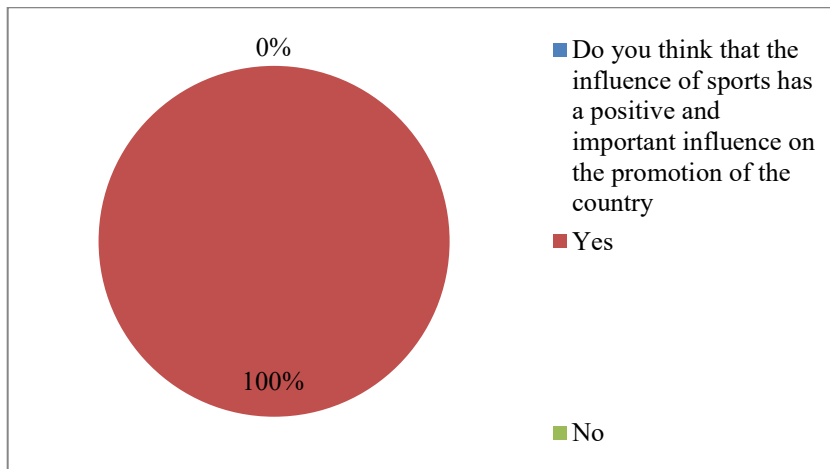
Figure 4. Structure of the destination selection importance sample

Evaluate what is important to you when choosing a destination	5 Extremely important	4 Important	3 Important and not important	2 Less important	1 It doesn't matter
Preservation of the environment	75%	15%	5%	5%	0%
Service price	98%	2%	0%	0%	0%
Quality of accommodation	100%	0%	0%	0%	0%
Food quality	100%	0%	0%	0%	0%
Proximity to destination	15%	35%	45%	5%	0%
Availability of content	63%	26%	11%	0%	0%
Destination popularity	25%	45%	30%	0%	0%
Climate factor	100%	0%	0%	0%	0%
Manifestations	22%	19%	38%	10%	11%
Parks and green areas	58%	35%	5%	2%	0%
Walking paths	100%	0%	0%	0%	0%
Fun content	28%	38%	34%	0%	0%
Sports content	18%	72%	5%	3%	2%
Excursion offer	82%	10%	8%	0%	0%
Price-quality ratio	95%	3%	2%	0%	0%

Source: Authors

Based on the analysis, we can conclude that the largest number of respondents is engaged in cycling 48% and fitness/gym and aerobics 45%.

Figure 5. Structure of the sample in relation to the opinion of the promotion of sports for Serbia



Source: Authors

Opinion 100% of respondents believe that Serbia has potential for development.

Conclusion

Sports tourism offers numerous opportunities for achieving sustainable tourism development at the destination level. Busy lifestyle, stress, pressure from society and the media force people to look for salvation in an active holiday. Instead of traditional ways of traveling, in which sightseeing the cities, enjoying the sun or swimming in the sea, tourists choose destinations with a diverse offer with the possibility of engaging in sports activities. Sports tourists, with various activities, explore cities, nature, and cultural heritage. Although more demanding, environmentally conscious sports tourists go to areas of untouched and unexplored nature. Sustainable development of tourism is the main goal of all destinations where tourism is developed. Mass tourism is still the dominant product, but it is unsustainable in the long term if it is not managed. Nature is being destroyed, the life of the local community is almost completely neglected, and costs are increasing year by year. A large number of destinations are worried about the future, considering that governments only care about income and profit as much as possible, and do not care about the well-being of the destination, how mass affects the people living in that destination and how nature supports a large number of people in one place. Sustainable tourism thus becomes not only the main

but also the only goal that destinations want to achieve in the future. In addition, the disease caused by the new corona virus reduced the number of trips, brought service providers and destinations to the brink of collapse, but also gave destinations the opportunity to change their policy and development strategy, to recover from mass tourism and focus on sustainable tourism. It remains to be seen in what direction and in what way the tourism development strategy in Serbia will be set. Likewise, the problems caused by the new corona virus can change tourism as it existed until today, the way of traveling and staying in destinations. The question is what the future of world and Croatian tourism will look like.

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CRITERIA FOR THE CLASSIFICATION OF SAFETY IN SPORTS

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Abstract: Safety management in sports is an extremely important process, which, in addition to looking at the development and reach within sports, also requires continuous monitoring of current situation and changes in society. This mainly refers to those that can have undesirable effects on certain segments of sport or sport as a whole. It is evident that there are numerous classifications of safety in sports according to the criteria of observation. Thus, in accordance with the segment of management in sports, we talk about the safety of sports organizations, facilities and events. In relation to the structure of the theory of sport, the safety of the performers of the sport, the safety during the process in the sport and the conditions of the realization of the sport are recognized. However, it is necessary to emphasize the "basic" division of safety in sports in relation to the origin of risk. According to this criterion, the elementary, one could say the essential division of safety in sports, recognizes unwanted events whose causes are related to specific sports engagement, and "external" ones, for which sports represent a favorable environment for achieving non-sporting goals.

Keywords: Sport, safety, management in sport, theory of sport.

Introduction

In accordance with the development of modern sports, safety in sports is gaining importance. Multiple demands placed on athletes in terms of the quality of their performance are accompanied by legal regulations for organizers of sports events – which emphasizes the safety of all sports actors. From modern sports facilities, which are the place where sports events take place or the hardware of sports activities, maximum comfort and safety are required at the same time. It is necessary to

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emphasize that safety in sports does not begin, nor does it end, with the beginning of the process in sports (training or competition), rather, like progress in sports, it requires permanent engagement.

It is known that looking at a certain problem from several sides enables a better understanding of its essence and finding more effective ways of solving it. This can also be applied in the area related to risk as an essential source of security problems. Bearing in mind that security, as an extremely broad concept in the literature, is defined in various ways, primarily in relation to the object of observation (physical or legal entity), that is, territorially viewed (a specific object, city, region, country, continent or globally at the level of Earth), in order to better clarify this matter, it is advisable to consider it from several aspects. Knowing the security structure, as well as predicting the entire spectrum of (possible) risks, and their timely prevention, affects the reduction or elimination of unwanted consequences.

Just as the good networking of a territory enables its good connectivity and progress, so a good knowledge of safety in sports and its assessment through multiple criteria enables the minimization of risks, i.e. increases safety in sports. In connection with the above, this paper presents several classifications of safety in sports according to different criteria, but also for the purpose of understanding the complexity of safety in sports.

Definition, problems and classification of safety in sport

Prior to defining safety in sport, it is necessary to point out that the most common classification of sport includes three main segments: elite (competitive) sport, school sport (including university) and recreational sport (sport for everyone). Although there are differences between the mentioned sports segments in the acceptable intensity of effort, the technology that is applied, as well as the number of people who like watching them and result ranges, in each of them there are certain risks as well as unwanted events.

Safety in sports could be defined as the absence of threats to the health and life of sports performers, members of the security services and, more generally, the entire population, as well as the elimination of the risk of damage or loss of property, the cause of which is, basically, sports activity (Mašić, 2006.). The main protagonists of the continuous process of security in sports are the performers of sports, experts in sports (health, technical, economic, legal and other professions) and police officers. In the objective sense, security means the absence of threats to acquired values, and in the subjective sense, the absence of fear that those values will be threatened (Wolfers, 1962). Safety in sport means the safety of all resources in sport, globally and individually. Bearing in mind that resources in sport represent everything that ensures (or limits) the realization of the

process and the achievement of goals in the system of sport and its subsystems, including the performers of sport, it is apparent that each of the resources in sport is an object of security action, i.e. a protected form. In this sense, it is necessary to state that the physical and health safety of sports actors means the elimination or control of all factors that can negatively affect their physical integrity or health.

Sport is a significant phenomenon and an unavoidable segment of modern society. Therefore, in addition to unwanted events induced by the activity itself (such as injuries, accidents), it is unfortunately not immune to various illegal ways of achieving victory (doping, "fixing" results), damage to sports and other infrastructure, as well as corrupt practices (illegalities in player transfers or unlawful taking of property). According to managerial vocabulary, certain resources may be improperly used, damaged or illegally taken. Therefore, safety in sports is one of the "hardest disciplines" in sports today. Some of the mentioned phenomena can be "controlled" by knowledge and professional work within the sport itself.

However, suppressing those others – for whom sport is "just an excuse", an occasion or a tool, requires significant engagement and organization outside of sport. It can be said that sport has quite successfully overcome numerous financial and energy crises. However, the health crisis, i.e. the Covid-Sars 19 pandemic, temporarily had a significant impact on the previous way of implementing sports, starting with the impossibility to have regular leagues, through the "removal" of the audience from the stands, to the postponement of the Olympic Games in Tokyo. Therefore, the issue of safety in sports is extremely relevant, because in it, as an important segment of social activity, the risks and deviations of the modern world are manifested. A special issue is the influence of politics on sports. The above refers to one of the goals of this work, which is to indicate the complexity of safety in sports.

Classification of safety in sport

Safety in sports is a unique matter that has continuity and regularity of events, especially periodicity and causality, but for the sake of a more successful overview and focus on certain groups of problems, that is, risks and their solution, a conditional partiality approach is used. In this sense, several classifications of safety in sports can be established according to different criteria.

1. According to the basic segments of sports management, we can talk about the safety of sports organizations, facilities and events. With the management of sports organizations, sub-classification is evident in relation to their two basic functions: sports and business, each of which has several segments.

All three segments of management in sports have unique safety goals: to eliminate or minimize threats, that is, to avoid or reduce damage as much as possible. However, each of the three mentioned subsystems of management in sports has its own specific requirements, and therefore their security tasks differ to some extent, and accordingly they apply appropriate security procedures.

Within this classification, it is necessary to emphasize the scope and complexity of the management of sports events, considering the importance and characteristics of the competition itself, the number of spectators, ..., up to the complete atmosphere. The above generates a large number of factors that can result in unwanted events. The complexity of the management of sports events is also indicated by the fact that in the Republic of Serbia, the Law on Prevention of Violence and Misbehavior at Sports Events was adopted. Due to the importance, as well as the frequency of violence in sports, it is necessary to point out that this includes every word or action of an athlete, coach, judge, parent, spectator or other participant in a sporting event that causes injury to those involved in the sporting event (Kostić, 2008.). Violence can exist between athletes, there can be violence towards referees, between coaches and athletes, parental violence and fan violence (Otašević 2015).

Contemporary research most often identifies the following forms of violence: open physical violence, in order to threaten the moral and physical integrity of others; violence aimed at things, at the demolition, breaking of objects that belong to "those others" or have a certain symbolic meaning; covert violence that is not manifested directly, but indirectly, through some form of violation of the moral integrity of another person; verbal or symbolic violence that manifests itself in words: threats, curses, gestures (not verbal communication) or other symbols that manifest violent forms of behavior, or that incites violence in another way (Otašević 2015). The same author indicates that the most frequent victims of violence at sports events, according to statistics, are: members of fan groups (from the opposing group and due to the provoked usage of police powers); police officers in charge of maintaining public order; "other" citizens and their property.

2. In relation to the structure of the theory of sport (Mašić, 2006), the safety of *all sports participants and performers* is considered, during the process in sports (training and competition), taking into account the possible violation or abuse of *the conditions for the realization of sports*, which are regulated by the Law on Sports, by-laws, as well as sports rules. The causes of risks during training and competition can be classified into two large groups: the first consists of risks arising from the structure and characteristics of the activity itself, and the second those arising from the g, that is, the quality of organizing and implementing training and competition.

Unfortunately, an unwanted event can happen during sports activities – both training and competition, but also outside of them: in the athlete's home, daily activities, traffic, ...

Risks for athletes are therefore constantly present, in different places, at different times, due to different causes. Due to the scope of the matter, for the sake of example, only possible "sources" of adverse events during training are listed here: health condition of the athlete (hidden defects, previous injuries, "incomplete" rehabilitation, pressure of premature involvement in the training process; inappropriate physical strain; inadequate methodical procedure, his complete or partial absence; incomplete concentration of the training participants; insufficient knowledge of the training participants; excessive ambitions of the training participants; application of illegal methods and procedures; incomplete "warming up" or fatigue; specifics of a particular sport, inappropriate, faulty or poorly adjusted devices, props and equipment; unsatisfactory conditions for training: temperature, humidity, surface, number of participants; influence of "third parties" or "force majeure" ...

3. In addition to the aforementioned classifications of safety in sports, it is necessary to point out the classification of safety in sports in relation to the origin of risk. According to this criterion, it could be said that the essential classification of safety in sport is determined, which recognizes and classifies unwanted events into those whose causes are related to specific sports engagement, and those "external", for which sport represents a favorable environment for the achievement of non-sporting goals, primarily illegal acquisition of significant financial benefits.

An example of unfavorable events whose causes are related to specific sports engagement are possible "sources" of adverse events/situations during the competition: health condition of the athlete; insufficient preparation for a given performance; incomplete concentration of competition participants; inadequate knowledge and experience of competition participants; excessive expectations from competitors; incomplete recovery after injury or illness; application of illegal methods and procedures; incomplete "warming up" or fatigue; specificities of a particular sport; inappropriate, defective or poorly adjusted devices, props and equipment; irregular conditions for the competition: temperature, level of UV radiation, humidity, surface, number and heterogeneity of participants; inadequate trial; criminal act; terrorist act...

The list of undesirable - "external" events for which sport represents a favorable environment for achieving non-sporting goals is long. Here are some procedures and actions that are used to desire/obtain certain positions or significant financial resources in an illegal way: corruption, fixing results, violation of transfer rules, improper management of sports organizations, black funds. All of the aforementioned illegal actions can negatively affect the regularity of certain competitions, fair relations

in sports, loss of trust in sports organizations, and have a serious negative impact on the integrity of sports, that is, they undermine the sports system. In addition to the significant social role and positive image of sport, the probable cause for the aforementioned illegal actions, apart from one of the bad sides of human nature, is that sport has evolved significantly, especially in the "economic" sense, that is, from a primarily amateur activity into professional waters.

Conclusion

Numerous classifications can primarily enable a better understanding of safety in sports, but at the same time point to its complexity. Therefore, the paper presents several classifications of safety in sports. The first, taking into account the basic segments of management in sports, indicates the safety of sports organizations, facilities and events. The second, in accordance with the structure of the theory of sport, classifies safety in relation to the participant or performer of sport, processes in sport and the conditions of realization of sport. The third also points to the classification of safety in sport according to the origin of risk, and recognizes unwanted events whose causes are related to specific sports engagement and "external" ones, for which sport represents a favorable environment for the achievement of non-sporting goals, primarily the illegal acquisition of significant financial benefits. It was also emphasized that each of the resources in sport is a subject of security action, i.e. a protected form.

Violence in sports represents a very significant and visible form of violation of safety in sports and as such it deserves special attention. In this sense, the Law on Prevention of Violence and Misbehavior at Sports Events was adopted. However, it is necessary to emphasize that there are also a large number of less evident or exposed illegal procedures and actions that are very harmful to sports, such as: corruption, fixing results, violation of transfer rules, improper management of sports organizations, black funds. Therefore, continuous attention in this area is necessary because risks are constantly present, and unwanted events are possible during sports activities, as well as "outside them".

In order to successfully overcome the risks in sports it is necessary to have a realistic perception of the *problem* and analysis of its peculiarities (source/s, intensity, etc.), a many-sided view of the event (from the point of view of each of the sports participants and performers, organizers of sports activities and security personnel, ...), as well as appropriate resources (professional, financial, technological, ...). Adequate behavior and "constant vigilance" are also necessary!

Along with state bodies, sports organizations, sports performers, and experts in sports have a key role in implementing security measures and promoting awareness of security in sports. Only through a comprehensive approach and the cooperation of all relevant factors can an environment be created that maximally protects athletes, as well as all other players in sports, and enables them to enjoy sports with as little risk as possible, while preserving the spirit of sports.

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MARKET RESEARCH AS A FUNCTION OF MARKETING DEVELOPMENT IN SPORTS

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Abstract: Marketing research is a vital component in any successful business strategy. It involves collecting and analyzing data about market trends, customer preferences, and competitor activities to make informed decisions. This process helps companies understand their target audience better, identify new market opportunities, and gain a competitive edge. Segmentation in the sports market is a key process in the marketing of sports products and services. In essence, it fulfils the marketing manager's need for knowledge of the market. The task of marketing research is to help specify and supply accurate information to reduce the uncertainty in decision-making. Although marketing research provides information about consumers and the market-place for developing and implementing marketing plans and strategies, it is not the only source of information. By understanding their target audience's characteristics, preferences, and location, companies can create tailored marketing strategies and offerings that effectively meet the needs of their consumers. Segmenting the sports market allows businesses to maximize their marketing efforts and increase their chances of success in this highly competitive industry.

Keywords: market research, sport, segmentation, consumer, sports industry

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Introduction

Research in marketing involves a systematic approach to activities related to data acquisition and analysis. The obtained results need to be translated into information that will aid us in making marketing decisions. This information should ideally reduce the risk in decision-making, although it is important to note that complete risk avoidance is not possible. Rapid changes in the environment, especially in recent decades, have led to frequent shifts in consumer behavior and a trend of increasing expectations (Dašić, 2023a). This creates an environment where attracting and maintaining relationships with consumers is increasingly challenging. Given that enhancing consumer satisfaction is a fundamental goal of modern marketing, it becomes evident that intensifying the application of appropriate instruments and processes is necessary.

Therefore, market research becomes imperative, and participants in the sports industry must continuously monitor emerging changes and adapt to them, either by seizing opportunities or avoiding threats (Dašić, Ratković, 2022).

The process of researching marketing areas in the sports environment involves the following stages (Ratković, Dašić, 2018):

- Determining the subject of research;
- Planning the overall research;
- Collecting data from secondary sources;
- Generating data from primary sources;
- Analyzing the obtained data;
- Defining conclusions of the research process;
- Applying the research results;
- Evaluating the research.

The mentioned activities constitute research phases that do not have to be implemented in the specified order; they can overlap, and some may not need to be carried out. Thus, the phase involving the creation of data from primary sources may not be necessary if sufficient data is obtained from secondary sources. Research planning involves determining the goals, time, and space of the research, as well as the sources of data and research methods, along with overall organization and costs (Ratković, Dašić, 2018).

Marketing research covers a wide range of phenomena. In essence, it fulfils the marketing manager's need for knowledge of the market. The task of marketing research is to help specify and supply accurate information to reduce the uncertainty in decision-making. Although marketing research provides information about consumers and the marketplace for developing and implementing marketing plans and

strategies, it is not the only source of information. Every day, marketing managers translate their experiences with marketing phenomena into marketing strategies. Information from a manager's experiences frequently is used in an intuitive manner because of time pressures on business decisions or because the problem does not warrant more formal research methods (Dašić, 2023b). However, the primary task of marketing management is effective decision-making. Relying on seat-of-the-pants decision-making – decision-making without systematic inquiry – is like betting on a long shot at the racetrack because the horse's name is appealing. Occasionally there are successes, but in the long run, intuition without research can lead to disappointment. Marketing research helps decision-makers shift from intuitive information-gathering to systematic and objective investigating (Babin, et al., 2020)

Subjects of research in sports marketing

The subjects of research in the sports marketing environment can be diverse, overlapping with research subjects in other fields, but they are also specific to some extent. One area of research is the definition of market capacity. This research area deals with the market's absorptive power and the market share of the organizational subject itself. Absorptive power refers to the overall capacity of the market/segment, including buyers/users/consumers of competitive organizations, while market share involves determining the presence of participants in the sports industry in relation to the competition, in the target segment where they operate.

Another subject of research can be the consumers themselves, who are at the center of all marketing interests. Research into their behavior involves determining personal characteristics reflected in psychological factors, supplemented with the results of research on all external factors mentioned earlier. Within personal characteristics, their motives, perceptions, expectations, but above all their needs and attitudes towards the organizational subject operating in the sports products and services market, or towards the market offer, are investigated. As mentioned several times, changes in consumer behavior are becoming more frequent, making continuous research even more necessary. In addition to consumers, we can also distinguish fans as a separate category, as discussed in another chapter, who represent a significant group of users of sports services or buyers of sports products. Competitors are also a subject of research.

The next subject of research is the marketing mix. This area includes the elements mentioned earlier that make up the 4, 7, and more Ps.

There are many different types of product research, such as studies aimed at assessing and creating new items as well as learning how to modify already-existing product

lines. Concept testing involves exposing a novel product idea to prospective consumers in order to assess the concept's viability and acceptability. Product testing identifies the advantages and disadvantages of a product prototype or establishes if the final product lives up to expectations or outperforms rival brands. Brand-name evaluation studies investigate whether a name is appropriate for a product. Package testing assesses the size, colour, shape, ease of use and other attributes of a package. Product research encompasses all applications of marketing research that seek to develop product attributes that will add value for consumers.

Studying prices. The majority of businesses study prices. An example of this kind of marketing research project is a competitive pricing study. Nonetheless, it is not unusual to do research to ascertain if consumers will accept a price that is high enough to cover the costs, or to ascertain the optimal price for a product.

Distribution. The firm discovered that mass merchandisers, supermarkets, and pharmacies would be just as popular distribution channels as the upscale boutiques when it conducted research on where its consumers would want to buy Golden Books. Millions of dollars are being invested to investigate this alternative because it has the potential to completely transform channel-of-distribution systems. These include new interactive media, virtual reality, and more affordable home delivery options.. Although most distribution research does not have the dramatic impact of the research on Internet shopping systems, research focused on developing and improving the efficiency of channels of distribution is essential to many organisations. A typical study in the distribution area may be conducted to select retail sites or warehouse locations. A survey of retailers or wholesalers may be conducted because the actions of one channel member can significantly affect the performance of other channel members. Distribution research often is needed to gain knowledge about retailers' and wholesalers' operations, and to learn their reactions to a manufacturer's marketing policies. Sometimes, market research can identify new opportunities for retailers and marketer

Promotion. For example, within the marketing mix, the subject of research can be promotion, while the goal of research in this case may be to determine the effects of a specific promotional campaign on the target consumer segment in the market for sports products and services.

In addition to the mentioned aspects, the subject of research in this market includes the overall marketing environment, specifically the changes and trends within it. One of the contemporary trends is the increasing inclination of children to play computer games, driven by the diverse and attractive offerings as well as peer influence. This implies the need for offering sports activities to preschool and school-age children, as well as directing marketing communications towards parents. Research in this

direction should be continuous because environmental factors undergo interconnected changes.

Predicting the future trends is therefore challenging, but a certain insight into it can be gained through a systematic approach in marketing research (Ratković, Dašić, 2023).

Another subject of research can be the marketing potential of athletes from the perspective of sponsor interest. Their potential is explored in the context of promotional opportunities and compatibility with potential sponsors. Athletes represent a product but also a service provider. If the development of their careers and brand creation from their name is approached correctly, they can become significant players in the market for sports products and services by promoting a specific brand and, simultaneously, the sport they engage in. They undoubtedly become influential individuals in shaping public perception of the brand or sport they promote, making their promotional capacity an important subject of research in marketing.

Segmentation of the Sports Market

The consumption of sport is not a recent phenomenon. As early as the 1950s, it was noted that the mass media was having an impact on the rise of commercialized spectator sport. However, it is only recently that partner (sponsor) companies have invested considerable sums of money in increasing number of sporting organizations. Thus, the ability to better forecast or predict individual differences in fans' likely participation levels, attendance rates, and the general consumption behaviors of target markets, is becoming important for sport organizations (Dašić, Gavrilović, 2023).

Early studies have suggested that both direct and indirect sport consumption tends to vary by age, sex, marital status, education, occupation, income levels and opportunities provided by season length and type of sport (Nielsen 1971) More recent studies have also examined the effect of personality, attitudes and benefits sought level of sport involvement and attitudinal motivation . None of these earlier studies have examined these variables in combination and as they have all focused on a specific sport, none have considered whether these segmentation bases hold true across the "general sport" consumer profile (Summers, Johnson, 2015).

And, there is very little information published on criteria for effective marketing segmentation in the sport practitioner literature. What constitutes effective sport market segmentation? We offer 12 criteria (Desarbo, Blank, 2020):

1. Differential behavior: Consumers in different segments should behave (i.e., consume) differently toward the brand/product.

2. Identification: Marketers should be able to classify existing consumers into segments based on available information.
3. Reachability: Marketers should be able to reach consumers in different segments via distinct marketing strategies.
4. Feasibility: Marketers should be able to derive segments subject to managerial constraints and known information.
5. Profitability: Revenue from a market segmentation study should exceed the costs of implementation.
6. Substantiality: Derived market segments should be sufficiently large enough so that marketing to them is worthwhile.
7. Responsiveness: Derived segments should respond uniquely to the marketing mix utilized to target them.
8. Stability: Derived segments should be stable over the short run or method utilized to derive them.
9. Actionability: Marketers should be able to implement specific marketing strategies to targeted segments.
10. Projectability: Marketers should be able to classify new consumers.
11. Competition: Marketers should be able to understand how segments would respond to changes in marketing strategies and competitive forces.
12. Market dynamics: Marketers should be able to compare derived segmentation schemes over time to examine the impact of changes in consumers and the marketplace.

Criteria for Consumer Segmentation in the Sports Market

Criteria for consumer segmentation in the sports market are manifold but can be categorized into several groups. According to the well-known division of factors influencing consumer behavior, these factors can also represent potential segmentation criteria. It is important to note that similar divisions often have multiple bases, as is the case here, where influences on consumer behavior serve as both criteria for segmentation and the foundation for exploring potential and selecting a target segment. Segmentation in the sports market is a crucial process in marketing sports products and services. Segmentation criteria help marketing professionals understand different consumer groups and tailor their strategies to meet their specific needs. There are several important criteria to consider when segmenting the sports market (Maričić, 2011; Babin, Harris, 2012):

Demographic criteria: This includes the age of the target group, education, gender divisions, as well as the consumer's life cycle and family life cycle.

Geographic criteria: Defined by location-based differences influencing consumer behavior.

Psychological criteria: Relating to the consumer's lifestyle, motives directing their purchasing decisions or deterring them from it, personality traits, expectations, perception, as well as attitudes and beliefs about specific sports events, sports brands, sports organizations, etc.

Economic criteria: Involving purchasing power, income levels, and more.

Social criteria: Relating to social classes, strata, reference groups, etc.

Cultural criteria: Encompassing religion, customs, habits, and more.

Segmentation criteria in the sports market play a crucial role in understanding and targeting specific consumer segments within this industry. These criteria help businesses identify common characteristics and preferences shared by their target audience, leading to more effective marketing strategies. One key aspect of segmentation is demographic criteria, which involves dividing the market based on factors such as age, gender, income, and education. For example, companies may target younger audiences with extreme sports products, while offering high-end luxury merchandise to affluent individuals. This approach allows businesses to tailor their offerings to specific consumer segments, enhancing their chances of success in the highly competitive sports market. Psychographics consider consumers' lifestyles, interests, attitudes, and personalities. By understanding the psychographic profile of their target audience, companies can create marketing messages that resonate with their consumers on a deeper level. For instance, some people may be motivated to engage with certain sports based on their desire for a healthy lifestyle or their need for social interactions. By leveraging psychographic segmentation, businesses can tailor their marketing efforts accordingly, promoting the emotional and psychological benefits associated with their sports-related products or services.

Geographic segmentation is yet another crucial criterion in the sports market. It involves dividing the market based on geography, which can help businesses target specific regions or countries. This approach takes into account variations in climate, cultural preferences, and local sports traditions. For example, companies selling skiing equipment may focus their marketing efforts on regions with snowy winters, while businesses offering soccer merchandise may concentrate on areas with a strong soccer culture. By segmenting their market geographically, businesses can adapt their products and marketing strategies to suit the needs and preferences of different locations, maximizing their potential for success in the sports market.

Market Research Methods in the Sports Industry

All marketing research, whether basic or applied, involves the scientific method. The scientific method is the way researchers go about using knowledge and evidence to reach objective conclusions about the real world. The scientific method is the same in social sciences, such as marketing, as in physical sciences, such as physics.

Amateur and professional sport represents an important component of national identities and valuable area of social activity. Due to a variety of reasons, there has always been a problem of financing of sport at the national level, especially in terms of amateur sport. Grounding the decision-making in sport and sport entity's management in the relevant information represents the first step in the resolution of financial as well as a multitude of other types of problems sport entities, professionals and amateurs face (Šerić, Ljubica, 2018).

Sport entities are obliged to respect and apply sport-related rules of national and international sport federations and the International Olympic Committee. These and other relevant entities regulate sport activities through sport and legal regulations. Each entity should develop its own model of data collection and distribution of required information. The administration of market research methods, specifically adapted for the entity, the sports industry and the culture, is the way to effectively execute such activities. Hence, along with the research methods competence, researchers have to possess high degree of industrial knowledge related to sport and cultural intelligence, which is a critical success factor in the global organizations context, which sport entities are starting to transform in increasingly. In addition, market research in the sports industry contributes to a wide array of areas.

Since sport entities face many unpredictable environmental factors, the continuous monitoring of such environment is imperative for their survival. The modes of communication between the sport entities and public are changing. In 2002, Westerbeek and Smith predicted trends in the development of sport marketing. Sport has become a part of the programme content of most of the media; sport entities strive for global visibility and new technologies "enter service" in the entertainment industry.

Hence, it is crucial to understand the potential effects, limitations and opportunities in the environment in which the sport entity operates.

The first step always represents the data collection on environmental factors. The second step is the evaluation and analysis of identified factors. The third step is the integration of collected and analysed data into information based on marketing plans and strategies. The final step is the 'analysis of the relevance of the analysis' with regard to the accuracy and usefulness of the collected information. In this regard, the methods of market research in sport are particularly useful to analyse political,

economic, socio-cultural, technological, natural, ethical and legal factors in the environment of sport entities. Political factors refer to the dominant ideology of governments, which determines the organization form of political authority over sport. Economic factors refer to the form of economy (planned and market), inflation, market openness, the trend of GDP growth and so forth. Socio-cultural factors define the predominant social culture and change of the same cultural differences in the environment and in the wider area where the sport entity publicly appears. Technological factors define technological changes that have repercussions on activities and funding of sport entities. Natural and ethical factors include climate change, the need for sustainable and responsible development of sport, ethical standards in sport and so forth. Finally, legal factors include legal regulations and restrictions on sport.

Conclusion

Sport is a specific social phenomenon that, through progress, constantly fosters the birth and development of various sport entities (for our terminological classification that we use in this book, see Introduction chapter) around the world. Many, primarily amateur, sport entities today have major problems with financing of their activities, enabling market research discipline to take on the role of the platform for their survival. The education of sport professionals and those who study to be such professionals as well as educators working in the area of sport management and marketing aimed at clear comprehension, and effective use of the methods of market research in sports industry, therefore, possesses the highest significance.

Marketing research can be defined as the function that links the consumer, customer and public to the marketer through information – information used to identify and define marketing opportunities and problems; generate, refine and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process. Marketing research specifies the information required to address managerial decision-making, designs the method for collecting the information, manages and implements the data-collection process, analyses the results, and communicates the findings and their implications.

We started our examination of the marketing research process under the presumption that the researcher wanted to get data in order to fulfill a certain marketing goal. We have emphasized that the researcher must choose certain methods for resolving one-dimensional issues, such figuring out which market niches to target, choosing the ideal packaging design, or test-marketing a new product. But if you consider a company's marketing mix activities across a certain time frame, like a year, you'll see that marketing research is a continual process rather than a one-time event. A survey may

come after an exploratory research study, or a researcher may work on a particular research project for every component of the marketing mix. Research methods that may be used when developing a new product include market potential studies, which determine the size and characteristics of the market; product usage testing, which records consumer reactions to prototypes; brand name and packaging research, which ascertains the symbolic meaning of the product; and test marketing. Since research is an ongoing activity, management ought to consider marketing research from the perspective of strategic planning. The program strategy describes how a company intends to employ marketing research in its entirety. This planning process situates a number of marketing research initiatives inside the framework of the business' marketing strategy. One way to compare the marketing research program plan is to a term insurance policy. Researching marketing strategies reduces uncertainty and minimizes risk. Every research project may be viewed as a sequence of term insurance policies that increase the level of safety in the marketing manager's work.

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SPORTS STADIUMS AND MODERN INFRASTRUCTURE

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Abstract: Rapid and major changes in the environment occur primarily under the influence of modern scientific and technological progress. The results of this are visible in informatics, energy, materials, new technologies, communications and other areas. All social and business systems are subject to change and adaptation to a changing environment. Changes are the basis of survival and development of all social and business systems. That's why just managing changes is a very important discipline and requires a complete and adequate management approach to it. This is valid as a general attitude, but also especially in service management, specifically in sports management, in the case of sports stadiums in particular, their construction and connection with other infrastructure. Namely, before the network of service points is designed, the organization must clearly define its accessibility goals. This assumes a clear idea of the volume of business, market share and consumer segment that the service organization is trying to attract. Accessibility objectives are derived from the positioning strategy for services. The above is set as a premise if you want a simple, propulsive and, above all, profitable service facility.

Keywords: stadium, infrastructure, traffic

Introduction

In the last few decades, many new areas of research and studies addressing location-related issues have emerged, particularly in phenomena such as stadiums. However, the majority of research has been directed towards individual attributes and goals. In

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cases where a single criterion is insufficient, such as minimizing the average reaction time for access to the service area, even if it is the simplest entry into the stadium service circle, multiple objectives must be used. Qualitative factors, such as consumer service, market demand, as well as quantitative factors like distribution and business costs, need to be appropriately measured and used in a mathematical programming model, which is a general recommendation.

The optimal location of service areas is crucial for research. Determining a suitable location for an area intending to meet growing demand represents a significant intersection for researchers (Stanković, 2021; Dašić, Ratković, 2022). Access to the service facility is a crucial factor in determining the satisfaction of demand for consumer zones. A good location strategy provides a clear strategic advantage for a company over competitors, even though it may not be as pronounced in the case of stadiums. For new types of such services, the location decision is very important because it allows the service to become available. By locating service systems in multiple places within mass facilities, providers increase their availability and thus improve their overall consumer service. However, at the same time, by providing a service at multiple service points, the costs of establishing and maintaining the service area increase (Dašić, Gavrilović, 2023; Đukić, Kojić, 2023). In this way, profit can erode unless there is sufficient increase in service utilization.

The location and type of area establish the basic form, costs, and performance of the logistics system. This paper discusses the challenges faced by service providers regarding the place and time of service delivery in mass consumption cases, especially for other or multiple services, in addition to the main service. Because service consumers are mostly involved as co-producers of the service, the time and place where they expect the process to occur become significant criteria for evaluation. Decisions about production and location cannot be made in isolation from the analysis of consumer needs. While service organizations desire to centralize production to achieve economies of scale, consumers generally seek local access to services. Therefore, decisions about service location involve a kind of trade-off between the needs of producers and the needs of consumers. The transportation system as a whole, located in the service space chain, primarily due to its specific nature, must apply this for each individual area separately, and it is necessary to optimize the area in multimodal and intermodal transport systems (Stanković, 2022).

The Phenomenon of Stadiums as a Location

In some services, production can be very inflexible. When choosing a location, it is necessary to consider this, as the selection of a location is often based on relatively

non-production-related decisions. Decisions about service location are influenced by volume, which causes consumer flexibility regarding where they want to use the service. Inflexibility arises for several reasons, and stadiums, as unique service systems, are particularly sensitive due to the following facts:

- The service is performed on a consumer's owned immovable object.
- The consumer is not mobile.
- Impulsive buying behavior.
- Specialized services – where it is inherent that consumers are not willing to buy routine services.

In reality, most service consumer decisions involve a trade-off between the service cost, delivery quality on a specific route, the volume of available choices, and the costs for the consumer in terms of time and money they engage to access the service. For some services, choosing a service delivery location is the most significant means of attracting new business. This applies to low-value services or additional consumption services, for which consumers show little willingness to plan and then execute a purchase. Location is very significant in the case of impulse purchases. Stadiums, gas stations, coffee bars in tourist areas, and restaurants are typically chosen as a result of a consumer encountering a service system without prior planning (Dašić, 2021).

For example, it is not logical for many drivers to follow media advertisements and seek gas stations located in a side street. Therefore, the visible location of the service system represents a vital factor in consumer choice, which is primarily the case due to the size of the stadium. The perishability of service offerings results in their temporal availability becoming significant, as well as their spatial location. Consumers can be segmented based on their flexibility considering the time in which they are prepared to avail the service. Thus, a purchase may not be made if the service is not immediately available. For example, the duration of a sports event is directly related to a certain time tolerance.

The flexibility of service location is a measure of its ability to be realized despite changing economic situations. Because location decisions are essentially long-term, their selection should be primary in determining future economic, demographic, cultural, and competitive changes. Competitive positioning refers to the method by which a company can occupy a place in relation to its competitors. Multiple locations can serve as a barrier to competition by building a competitive position for the company and establishing market reality. Demand management is the ability to control the quantity, quality, and timing of demand. Focus can be developed by offering the same narrowly defined service in many locations. The choice of location varies depending on the nature of the service being sold. With this in mind, services can be classified as those in which:

- Location may be irrelevant;
- Location may be concentrated; and
- Location may be dispersed.

Many services are concentrated, and the reasons lie in the status associated with specific positions: lower demand intensity, consumer willingness to be mobile. When it comes to dispersed services, the location is determined based on the market potential. The nature of demand and service characteristics require dispersion in the market. In this case, institutions can be centralized, and operations are dispersed. Before the service site network is designed, the organization must clearly define its goals related to accessibility. It must especially have a clear idea of the size of the business, market share, and consumer segment it is trying to attract (Ljubojević, 1998). The traditional idea of insufficient production and consumption of services primarily poses a problem in achieving maximum production efficiency and maximum service availability. One method of solving this apparent problem is attempting to separate production and consumption, i.e., designing a service that can be produced at the most efficient location and consumed where it is most needed.

The study conducted by Palmer highlights some methods that can distance production from the point of consumption (Palmer, 1994). Telecommunication and internet networks enable services to be produced in a central operational unit and made available at the consumer's point of choice (telephone and internet banking). Postal services can allow users to make tangible services available at any location, similar to accessibility strategies based on telecommunications. The latest means of separating production and consumption provide surrogates for services, enabling the delivery of the service at the time and place the consumer truly desires.

Location and area layout are crucial for achieving cost efficiency for two reasons. First, the location and layout must reduce costs per unit of production. Second, they must lead to high sales volume. The decision on where to locate a business depends on the relative allocation of the consumer contact component and the support component of the operation. Due to the need to create high business volume, the consumer contact component must be convenient for the consumer. Support functions, however, can be located in areas that do not require capital investment.

In choosing the location of a service system, five key criteria must be explored: operational position, merchantability, traffic intersection, cumulative competitive attractiveness, and competitive compatibility. Merchantability refers to the distance from which a consumer can conduct a transaction. The choice of service location is the first critical management decision and must be made in the process of defining the appropriate service scope. The location will depend on the operational position of the

firm. A firm using a cost-efficient approach must be located where a high level of consumer movement can be generated. A firm choosing a customized approach will want to locate where services can create prestige and an image that will impress their consumers. A firm with a service quality approach will want to create an appropriate consumer contact component for the consumer. The support component should be in low-cost areas.

Services with high merchantability can be managed without the physical presence of consumer access. Low-level services or those requiring the consumer to come for the service must be closer to the consumer. If the consumer has to come for the service, the location becomes more critical. Cost-effective operational services must ensure that their areas are suitable for consumers. Even if the service organization has chosen a service quality approach, the physical location is not crucial but still significant. For customization, the location criterion changes from a service suitable for consumers to one that is impressive and conveys specific images to consumers.

Determining the scope and type of traffic volume the service possesses for the service business is the first step in evaluating traffic intersections. Service businesses related to volume must be located where a large number of vehicles or pedestrians pass, which is inherent in the case of major sports events. Firms using the operational quality service approach will be concentrated around traffic intersections for their consumer contact areas. Stadiums positioned on technical quality will want to be located in highly trafficked areas. It is best to locate them downtown, closer to business districts, to attract business guests.

Some service benefits are realized by existing in a cluster of similar or complementary businesses. However, restaurants and hotels can attract more business when located in clusters than when isolated, as is the case with stadiums (Radaković, Marinković, 2021; Tošić, 2023). If a cluster offers complementary choices, each service will benefit. The concept of cumulative attraction is most significant for services focusing on the operational approach. It is based on cost efficiency and is least significant for services using a customized approach (a method of adapting the service offer to individual requirements).

For services using a service quality approach, the significance of competitive attractiveness depends on the number of desired consumers. On the other hand, for example, hotels often use existing clusters because most guests stay only one or two nights, and the hotel needs to constantly have guests staying in it. Competitive compatibility is significant for services such as car rental agencies. Locating near hotels, airports, and stadiums allows the exchange of consumers.

Factors Influencing the Decision on Stadium Location

The issue of location can be addressed at several levels (Looz, Van B. 1998). The location of a service facility can be sought on another continent, in another country, block, or street. Depending on the size of the space under consideration, the importance of factors determining the final choice of location varies. Factors considered when locating a "Disney" amusement park in Europe differ from those "McDonald's" considers when deciding where to open a new "McDrive" restaurant in Paris. The "Disney" management analyzed factors such as the availability of adequate workforce and transportation infrastructure, climate, and the degree of government support, while "McDonald's" local management focused on entirely different considerations. Factors such as traffic density, the location of competitors, legal regulations in the construction area, available space, and easy access, especially for stadiums, are of greater importance.

The next step is the micro-location domain (within-stadium infrastructure), which deals with the precise position within the selected city center, regional shopping center, or main street and major access roads. At this level, factors such as the presence of attractive stores, the influence of entry and exit points on consumer circulation patterns, and the maximum spatial distance between stores that must be crossed on foot play a significant role. The most important factors influencing the decision on location at a general level would be the availability of good infrastructure (e.g., available roads and communications), the ability to attract a workforce, and proximity to consumers. However, there is a difference in the significance of these factors depending on the type of activity. Sectors such as health, education, social, and personal services generally attach relatively less importance to location-determining factors than sectors like storage, transportation, and wholesale, indicating that they are relatively immune to a large number of spatial factors in general. Since consumers are generally less willing to travel longer distances for routine services, it is clear that services such as retail of food products or banks place greater importance on locating near their consumers than when it comes to professional or educational services.

At the level of choosing a specific location, more specific and pragmatic factors come into play. Adequate parking emerges as the most important factor and is crucial in the case of stadiums, followed by three factors related to construction and costs. On the other hand, retail-oriented services such as stores, banks, and restaurants attach much more importance to these factors, while hospitals and public services attribute less significance. It is evident that the nature of services has a key impact on the relative importance of factors determining the choice of location. A service enterprise that provides services dependent on consumer traffic cannot afford to pay too much attention to workforce and government support factors in its location decision, despite

the capital construction of such facilities. Given that convenience and comfort are key words, such a enterprise has no choice but to locate where consumers are, seeking contact with them. In contrast, professional services do not have to be located in the immediate vicinity of consumers and have more freedom in choosing a location.

The vendor must ask the question, "What value does the service have for the consumer?" and more importantly, "What is the additional value of our service compared to the competition, even if it doesn't seem so at first glance?" It would be unreasonable to expect a consumer to drive an hour to reach a specific fast-food restaurant when it only takes them five minutes to reach another chain, regardless of how tasty the cheeseburger is. However, the same consumer may be willing to drive an hour or more to reach an exclusive place like a stadium. Therefore, the level of freedom in choosing a location depends largely on the perceived value of the service.

Increased attention to business logistics has also contributed to increased interest in location decisions, as highlighted by a thematic study (Ballou, R.H. and Masters, J.M.: 1993). Location decisions, design of the transportation system, and the level of consumer service demands represent three main components of logistical planning. The general problem of location areas lies in the fact that a set of locations for consumer groups utilizing the service is given, and it is important to:

- Determine which area to use,
- Determine which consumers need to be served from which areas to minimize the overall service costs for all consumers.

In addition to the above, other factors can be considered:

- Consumers have a linked demand for capacities (boundaries) with the total consumer demand that can be provided by the areas, or
- Consumers are served in more than one area.

The problems of size and location of areas are closely related and need to be considered simultaneously. In fact, the approach used here does not pay attention (for simplicity's sake) to the size problem, although stadiums come in various sizes, which is logical, and it only deals with location. A typical example, applicable to traffic and stadiums, is the case of the Gotham City airport terminal with ten arrival gates and the nearby Gotham City Stadium. Baggage from incoming flights is unloaded at these gates and transferred to the place where passengers pick up their luggage. In order to logically locate places where passengers pick up their luggage, it is necessary to create the use of the quantity of baggage that moves from the gate to the baggage claim area. Logically, the gate with a large flow should be closer to the baggage claim area than the gate with a small flow. This approach to choosing the location of the baggage claim point is a precise approach used in the area location module. In such location problems, decision-makers typically

deal with the total sum of loading and distance. In the airport example, the distance model measures could be: straight-line, Euclidean, and squared Euclidean measures. Straight-line distance measures are often used for factories. The Euclidean distance measure is used where a straight-line travel is possible. The squared Euclidean distance measure is used where straight-line travel is possible but where there is a desire to intervene and encourage exaggerated distances. In the airport case, the initial choice of the distance measure was often the straight-line and Euclidean (based on the technology of how baggage moves within the terminal). If baggage moves in a Euclidean way, then the squared Euclidean measure is chosen, rather than Euclidean, which penalizes excessive long distances. If the airport is interested in having two baggage claim areas, in that case, two types of decisions must be considered:

- Location decisions - where to locate baggage claim points,
- Allocation decisions - which gates to allocate to which baggage claim points.

The ideal way would probably be automatic solving of these problems simultaneously. Some authors (Goodchild, Noronha Goodchild, M.F. and Noronha, T.V.: 1997) in their judgments then announce their decision to evaluate the most successful network of gas station locations in small towns. Potential fuel demand was measured in terms of:

- a) Resident population,
- b) Traffic flow (number of cars x length of connection) on each of the 560 road links

Contrary to these positive determinants of demand, a decreasing distance effect was introduced into the model, showing that demand should decrease if the consumer distance from the service location increases. The model was developed in the form:

$$\text{Demand}_j = A \sum \text{population } i / (1 - \text{ad}_{ij}) + B \sum \text{traffic } k / (1 - \text{ad}_{kj})$$

Where the demand for a service location j was calculated as the sum of the total population in all enumerated areas divided by factors indicating the distance of the location from each enumerated area $(1 - \text{ad}_{kj})$. A and B are weights that need to be modified according to circumstances or locally adopted areas of demand or traffic demand requirements. The location-allocation procedure was able to initiate sales and market share at each location, including competitors, and how effective a location can be even more effective if it is relocated. The analysis can be repeated using decay distance parameters and different weights for A and B in the equation to demonstrate different marketing strategies. Emphasizing demand in the local area (high value for A) favored central locations, while emphasizing traffic flow generated more dispersed local locations. The selection of location areas can be oriented either towards the organization, in search of places to locate and relocate, or towards the community trying to attract new businesses to its area.

One of the most successful location selection models is reflected in the Analytic Hierarchy Process (AHP), or the AHP location decision model for organizations seeking a location for their new area or the relocation of an existing one. By organizing all location factors into a hierarchy chain, from the overall goal to different criteria and sub-criteria for successive levels, the AHP location decision model offers flexibility and the ability to incorporate experience into decision-making and reasoning.

Based on the feedback form of the company, there are significant managerial implications from the application of the AHP location decision model in many cases (Yang, J. and Lee, H.:1997):

First, the AHP location decision model will help managers identify information sources for the required input data. The second managerial implication is related to a more relevant and systematic assessment of location characteristics and requirements for location factors. In practical location selection problems, a challenging task for managers is to consistently assess and improve these qualitative location factors.

Third, the application of the proposed AHP location decision model will provide significant managerial insights for various stakeholders involved in the location decision, such as local governments, economic development agencies, and others. Fourth, the methodological approach of organizing all location factors into a hierarchy chain in the proposed AHP location decision model has also received positive confirmation from practice.

Research in the field of location area decision-making highlights several key points. In an ideal world, a company should have a fully developed strategic plan for real estate that clearly describes the criteria for determining location. However, meeting operational needs to accommodate a large population of employees could dictate that the area be located in the suburbs with free parking.

With few exceptions, the most critical aspect of any location comparison is the quality and quantity of available workers. It is not enough to have a sufficient number of people available for operational staff. They must be skilled, educated, or willing to be trained for specific jobs.

The next issue relates to finding the best business environment. The definition of a "supportive" environment will vary significantly depending on the type of business the organization conducts. For each location, it is necessary to evaluate the minimum of the following criteria:

- Corporate tax rates,
- Individual property tax rates,
- Real estate taxes (commercial and residential), and
- Municipal costs.

Applicable Models for Service Location Determination

Before a service location network is designed, an organization must clearly define its accessibility goals. This assumes a clear idea of the business scope, market share, and consumer segment the service organization is trying to attract. Accessibility goals are derived from the service positioning strategy. High accessibility levels can, for example, only be compatible with business goals if they are also linked to a premium price position. High accessibility levels can also be reduced, which can change the role that promotion played within the marketing mix. Conversely, a strategy that encompasses a low level of accessibility should significantly rely on promotion to make potential consumers aware of the service location. Accessibility goals, fundamentally, according to studies, should be (Palmer, 1994):

- To provide a hotel location in all places with a population of 100,000 or more people,
- To develop supermarket locations within a ten-minute drive time of at least 50,000 people,
- To develop retail locations where pedestrian and road traffic exceeds a pre-determined threshold.

Service location decisions are used at both the micro and macro levels. At the macro level, organizations seek the most profitable areas or regions, neighborhoods, where they make their service available, giving importance to demand, the level of competition, and the costs of establishing in the area. Micro-level decisions relate to the selection of specific locations. Macro analysis begins with a clear report on the consumer profile that the organization is targeting to reach the target market. Methods used by organizations to select service locations tend to become more complex as the organization grows. In the early stages of growth, simple "rule-of-thumb" methods may be acceptable. With further growth, simple indices and ratios are common. A large number of models of varying levels of complexity have been developed to help companies make decisions about the optimal location. Since service capacities can cover a limited geographical area, the service provider wants to reach the maximum number of consumers with a minimum number of service centers, especially if they are in one place, which is the topic we are discussing. What is the exact number is difficult to determine and depends on factors such as the type of service offered to consumers, the necessary infrastructure to deliver the service, and the defined service company strategy. In order to determine the optimal number of service centers, a balance must be struck between the given number and costs on one side and transportation costs connecting the service provider and consumers on the other. Transportation costs decrease with an increase in the number of service centers since the spatial distance between the service provider and the consumer decreases.

Also, revenues are likely to increase since the company can expect more frequent visits from consumers to sports events when the distance is shorter. On the other hand, the costs of building and operating individual service centers increase with their number. The proximity of consumers is obviously the primary determinant of location. Many models are based precisely on this principle, determining the best location for a service capacity as the one that minimizes the spatial distance between consumers and service providers. Another group of models - the so-called "gravitational models" - are more profit-oriented and consider locations with the greatest potential to attract consumers. Generally, before using any of these models, we must note two questions that arise:

- How to optimize our model? Should we use minimizing spatial distance, maximizing profit, or some other criterion?
- How can the geographical demand for the service be estimated (or where can a ready-made estimate be obtained)?

Conclusion

In recent years, the quality of life decisions have become increasingly significant as the workforce diminishes, the market becomes more competitive, and the previous culture of working for a company becomes a thing of the past. Studies show that for generations after the 20th century, the quality of life decisions often become more important than the financial compensation for work itself. Therefore, assessments of the culture offered by certain areas, proximity to vacation destinations, transportation links, climate, cost of living, and intellectually stimulating environments often represent critical factors. It is very peculiar that the issue of transportation infrastructure is not at the top of the consideration list. Without a doubt, these factors play a significant role in complex geographical comparisons. In particular, the assessment should be complemented with respect to each location's ability to meet the transportation needs of the company. Increasing emphasis is placed on technology, the number and ingenuity of telecommunication services and providers in the market, and the availability of multiple power sources, which can prove crucial. The application of the AHP model for location decision-making provides a framework to help analyze various location factors, evaluate alternative locations, and make the final location selection. The fundamental principle of the AHP model is to align decision-makers' preferences with the characteristics of the location.

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SPORTS AVIATION IN THE WORLD AND YUGOSLAVIA AFTER SECOND WORLD WAR

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Abstract: After World War II, the accelerating demand for personal and utility aircraft gave rise to the term *general aviation* to describe all flying that did not fall into the category of military or scheduled air transport. Immediately before the liberation, the first aviation organization in Yugoslavia was formed in Zemun in 1944. In March 1945, the Air Force Command established the Gliding Center in Vršac, and in April classes for the first class of gliding teachers began. The first aero-clubs began to operate within the Commission for Technology and Sports, at the beginning of 1946 (later Narodna tehnika). The Aviation Association of Yugoslavia (Vazduhoplovni savez Jugoslavije – VSJ) was founded on April 25, 1948 in Belgrade. In 1950, he renewed his membership in the FAI, was unanimously accepted as a member at the 43rd general conference held in Stockholm.

Keywords: Yugoslavia, air sports, The Aviation Association of Yugoslavia, Vazduhoplovni savez Jugoslavije – VSJ, FAI

Introduction

No matter how unusual it is, very little has been written about the history of sports aviation, not only in our country but also in the world. This is an attempt to briefly summarize the development of sport aviation in Yugoslavia for the first ten years after the Second World War, although due to the continuity of the story in several cases we have to extend the considered period up to around 1960.

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As a basic source, we used the memorandum "20 years of the Yugoslav Air Force", which used to be in the Technical Directorate of the General Staff of the JNA (*The Yugoslav People's Army*). We do not know where he is today. Unless otherwise stated, data from that memorandum was used.

After World War II, the accelerating demand for personal and utility aircraft gave rise to the term *general aviation* to describe all flying that did not fall into the category of military or scheduled air transport. Manufacturers such as Piper, Cessna, and Beechcraft represented an expanding "light plane industry," although the general aviation sector included a host of modified aircraft that ranged from war surplus. For the light plane builders, engine manufacturers perfected efficient horizontally opposed piston engines that produced from 65 to more than 200 horsepower; mass production made them dominant in international applications; several appeared as turbo-supercharged designs delivering more than 300 horsepower. (See more in: Underwood J., Collinge G., 1970)

The first aviation organization in the new Yugoslavia was founded in 1944 in Zemun under the name Sports Aviation Association "Belgrade". Although with scarce material and technical resources and with a small number of trained personnel, that first aviation organization very quickly began to train personnel for the needs of aviation units at the front.

After the liberation of the country, with the involvement of numerous aviation enthusiasts, new sports aviation organizations were created, which developed activities first in aviation modeling and sailing, and later in other branches of aviation sports.

So, for example, in Zagreb, as early as May 15, 1945, a group of young people started work on aviation modeling and sailing. A modeling school and the first home sailing group were soon formed. And in other parts of the country, aviators are beginning to gather, renewing aeronautical sports activities, forming circles and groups working in modeling and sailing. This activity was recorded in Slovenia, Bosnia and Herzegovina and Macedonia.

The AF command immediately began organized and focused work on creating material and other conditions for the development of aviation and sports organizations in Yugoslavia. The AF Command also immediately began to work on the preparation of teachers for sailing, which, along with the construction of sailboats, had a decisive impact on the even development of aviation and sports organizations in all parts of the country.

Immediately after the war, the VSJ (*The Aviation Association of Yugoslavia, further - VSJ*) organizations had modest material resources at their disposal. Measures were taken to collect, repair and equip all available means of airplanes, gliders, winches and parachutes so that they could be used to the maximum extent for training. Design bureaus were established in Zagreb and Ljubljana. which brought together constructors and aviation

enthusiasts. They immediately began to design and build the first aviation gliders. This is how a mass self-building movement developed in VSJ, which produced outstanding results. The AF command immediately started with the planned direction of designing and building gliders and airplanes, as well as the training of teachers.

So already in 1945, the construction of glider gliders for initial training of the "Sparrow" type and at the same time the "Seagull" type glider began. This creates the conditions for the organized development of sailing industries throughout the country.

Formation of The Aviation Association of Yugoslavia

In September 1945, the Communist Party of Yugoslavia (KPJ), through the SKOJ Central Committee (*League of Socialist Youth of Yugoslavia*), gave the initiative to form an aviation-sports organization in the country, and already on November 21, 1945, a meeting of aviation representatives from all over the country was organized. with the aim of finding solutions for the implementation of the KPJ initiative.

By the end of 1945, fifteen aviation organizations with 1,190 members had already been founded (in Serbia, 6 with 450 members, in Croatia, 5 with 309 members, in Slovenia, 2 with 220 members, in Bosnia and Herzegovina, one with 60 members, in Macedonia (*The current one North Macedonia*), one with 80 members) in which modeling groups and the first sailing courses worked.

The year 1946 is significant for the further development of aviation sports organizations and for the search for organizational and other solutions for the planning and unification of aviation sports in the country.

On November 22, 1946, the first meeting of representatives of aviation organizations was held in Belgrade, where experiences were exchanged and certain tasks for the further development of aviation and sports organizations were exchanged. Intensive work has begun. Instead of groups and circles, which until then were mostly unconnected, initiative committees are created which, at the founding assemblies, elect management, adopt rules and thus form sports aviation societies.

In 1946, 22 sports aviation clubs were already operating in Yugoslavia (in Belgrade, Zagreb, Ljubljana, Maribor, Novi Sad, Osijek, Varaždin, Slavonski Brod, Sisak, Sušak, Sombor, Subotica, Vršac, Split, Sarajevo, Skopje), and their work was united by the initiative committee for sports and aviation at the Technical and Sports Commission of the Central Committee of the USAOJ.

On September 28 and 29, 1947, the second federal consultation of representatives of aviation organizations was held in Belgrade, which promoted organized and planned work on the development of aviation sports in Yugoslavia.

In the same year (1947), the federal pilot school started working in Zagreb (the following year it was moved to Ruma). The sailing center in Ribnica continued to work. The federal sailing center in Vršac was handed over to the management of sports aviators. The Utva factory produced the first series of school sailboats. All this enabled the mass training of sailors.

That year, republican committees for sports aviation were formed. In Slovenia, the Aviation Association of Slovenia was formed at the end of 1945, and in Croatia, the Republic Committee was formed in 1946.

In the period 1945 - 1947, sport aviation in Yugoslavia was largely a closed organization whose activity was considered semi-military. However, there were a lot of aviation events and landings, meetings, competitions and various gatherings, and propaganda about aviation sports immediately began to acquire an organized and socially oriented character.

In March 1947, the magazine "Narodna krila" began to be published, which played a significant role in the organizational connection of aviation societies and republican organizations.

The year 1948 is considered a turning point, due to significant events in the development of sport aviation in Yugoslavia. In February, a meeting of representatives of "Technology and Sport" and Central Committee of KPJ was held with the aim of finding better organizational solutions. The decision was made to separate "Technique and Sport" from the Physical Education Association and to form it as an independent mass organization. On April 19, 1948, at the Second Congress of the Yugoslav Physical Culture Association, the organization "People's Technique" was formed, which included sports aviation.

The Yugoslav Aviation Association was constituted on April 25, 1948, at the founding assembly of the "Sports Aviation Association", which consisted of representatives of 32 aviation organizations and initiative committees for sports aviation of all republics and autonomous provinces, which represented about 7,200 members.

It can be considered that in that year the phase of renewal and consolidation of sports aviation was completed and that VSJ was organizationally defined with basic organizations that were named "aviation societies". The following year, on November 20, at the Fourth Plenum of the Federal Board of the VSJ in Belgrade, a decision was made to rename aviation societies into aero clubs.

The Federal Board (SO) was the highest body of the VSJ. In its composition, it has a professional service, auxiliary bodies and commissions: for aviation education and propaganda, for aviation sports, for motor flying, for gliding, for parachuting, for model making; then, the disciplinary commission and the international relations commission. Similar commissions were formed by republican committees. With occasional changes,

forming new commissions, the system of leadership in the Supreme Court was constantly improved.

After the founding assembly, a very significant period of strong development of the VSJ began. In addition to professional work in all branches of aviation activity, aviation sports also began to develop more strongly.

Due to the well-known conflict with the Informburo, the worsening international situation and strong pressure from the Eastern Bloc, our country was threatened with danger, so it was necessary to organize the country's defense preparations in every way. VSJ was then tasked with mass training modellers, sailors, paratroopers and motor pilots, who, in addition to expert aviation knowledge, were supposed to develop patriotism, courage, determination and other military qualities needed for the defense of the country. In carrying out these responsible tasks, the Supreme Court enjoyed great support from the state, which allocated large material resources for the organization's needs. (Ratno vazduhoplovstvo i protivvazdušna odbrana, 1989, 371)

At the beginning of 1948, the alliance had 11 airports with hangars, 60 model workshops, 12 sailing schools. eight aircraft repair workshops. The Federal Pilot School in Ruma and the Aviation and Sailing Center in Vršac.

The process of organizational development of the VSJ, along with the normative, statutory and legal regulation of all issues of social activities, lasted approximately until 1952. At that time, the Association represented a modern aviation sports organization in terms of organization and overall activities.

Around 1950, although VSJ did not reach optimal development in all republics and provinces, it represented an extraordinary force, thanks to considerable material and technical resources. He especially strengthened in terms of personnel, because he trained high-quality athletes. Even then, he began to achieve his first successes in international sports.

From 1950 to 1960, VSJ reached the highest level of its development. It was a period of extraordinary work and great results in all branches of activity. In that period VSJ achieved the greatest results in sports at world and European competitions. Then the system and rules of sports competitions were fully developed.

During the first eight years (1945 – 1953), the following were trained at the VSJ:

- of aviation modelers 17,306
- pilots - sailors 8,483
- 21,380 paratroopers
- motor pilots 1,568

Among those trained, there is a large number of teachers who completed their education in federal educational institutions. (Ratno vazduhoplovstvo i protivvazdušna odbrana, 1989, 376).

The Aviation Association of Yugoslavia at its peak

In the spring of 1953, the Yugoslav Air Force had considerable material and technical resources at its disposal, most of which it obtained directly or with the support of the Air Force. At that time, VSJ had: 127 airplanes, 218 gliders, 331 parachutes, 57 means of transport, 48 aviation schools (aviation clubs), 11 aviation centers, 63 airports, hangars, 12 aircraft repair workshops, 96 aviation modeling workshops and schools, and 6 design bureaus. (Avioni Jugoslovenskog ratnog vazduhoplovstva domaće konstrukcije i izrade 1946 – 1949; Pregled predatih aviona vazd. savezu Jugoslavije; Stanje aviona po godinama 1946 – 1965; Бопба 21. maj 1953, 1)

A large number of young pilots, of gliders, paratroopers and modelers trained in VSJ went to the Air Force, where they continued to train as active military officers.

Giving special recognition for successful work and receiving the patronage of the VSJ in May 1952, president Tito greatly contributed to the affirmation of the VSJ in society. (Бопба 21. maj 1952, 1) This created even more favorable conditions for his successful work and overall activity.

At the First Congress of the VSJ, in May 1953, which was attended by 183 delegates, a much broader and more versatile work program was established. At that congress, VSJ, in an organizational sense, separated itself from the composition of the National Technology and became an independent social organization. (Бопба 21. maj 1953, 1 – 2)

At the Second Congress, which was held in December 1956, with the participation of 178 delegates and 150 guests, the program envisaged that, in addition to professional training and coaching, greater attention should be paid to the massing of organizations, especially greater involvement of young people.

The Congress advocated that modeling be developed in schools, that as many professional aviation personnel as possible be included in the Aero Clubs and bodies of the VSJ, and that greater cooperation be developed with the Yugoslav People's Technique and the Association for Physical Culture of Yugoslavia.

All of that required finding new forms of aviation and technical education for working with aviation youth and developing sports activities on a much broader basis.

According to the five-year cross-sections of the state of the material and technical base, it is obvious that during the entire development period VSJ had the appropriate

number of airplanes, gliders, parachutes and kites, which enabled it to perform its social function.

It also had 59 sports airports, with the same number of hangars and warehouses, 41 aircraft maintenance workshops, 75 vehicles and 18 autovitals, as well as numerous classrooms, trainers, training grounds and other facilities necessary for work. Sports airports, in addition to providing all the conditions for training, exercise and sports, are also of great importance for national defense.

Immediately after the war, the production of technical equipment necessary for the activity of VSJ organizations began, primarily gliders and airplanes. Special attention was paid to the design and production of gliders and sports planes.

In the companies of the aviation industry and in the workshops established in the VSJ in Ljubljana, Zagreb, Skopje, Novi Sad and Vršac, young constructors, members of the VSJ, created 12 types of sports and tourist aircraft (some of which were also produced in series) and 26 types school training. highly capable and acrobatic sailboats "Orao", "Košava" and "Meteor", which represented high achievements in sailing in the world. (Avioni Jugoslovenskog ratnog vazduhoplovstva domaće konstrukcije i izrade 1946 – 1949; Бопба 29. maj 1949, 6)

In 1951 - 1952, the Yugoslav Air Force, before others in the world, introduced a two-seater glider for the training of gliders. The two-seater "stork" sailboat from that period, which was produced in larger series, played a major role in the basic training of sailors. Later, that task was performed on the sailboats "cirus" and "libis 17".

VSJ members constructed 12 types of light sports aircraft and 26 types of gliders, some of which, due to their superior qualities, represented the world range.

The military industry produced 80 training sports planes "Trojka", a large number of gliders for VSJ. parachutes and other equipment, and AF handed over to the Alliance a large number of light aircraft, spare parts and other equipment necessary for mass work. (Avioni Jugoslovenskog ratnog vazduhoplovstva domaće konstrukcije i izrade 1946 – 1949.; Pregled predatih aviona vazd. savezu Jugoslavije)

Sports – tourist aircraft 251 Troika was developed on the basis of tender TKV2 no. 1940/46 for sports-tourist aircraft. The first flight of the prototype, made in Ikarus, was on October 6, 1947. In 1949, 57 Troika aircraft were delivered, and in 1951, another 23 aircraft were delivered to AF. Out of a total of 80 produced in the Utva factory Troika aircraft 73 were handed over to the Aviation Association of Yugoslavia, while the remaining 7 were scrapped in the air force before handing over. (Avioni Jugoslovenskog ratnog vazduhoplovstva domaće konstrukcije i izrade 1946 – 1949.; Izveštaj sa ispitivanja serijskog aviona Trojka; Stanje aviona po godinama 1946 – 1965; Pregled predatih aviona vazd. savezu Jugoslavije; Đokić N., 2023, 17 – 23; Oštrić Š., 1996, I – IV)

The state paid great attention to the VJ, especially in the affirmation of aviation sports. The number of competitions and parades at federal landings represented real experiences for observers and a kind of aviation propaganda. The experiences and results achieved at those competitions contributed to our athletes achieving many international successes.

Thus, in 1950, at the world sailing championship in Sweden, our sailors took 3rd and 4th place. In the same year, our modeler also won first place in Sweden at the world championship, and the same success was repeated in Austria in 1952. Our parachutist at the First World Championship. held in Bled in 1951, he took second place overall.

Those and numerous other successes in aviation sports had a great resonance in our public, as well as among the members of the International Aeronautical Federation (FAI), where our sports workers developed great activity. VSJ was accepted as a member of FAI in 1950.

Along with the massification of organizations. further improvement of the form of sports competitions continued, which became more massive and rich, so that aviation sports recorded new successes in domestic and international competitions.

By 1960, Yugoslav modelers had once again become world champions, repeatedly winning European championships and setting world records. In 1954, the sailors became world champions in the two-seater category, in 1956 they won second place, and in 1956 and 1958 they took fourth place in the world in the single-seater category.

Motor pilots twice won first place at European air rallies.

In the fall of 1956, a center was organized in Vršac for the transportation of sick and injured persons by VSJ planes to the nearest hospital at distances of up to 200 km from Vršac. This service functioned until the beginning of the sixties. (Борба 10. октобар 1956, 2)

Propaganda and publishing activity and information contributed significantly to the development of VSJ. VSJ published magazines, newspapers and other publications. In addition to the magazine "Narodna krila", which was founded in 1947 and was published until 1953, "Aerosvet" was launched in 1951, which was published until 1965. "Aeronautical Gliding" was published very briefly in 1949-50. "Wings", which are printed in the Slovenian language. were published from 1957 to 1959.

The professional magazine "Modelar" was published in 1949-1950. The "Bulletin of the Federal Board" began publication in 1950 and ceased publication in 1975. In the overall activity of VSJ, ever since its foundation, work with aviation youth has always been on the agenda.

Conclusion

Due to the lack of materials and personnel, as well as inappropriate forms of gathering, the expected results were not achieved in working with children. Only after the First Congress of the VSJ in 1953, when the "Small Aviation Association" was founded, as well as after the establishment of the "Selenite Movement" in 1955 (which, in addition to modeling, was involved in astronautics and rocket technology) were favorable conditions created for working with aviation youth during the sixties. (Васиона бр. 1/1961, 36)

Since the clubs worked, mostly, in primary schools, VSJ organized the training of more than 3,000 educational workers, mostly technical education teachers, to work with children, i.e. implement programs. It also ensured the production of model rockets, kites and other necessary means of work. At that time, the youth aviation clubs represented the only form of technical education for elementary school students and were the forerunners of the young technicians' clubs. which later developed within the framework of the National Technical Organization. (Васиона бр. 1/1961, 36)

Educational and professional work in the aviation youth clubs took place according to the programs of the VSJ, with considerable funds and modeling material, which was produced in large quantities in our country. So, for example, in 1954, modeling material was produced in the following companies: „AERO“ Beograd, „AVIOTEHNA“ Zagreb, „AVIOSERVIS“ Sarajevo and in workshops in Novi Sad and Vršac.

From 1954 until the beginning of the 1960s, aviation youth and modeling were on the rise. In 1957, a center for aviation modeling was established in Belgrade. That period is significant for many events, exhibitions, rallies, competitions, artistic, literal and other manifestations, and even many schools published "Selenite papers". While, for example, in 1954 there were only four types of model sets for working with children, in 1960 there were already 16 types.

The strong development of the modeling technique had a significant impact on the expansion of the program and the content of the work, as well as on the development of mass. The number of clubs increased from 318 to 886, and membership from 12,466 to 53,782. It is a period of extraordinary mass work with children. In that period, the new system of training and teaching separates the social educational work of the aviation youth from training in modeling. That demarcation was a useful innovation because it imposed the need for further systematization and improvement of all curricula. Such an orientation gave extraordinary results.

After the 1960s, the social and educational work with children dropped sharply and the number of clubs and members of the aviation youth decreased. The lack of financial resources (for the overall activity of the VSJ) first reduced the programs of work with the aviation youth. and at the same time the training of modellers stops,

because the material base for working with aviation subframes and for modeling is negligible. Namely, the industry no longer produced the necessary material for models.

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DIGITAL TRANSFORMATION IN THE SPORTS INDUSTRY

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Abstract: There is no doubt that innovative technologies and their adequate application are the driving force behind the development of various economic and business sectors. Today, digitization, i.e., digital transformation, represents key global trends in the world economy, the process of transformation of society and the economy, but also a prerequisite for the survival, growth, and development of companies in the domestic and global market. Digital transformation is the process of integrating digital technologies into all areas of business, which implies radical changes in the way technology, people and business processes are used. It is a continuous process that has no destination.

For digital natives, the digital environment represents a natural environment. However, for traditional systems, the adoption and application of digital technologies is a complex job that not only changes the internal functioning of the organization, but also the user experience. The sports industry is going through rapid changes, and in this it is not significantly different from other industries, and digital technology provides unprecedented opportunities for growth. Digitization in sport implies the implementation of digital technology in all respects. In this regard, the paper will analyze digital transformations from the perspective of both organizers and spectators of sporting events.

Keywords: Digitization, digital transformation, sports industry, e-sports

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Introduction

Changes in society and economy today are based on innovation, knowledge and added values that enable faster development and competitive advantage. Changes are constant today and continuous changes require continuous adaptation for all organizations today, regardless of their size, geographic location and activity. Also, sports organizations and the sports industry in general are no exception, but must adapt to constant changes. In the context of technological changes, digitization has a great impact on sport and everything related to it. The adoption of digital technology affects the way people engage, communicate and consume, so that in the context of sports, the behavior of fans and sympathizers changes, opening the way for sports clubs and organizations to create new, innovative user experiences.

The sports industry today

The sports industry is based on human achievements, on the degree of their identification and commitment to the sport, the team and/or the athlete. It is an industry in which people, activities, businesses and organizations are involved in the production, facilitation, promotion or organization of any activity, experience or business enterprise focused on sports.(Arikan, 2020) It includes three organizational sectors: public, non-profit and commercial. (Pedersen, Thibault, 2021)

The popularity of sports on a global scale is reflected in the economic value of the sports industry irrespective of the scope considered. In this regard, the sports industry continues to be one of the largest and fastest growing industries in the world (Plunkett, 2013). Crises caused by war conflicts around the world today, have disrupted the chances of a global economic recovery from the COVID-19 pandemic, at least in the short term. The COVID-19 pandemic has caused great financial losses to the sports industry. This is confirmed by the data that the planned (regular) Olympic and Paralympic Games in 2020 in Tokyo were postponed, and that they were held the following year (2021), i.e. a year later and without the presence of foreign spectators.

Nevertheless, the global sports market is increased from \$486.61 billion USD in 2022 to \$512.14 billion USD in 2023 at a compound annual growth rate (CAGR) of 5.2%. The sports market is expected to grow to \$623.63 billion USD in 2027 at a CAGR of 5.0%. (Sports Global Market Report, 2023).

The top five most valuable brands in the world in 2022 are: Nike, Adidas, Puma, Lululemon and Under Armour. Nike, as the leading brand of sports equipment, achieved \$46.7 billion USD in sales revenue at the global level in 2022, which was a growth of 5% compared to the previous year. In the same year, Adidas achieved half

as much revenue from sales at the global level of \$23.71 billion US dollars, which was a growth of 6%. In third place is the company Puma, which achieved \$8.5 billion US dollars in sales revenue, which is a 24 percent increase in revenue compared to the previous year, and which was the highest growth in the sports equipment market.

In fourth and fifth place were the companies Skechers and Lululimon, which achieved sales revenues of \$7.4 and \$6.3 billion US dollars (available at: <https://www.linkedin.com/pulse/top-10-sports-brands-revenue-sales-luffy-yang>).

The 50 world's the most valuable sports teams are worth a total \$222.7 billion USD, which is 30% more than in the previous year, and biggest increase in five years. The most of valuable sports teams are from the United States, and the NFL completely dominates, with 30 of the 32 teams in the top 50, accounting for 60% of the list (available at: <https://www.forbes.com/sites/mikeozanian/2022/09/08/the-worlds-50-most-valuable-sports-teams-2022/?sh=1d8c693a385c>). Five the most valuable teams are: Dallas Cowboys (\$8 billion), New England Patriots (\$6.4 billion), Los Angeles Rams (\$6.2 billion), New York Yankees (\$6 billion) as well as the New York Giants (\$6 billion) on fifth place. The most valuable sports team outside the North American continent is Real Madrid in 13th place with a value of 5.1 billion US dollars. Barcelona is in 13th place (US\$5 billion), Manchester United in 19th place (US\$4.6 billion), Liverpool in 22nd place (US\$4.45 billion), Bayern Munich in 23rd place (US\$4.28 billion). The aforementioned clubs represent the most valuable sports teams on the old continent. It can be observed that the most valuable sports teams in both continents are football teams.

One of the reasons for such trends in the sports industry is the application of innovative technologies. Modern technologies are transforming every aspect of sports, on and off the field, and play an important role in the entire sports industry: from recruitment to identification and training of athletes, from the experience of the audience to media and management. All this resulted in a greater power of the sports industry.

It should not be particularly emphasized that the technology used in the sports industry is the result of the latest knowledge and achievements in science and technology, and today, when we talk about new technologies, we primarily mean on digital technology and all that it encompasses.

Digital technology is the driver of the IV industrial revolution

According to Klaus Schwab from the World Economic Forum, the digital technology, accelerated digitization, respectively, at the beginning of the 21st century, has led to changes called the Fourth Industrial Revolution or popularly Industry 4.0. This

revolution marked changes based on the fusion of digital, virtual and real content, that is, changes expressed through the combination of different technologies and changes in the way of doing business, which includes, among other things, the sports industry. Digital transformation is the integration of digital technology into all areas of business, fundamentally changing the way you work and deliver value to customers (Dašić, Anufrijević, 2022).

The fourth industrial revolution represents the acceleration of innovation in science and technology - the transformative change in data and technological capabilities combined with the merging of the digital, physical and biological realms - and the impact on society as a whole. The main determinant of the IV industrial revolution is the mitigating barriers among digital, virtual and real situation, and in some cases almost complete erasure, of the boundaries between the physical, digital and biological universe. In other words, it is a combination of advances in artificial intelligence (AI), robotics, internet of things content (IoT), 3D printing, genetic engineering, of quantum computing, and other technologies. The aforementioned technologies are already widely applied and enable the functioning of numerous products and services that are becoming necessary for modern life. Industry 4.0 includes three basic aspects: (Petrillo, De Felice, Cioffi, Zomparelli, 2018).

1. Digitalization and increased integration of vertical and horizontal value chains: development of customized products, digital customer orders, automatic data transfer and integrated customer support systems.
2. Digitalization of product and service offerings: complete descriptions of products and related services through intelligent networks.
3. Introducing innovative digital business models: a high level of interaction between systems and technological capabilities develops new and integrated digital solutions. The basis of the Industrial Internet is the integrated availability and control of systems throughout the enterprise in real time.

Digital technology opens up unlimited opportunities for the development of the sports industry. However, in order to realize this in practice, digital technology should be applied in all aspects of business. Also, sports clubs and organizations must go through a transformation of processes, technologies and ways of doing business. An example that confirms the above is the development of 5G networks. Thanks to the advantages of low latency 5G networks, mobile applications are drastically changing the sports industry by including training, simulations, broadcasting of different content, on-site experience, content adapted to the demands of the audience and much more.

Digital technology has the greatest impact on the industry, that is, it significantly transforms the following segments of the sports industry:

- Sports facilities - Smart halls and stadiums, place (seats)

- Connecting with fans and sympathizers
- Performance of athletes and teams
- Organization (security, information, advice, services, props) and
- E-sport

Sports facilities - Smart halls and stadiums place

The application of digital technology in stadiums and sports halls primarily refers to the implementation of systems and the creation of an environment that will provide fans, visitors and spectators with a unique and unforgettable experience. Previously, when designing sports facilities, the key criterion was to achieve functional characteristics related to the organization and running of sports competitions, as well as architectural authenticity in order to become a symbol of recognition or a reflection of the status of the club. Today, in the design of sports facilities (stadiums and halls), it is especially emphasized that the facility should meet the criteria established on the basis of the experience of fans and visitors. The goal is to combine the comfort of a home environment and watching a sports event broadcast on TV (slow-motion recording, repeated recording, display from different angles, going back, etc.) and the atmosphere in the hall or stadium itself (cheering, fan choreography, spirit of community, etc.). However, for the complete satisfaction of fans and visitors, it is necessary to take into account everything that precedes the sports event, as well as what follows after. Namely, with the help of sensors, GPS technology, mobile applications, visitors can more easily find a parking place, toilets, food stores or the shortest way to their seats. Using digital, instead of classic tickets, drastically shortens the time spent at the entrance to sports facilities. In addition, with the help of augmented reality, the organizers can provide the missing information related to different parts of the stadium. In addition, there are other possibilities: visitors can order food to be delivered to their seat, so that they do not have to interrupt their enjoyment of the sporting event. Also, people can even order food on the application and have it delivered without having to leave their seat. This organization provides to fans that can enjoy the game without any interruptions. Of course, all services used can be paid for via digital services, i.e. mobile banking (available at: <https://www.bbntimes.com/technology/building-smart-sports-venues-with-iot>).

For all previous mentioned activities, no special equipment is required, but rather a high-quality signal of mobile telephony, mobile Internet and wireless Internet, since everything can be done on a mobile phone.

Connecting with fans and sympathizers

Fan engagement has become one of the main criteria by which sports properties, and especially their digital services, are assessed. Marketing theory has long recognized the importance of interactions between organizations and their target market, i.e. interaction with consumers and users, as the basis of successful business and increasing brand value. The concept of relationships marketing, as an element of holistic marketing, is precisely the answer or systemic approach to managing and maintaining long-term relationships with consumers. The application of the postulates of the concept of marketing relations in modern business conditions became applicable only with the development of the Internet and digital technologies. In this context, the segment of sports industry is not significantly different from any other business segment, because digital technology, i.e. services based on it, have enabled a higher level of connection between fans and sympathizers with clubs, teams, etc.

Previously, fans, like everyone interested in a certain sports event, had to organize themselves well in order to be free during the time of its holding. In a way, they had to plan well all their commitments and spend a significant part of their time to watch a sporting event at the stadium or in front of the TV at home or in a cafe. The expansion of the Internet and smartphones has enabled a totally different approach to watching sports events. Besides the fact that fans are able to watch sports events from any location where they have access to the Internet, the way they can watch is significantly different from traditional TV broadcasts. According to some authors, the second decade of the 21st century witnessed two trends that changed the dynamics of fan engagement and brand activation. The first trend from 2010 to 2015 was characterized the rapid adoption and of smartphones and affordable 4G mobile connections, while the second trend from 2015 to 2020 was related to development of next-generation technologies such as machine learning, computer vision and blockchain (available at: <https://sport-gsic.com/wp-content/uploads/2021/01/Whitepaper-4-Fan-Engagement.pdf>).

Performance of athletes and teams

Every team has the potential to rise or fall based on a group of people who share the same passion and goals and work together to achieve success, because in an elite sport and environment it poses a significant challenge to the health and performance of athletes and those charged with supporting them (Salcinovic, et al., 2022)

Digital technology allows athletes and coaches to monitor their performance in real time. However, the integration of these technologies in training and competition is a

challenge because both athletes and coaches must fully adapt the available digital technology to their work and training system.

Developed digital platforms enable athletes and teams to improve their performance by adjusting training to data obtained on the health, weaknesses or strengths of each individual athlete, but also to monitor his movement during training or on the field during competition (available at: <https://blogs.sap.com/2016/11/19/boost-athlete-and-team-performance-with-technology>).

Inadequate application of digital technology can raise doubts about the accuracy and reliability of the obtained data.

Organization

Productivity is a key factor in business development. Being more efficient and effective today is a business imperative in all business areas, including in the sports industry. Digitization in this context relates to the adequate using of business intelligence. Namely, digital technology has made it possible to collect and analyze a large number of different data, that can be used for improving business and better responding and adapting to changes in the environment.

In the context of the sports industry, it is particularly important to monitor and analyze data on fans, sympathizers of a particular sports club or spectators of a particular sporting event. The goal is to obtain information that will be the basis for creating content and organizing events in order to satisfy the requirements of the target group.

e-Sport

E-sport is a field of sports activity in which people develop and train mental and physical abilities using information and communication technologies (Wagner, 2006). This definition represents one of the first and most concrete definitions of esports in the world. It is evident that the stated definition derived from the general definition of traditional sports by Taidemann from 2004, which is only expanded in the part related to the application of information and communication technologies (Tiedemann 2004). Although more than 15 years have passed since this definition of e-Sport in professional literature, a relatively small number of definitions can be found in general. According to some authors, e-sport represents the psychophysical activity of people in the use of video games, which takes place on computer and other information and communication devices, and which is directed to achieving victory over another player (Andonović, Radovanović, 2009). E-sports is a form of sport where the primary aspects

of the sport are determined by electronic systems. Basically, eSports usually related to competitive video games (professional and amateur), that often coordinate different leagues, levels and tournaments, and where players usually belong to teams or other "sports" organizations. In recent years, e-Sports (electronic sports) have become one of the fastest growing forms of new media driven by the growing origins of (online) gaming and online broadcasting technologies.

The beginnings of e-sports were in the form of small amateur competitions and in a relatively short time grew into a multi-billion dollar business, whose value is constantly increasing. According to the available data, the e-sports market is estimated at 1.44 billion dollars in 2023, and it is expected that until 2029 its value will increase to 5.48 billion dollars. More than half a billion people followed e-sports in 2023 year, and according to the income generated from e-sports the leading region in the world, is China, followed by the United States of America and Western Europe. On average, an e-sports fan is 26 years old (available at: <https://www.demandsage.com/esports-statistics/>). According to the same source, about 80% of the sponsorships of the e-sports industry come from the industry of hardware and peripheral devices for games. Other popular sponsors include energy drink companies and furniture manufacturers.

The fact that the largest number of sponsors comes from the segment of computer equipment manufacturers (hardware and peripherals) indicates that e-Sports will continue to develop in the way and to the extent that the sponsor's technology is developed and applied.

Conclusion

The digital transformation in sports has introduced the sports industry into a new era of development, which characterize by numerous opportunities, but also challenges. Success in this digital time will depend on the ability of sports organizations to adapt, innovate and effectively implement and use technology. Adoption of these challenges can directly lead to a more engaging and competitive future for the sports industry, where fans, athletes, clubs and organizations will have benefit from digital technology.

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