



Comparison of Utilization of Sports Venues in Selected Universities in Iran and Canada

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ARTICLE INFO

Article type:
Original article

Article history:
Received: 14 Oct 2021
Revised: 29 Nov 2021
Accepted: 7 Jan 2022
Online publish: Feb 2022

Keywords:
Canada
Iran
Sports Venues
University
Utilization

ABSTRACT

The goal of this study was to compare the use of sports facilities of selected universities in Iran with some Canadian universities. This study was comparative and data collection was done through interviews with directors of physical education departments of the selected universities. All the universities studied in this paper are faced with a crisis of financial resources and revenue generation; however, a common weak point of Iranian universities is that they lack initial plan for efficient design as well as expert designers in construction of university spaces. Based on the findings, in the Canadian universities the facilities have the highest multi-purpose applications. Accordingly, practical and applicable recommendations have been suggested to office of development plans of Iran's ministry of science, research and technology to improve the operation of sports facilities in Iranian universities.

Introduction

In today's industrial life, the sports venues should be considered as a training environment, a cultural place, as well as a social site promoting intimacy, friendships and mutual aid. One of the reasons why people are not willing to attend sports venues is that these places are not suitable and attractive, and it is the duty of architects to create sports venues by combining art and technology. Realization of these goals is not possible only in the context of speeches and writings, but practical actions in this field are much more important. These places should be planned according to aesthetic and technical characteristics. Mental image is related to the way the space is physically organized as well as psychological comfort gained from the space. The appeal and visual beauty of the space is effective in attracting people to a stand and the degree of mental comfort received from it, and this is a feature

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How to Cite: Nahid, A. (2022). Comparison of Utilization of Sports Venues in Selected Universities in Iran and Canada, *Journal of New Studies in Sport Management*, 3(1), 370-388.
DOI: 10.22103/JNSSM.2022.18365.1034



causing people to choose it to stay, walk and experience collective life. The increasing tendency of different strata of the society, especially pupils and students to exercise, shows their understanding and awareness of the role of training in maintaining and promoting physical and mental health (Ramezani, 2014). Facilities alone are not enough for exercise. The urgent need to consider novel design methods to make sports centers more effective and attractive is extremely important. In the design of sports venues, in addition to technical aspects, one must also pay attention to aesthetic aspects. Aesthetics means consideration of the beauty of the environment around the sports venue such as landscape of gardens, flowers, bright and shiny interiors that invite people to spend some time in it (S. M. H. Razavi & Azimi Delarestaghi, 2014).

In the construction of sports facilities, venues and equipment, it is necessary to pay equal attention to the appearance and quality of customer service. Basically, the number (quantity) and type (quality) of sports venues, facilities and equipment in a city or region represents that city or region. Therefore, it is necessary that the appearance of sports venues and places be in a way that is consistent with architectural styles and culture of the community. In addition to sufficient capacity, proper location, and ease of use, sports places, venues and equipment that are built for the purpose of rest, training and filling leisure time should also be attractive and beautiful (Jalali Farahani, 2018). In recent years, modern designs and digital techniques consciously used in architecture have in practice contributed to positive effects of aesthetic aspects of architecture and evoked a pleasurable feeling toward exterior and interior spaces of sports facilities (Majidi, 2015). Adequate facilities, supplies, and equipment are as important as motivating athletes; however, the use of many places and adequate equipment by individuals often leads to management problems. Recent studies and experiments have created new design trends for the construction of sports venues and equipment (Orunaboka & Nwachukwu, 2012). Sports venues are resources for the production of sports and recreation programs that include all spaces, buildings, installations and facilities for sports and recreation (Dugalić & Krsteska, 2013).

Duncan and Mummery in their study concluded that the tendency to physical activity and sports is influenced by environmental characteristics and it seems that beautiful architecture has important effects on physical activity and increases people's participation in sports activities such as walking (Duncan, Spence, & Mummery, 2005). Wendell et al. (2007) pointed to potential environmental factors that determine physical activity and exercise in adults, and their goal was to determine environmental factors that influenced people's tendency to exercise. They concluded that the aesthetic factor was among the environmental factors increasing the willingness of people to do exercise in these places. In fact, interesting scenery and landscape has an important relationship with physical activity. There is also no evidence that men and women are different in this regard (Wendel-Vos, Droomers, Kremers, Brug, & Van Lenthe, 2007). In addition to necessary steps to determine the need, location and site, feasibility study and the like, the construction of sports facilities requires other measures for planning and implementation. Currently, in the developed countries, stakeholder working groups are also invited for planning and design. For example, during the design, a working group should be formed with the presence of experts, athletes, and coaches of the sports for which the space is to be built in order to determine the needs of athletes and coaches during coaching, training and competitions, create safety conditions and provide for service areas needed to facilitate their activities and even prevent disturbance for local people in terms of movement of athletes and spectators (S. M. H. Razavi, Bolourian, M., & Khajavi D., 2003). In the design and construction of stadiums, sports venues and facilities, there are criteria that must be observed in all structures and construction activities. Designing a place can affect the power of people or their preferences in different ways (Shiri, 2009). Soleimani states that the dimensions of color, space, form, harmony, light and environment are effective in the tendency of customers to sports venues, respectively. In terms of space, the multi-functional (multi-purpose) factor of sports spaces is the most important for people in their inclination to sports venues, followed by large and spacious spaces, the beauty of indoor spaces and being in open spaces instead of being enclosed by the wall as the next priorities, respectively (S. M. H. Razavi, Hosseini, S. E., & Soleimani, M., 2012). The importance of developing sports spaces in cities is due to the fact that sports venues are effective in shaping the physical body of the city and on the other hand affect the surrounding applications as a service center. Achieving the desired sports space and the

creation method of a space tailored to the needs requires the identification of components and utilization status, examining the required spaces and objects, the correct relationships of the spaces and their intelligent combination. Environmental capabilities play a major role in perception and behavior. Addressing social values through the environment and landscape architecture can bring about happiness and vitality to the spiritual and psychological needs of human beings and reduce the negative effects. All sports activities need distinct facilities and equipment and require specific knowledge and expertise in terms of management and operation. In operational stage of sports facilities and equipment, special types of planning and management must be carefully selected, observed and used in a desirable way in sports venues in order to increase productivity (Foroghiipoor, Sabonchi, & Tip, 2011). The debate on university stadiums in various sports plays an important role in addition to mental and physical health of educated people in features such as domestic competitions of Universities in the country and finally in the world. By addressing all aspects of such stadiums, the needs, shortcomings, causes of failures and students' non-involvement in sports can be evaluated (Soltan Hosseini Mohammad, 2010).

In line with the importance of observing technical and aesthetic points in the construction of sports spaces in general and in universities in particular, the research conducted in this field is mentioned below.

Kargar et al. (2004) in a study entitled "analyzing the status of sports venues in the country to determine the factors affecting productivity from the perspective of experts and presenting a productivity model" identified ten factors that influenced the productivity of these places. These factors are manpower, management, facilities and equipment, financial status, organizational structure, monitoring and assessment, time and manner of activity, planning, customer orientation, repair and maintenance, respectively, with facilities and equipment in the third rank of important factors in the productivity of sports venues. Components related to facilities and equipment were as follows in order of priority: existence of appropriate sports installations, observance of safety points in initial design of sports venues, adherence to proper physical conditions, flexibility of sports venues, presence of appropriate and adequate health equipment, proper distance of sports venues from polluted urban regions and the existence of adequate amenities (Kargar, 2004).

Alizadeh and Tejarat (2006) in a research entitled "study of approaches meant to increase the productivity of sports facilities, venues and equipment" identified the components influencing the productivity of sports space in five areas: physical, financial, manpower, management and planning, and users. In the physical component, ease of access to sports spaces, safety considerations in the construction of sports venues and adaptability have a significant effect on increasing productivity (Alizadeh, 2006). In financial component, the amount of credits related to the maintenance of sports facilities and those associated with the repair of sports facilities are among the most important factors affecting productivity. In users' component, the high level of user satisfaction with the sports venue, the type of sports space utilization in terms of educational, championship and entertainment groups and the creation of a client respecting system are effective in increasing the productivity. In human resources (HR) component, the number of people working as specialists in sports space and increasing hours of manpower training in sports spaces are effective in increasing productivity. In management and planning component, the appropriate financial structure for monitoring and assessment, providing an appropriate legal environment are among the factors affecting productivity. Overall, this study indicates the approaches to increase productivity in sports facilities and equipment by identifying the factors affecting productivity. Foroughipoor et al. (2011) in a research entitled "evaluating the productivity of sports venues from the perspective of physical education teachers in Hamedan" has examined the factors effective on productivity of sports venues in seven areas, which showed that the manpower, physical, management, planning, control and supervision, repair and maintenance, and financial factors influence the efficiency of sports venues, respectively (Foroghiipoor et al., 2011). Among the components under study, physical factor, existence of appropriate and sufficient installations, observance of safety points in the construction of sports facilities, suitable physical conditions (lighting, ventilation, flooring, etc.), compliance of the facilities with the needs of users, convenient health amenities, easy access of users to sports venues, the ability to serve several sports, scalability (development of facilities in the future, etc.), the existence of

appropriate services (buffet, parking, and so on) and separate sports places for different sports were identified as the most effective factors in increasing the productivity of sports venues and facilities, respectively. Equipping sports facilities with adequate facilities has the greatest role in increasing their productivity. Baroutian and Atghia (2016) in their research entitled "effect of architecture of sports facilities under the auspices of Tehran Municipality on the extent of citizens' inclination to sports activities" stated that architecture and design of sports venues have been fruitful in attracting citizens to sports activities. When doing the design, the authorities should pay special attention to the architecture of places based on the culture, the access mode and other obtained criteria (Baroutian, 2016). Veskah (2015) in his research entitled "genealogy of the concept of sports spaces in urban architecture with emphasis on criteria of design standards" concluded that sports spaces today are among the most important urban utilities that play a key role in improving quality of life and enhancing living standards and that it is desirable for the citizens to pay attention to the concept of their formation in history and to consider strategies to improve their status (Veskah, 2015). Atghia and Lalani (2019) in their research entitled "comparative study of sports space architecture of selected universities in the world and Iran and presentation of a conceptual model" state that students are a major stratum in all countries and that the quality and standards of sports venues of universities are of high importance in holding competitions that provide a demonstration of students' skills, physical and mental fitness in addition to sports programs (Atghia, 2019). Therefore, the construction of university sports facilities should be in accordance with the conditions and standards, such that all safety issues in various fields such as rules and regulations of sports, health and principles of architecture and engineering are observed in their construction and equipment, providing a suitable place for training and sports competitions for students. In addition, the choice of color, the correct arrangement of sports installations in the halls, sufficient lighting and temperature, the presence of coaches and staff and other factors along with proper division of tasks can facilitate the control of mental conditions for students, coaches, staff and spectators. According to the results of the mentioned research, we conclude that sports venues are a platform for performing sports activities and that their quality has a direct impact on training and performance of exercises as well as holding sports competitions and tournaments. It is well established for experts, coaches and athletes that training in the skills of various sports should be provided in an environment that has the characteristics and approved according to prevailing standards for those sports.

Observing the above points makes the construction of university sports facilities more economical and cost-effective because it associates investments in this field with proper productivity and quality operation, leading to desirable achievements such as training sports talents among students at the community level and their successful presence to gain regional, national and international positions in the championship dimension. Obviously, this will lead to the spread and expansion of physical and mental health of young people in society and prevent the occurrence of sports injuries to students due to non-compliance with the necessary safety principles and standards. Holding any educational program, including sports programs in universities, requires accurate knowledge of the current conditions and needs of students because the negligence of their expectations can result in useless programs and services, loss of cost, time and the employed manpower. Due to the development of urban life and changing daily movement patterns, as well as the reduction of motor activities, especially among students, their limbs and muscles have been negatively affected with the serious risk of inactivity and physical weakness. To prevent or deal with such complications, considering attractions and facilities for popularizing sports among students is a powerful tool in this field. However, the main question is to what extent have universities been successful in attracting students to sports activities? Do university sports facilities meet the required standards for training classes as well as sports competitions? Are aesthetic factors and elements used to attract students in these spaces?

Therefore, in this research, the provisions and management of sports facilities in selected universities of our country (Tehran, Shahid Beheshti, Sharif, Al-Zahra, and Arak) and on the other hand in certain Canadian universities (Montreal, MacGill and Concordia) were studied through face-to-face interviews with directors of the physical education and sports departments of those

universities, as well as the collection of information from the websites of universities to present the scientific and practical suggestions in order to improve the design and operation of sports facilities in the country's universities.

Methodology

This was a qualitative study conducted in a comparative manner through interviews with the directors of sports venues from selected universities in Iran and Canada in 2018-2019, so that the researcher attended the office of directors in sports complexes of the universities under study, asked premeditated questions in relation to the management of premises under their supervision and recorded the answers. After finishing the interviews, the researcher classified and interpreted the results in such a way that the similarities and differences in the operation status of sports facilities from universities under study in Iran and Canada were determined, and finally the answers were grouped in the form of strengths, weaknesses, and solutions suggested by the managers under investigation. On the other hand, the history of sports activities and pictures of the spaces under study were obtained from the websites of those universities. Selected Iranian universities were University of Tehran, Sharif University of Technology, Shahid Beheshti University, Al-Zahra University and Arak University, and the Canadian universities included Montreal University, MacGill University and Concordia University.

The criteria of selecting these universities were the level of sports activities, the degree of cooperation of physical education directors and their availability for the research group.

The method of the present study is thematic analysis, and it uses a field approach in terms of data collection. Based on theoretical saturation eight participants were interviewed through a purposeful and accessible (judgmental) sampling approach. The statistical sample invited to the interview was selected and interviewed based on criteria such as professional background and appropriate expertise. Documentary study and semi-structured interviews were used to collect data. In documentary study, the components were extracted by examining the basics and background by reviewing documents, books and articles. The validity of the instrument was confirmed in the library study section by choosing scientifically and legally valid versions, as well as the content and face validity of the copy from the perspective of experts. Interviews were also used to supplement and apply the factors and relationships identified in the library study. The interviews were conducted based on a pre-designed analytical framework. Prior to each interview, the previous interviews were analyzed and used as a basis for the new interview. In this way, in prearranged sessions with experts, the researcher discussed the raised issues on research. The interviews also lasted 40-75 minutes, so that the researcher reached the necessary conclusion after each interview and proceeded to the next interview.

Results

The results of the interviews with physical education directors of selected Iranian universities regarding the operational status of the university sports facilities under their management are as follows. The responses received from managers were grouped in the form of three categories: strengths in the operation of sports places under management, weaknesses in the utilization of sports facilities under management, suggestions and executive solutions to improve the current situation from their viewpoint.

Al-Zahra University: Al-Zahra University, a special university for women located in the village of Vanak, Tehran, was established in 1964. At that time, it started its activities with 90 students under the name of "Higher Educational Institute for Girls" and in addition to foreign language translation, secretarial and psychology, a discipline called housekeeping techniques was included in its curriculum from the second year of establishment in 1965-66. In the academic year of 1975-6, Higher Educational Institute for Girls became a university and from 1977 consisted of four faculties: basic

sciences, literature and humanities, management sciences, and economics. After the Islamic Revolution, the university continued its work with the same structure and was renamed Al-Zahra University. In 1986, the four mentioned faculties were changed to Basic Sciences, Social and Economic Sciences, Literature, and Art. In 1994, the faculties of Educational Sciences and Psychology, Physical Education, Engineering and Technology were formed, and in 2001, Faculty of Theology and Literature became two faculties of literature and theology with the approval of MSRT. With this in mind, the number of faculties increased to eight. In 2014, with the division of Faculty of Basic Sciences into three faculties of Mathematical Sciences, Biological Sciences, Physics and Chemistry, the number of faculties increased to ten. With a campus area of 14 hectares, Al-Zahra University has laboratories, sites and specialized workshops, amphitheater, swimming pool, restaurant, gyms, bank, post office and kindergarten in addition to physical space of faculty and research institutes (Alzahra University, 2020).

Results of interview with the director of Physical Education Department of Al-Zahra University:

Table 1. Strengths of Al-Zahra University sports venue

Strengths	
1	The sports venue of this university is multi-purpose and has the ability to hold sports events at different levels.
2	It is specific for women and students of this university.
3	The students can use the sports venue and it is accessible to students due to proximity to their dormitories.
4	Suitable cooling, heating and lighting systems of halls are other strengths of this complex.
5	It has the ability to hold various non-sporting events and can be rented to private and public sectors, part of the income of which is spent on the maintenance of these spaces.
6	Part of the income from renting sports facilities is allocated to the university and another part is spent for repairing and providing sports facilities.

Table 2. Weaknesses of sports venue of Al-Zahra University

Weaknesses	
1	The basic architectural plans of sports venue are not available.
2	Existing halls need to be demolished or renovated because they do not meet the required standards, which demands a large budget from the university.
3	The current map and sports spaces are not sufficient and the Department of Physical Education does not have enough ability to hold coaching classes and form championship and public sports teams.
4	Lack of adequate spectator space, changing rooms and elevators, and most importantly, several problems for classrooms and gyms due to the lack of initial planning and design (absence of foresight and anticipation)
5	Renting other places is expensive and transport of students will be time consuming.
6	Lack of attention to necessary spaces for graduate students in different subjects and the absence of a suitable class or laboratory for these courses.
7	If sports facilities are to be expanded, the university will be forced to cut down old trees, which in turn causes damage to the environment.

Table 3. Suggestions for improving the utilization system of Al-Zahra University sports venue

Proposed suggestions	
1	Allowing other universities and members of the community to use the university sports venue so that the resulting income can be used to develop and improve the existing facilities and equipment.
2	Prediction and definition of design and operation strategy for at least the next 50 years.
3	Utilizing global patterns and designs
4	Considering the necessary space and height for the sports being trained.
5	Optimization of available sports spaces
6	Development of new sports
7	Liaison with international universities and foreign professors

Tehran University

The campus of Tehran University, which is limited to Enghelab Street from the south, Poursina Street from the north, Ghods Street from the east and 16 Azar Street from the west, was established in 1935 in an area of 21 hectares. In this complex, the buildings of fine arts, literature and humanities, basic sciences, engineering, law and political science, medicine, dentistry, and pharmacy faculties, as well as central library (which is one of the most important libraries in the country) and the university mosque are located. The University Central Office, Office of Student Affairs, Student Health Center, School of Environment, Faculty of Geography and so on are also located in the streets around the university. The faculties of social sciences, pedagogy, university dormitory, economics, theology and Islamic studies faculties are located in Kargar Shomali and Motahhari Streets, respectively. Also, a number of other faculties and research centers of Tehran University are situated outside of Tehran in the cities of Qom, Karaj, Pakdasht, Sari, Chouka and Nashtaroud. In 1991, the faculties of Medicine, Dentistry and Pharmacy separated from the Tehran University and formed Tehran University of Medical Sciences.

Today, the University of Tehran enjoys a high status among the institutions and organizations related to higher education in the country in every aspect. In fact, if variables such as background, teaching by famous and high-ranking professors, education of excellent students, number of students, professors and staff, value of diplomas in the country and abroad, connection and interaction with executive bodies and institutions, industrial and administrative companies, presence of rich and well-equipped libraries and laboratories, multiple disciplines, colleges and affiliated institutions, location in the capital and the city center and so on are among the criteria for determining the credibility and importance of a university, Tehran University should undoubtedly be considered the most prestigious and important university in the country. It is not irrational that this university is referred to as "Mother University" and "symbol of higher education" (T. University, 2020).

Results of the interview with director of Department of Physical Education, Tehran University:

Table 4. Strengths of Tehran University sports venue

Strengths	
1	The nine-hectare space of this sports complex, which includes three natural turf fields and an artificial turf field, two large multi-purpose halls, fourteen side halls, a gymnasium, a swimming pool and a 15,000-seat stadium, is in accordance with international standards. It is possible for all students and even the general public to attend the complex, and competitions at national level can be held in it.
2	Physically, it is highly convenient and wide.
3	It is complete in terms of office, sports buildings and laboratories.
4	Multipurpose halls have lining for handball, futsal, badminton, volleyball, basketball, etc.
5	There are clay courts for tennis and hockey, and now the necessary measures have been taken to build a golf course and a squash hall.
6	The pool has an excellent water purification system, but it is generally an old pool complex.
7	The Design and Construction Company has taken over the new structure and design of the complex (there is a large and complete 6,000-meter complex that has a perfect gymnasium, two unique multi-purpose halls that are surrounded by an athletics track).
8	The income earned from renting university sports facilities is spent for costs related to this complex (purchase of a new mechanical ground cleaning system, replacement of the pool purification system, new and low-consumption lighting, beautiful and standard flooring, etc.)

Table 5. Weaknesses of sports venue of Tehran University

Weaknesses	
1	There is no particular weakness in the complex except for the lack of spectator space in multi-purpose halls

Table 6. Suggestions for improving the utilization system of Tehran University sports venue

Proposed suggestions	
1	To build a sports complex, it is necessary to refer to international standards in the fields of ventilation system, changing rooms and toilets, flooring, lighting, appropriate and easy access, access for the disabled, etc.
2	- Assigning spaces to organs and private classes after training hours (5 pm onwards) to spend the earned income on infrastructure development and keep the dynamics of existing sports spaces.

Shahid Beheshti University

Shahid Beheshti University, which was established in February 1960, is a public university of Iran located in Evin District, west of Velenjak and east of Darakeh, northwest of Tehran with a surface area of 60 hectares. The university consists of 57 main buildings, 19 faculties, 10 research institutes and 9 research centers. The university has 19,153 students and admits undergraduate, graduate and doctoral students in day, night and electronic courses, and so far more than 43,334 students have graduated from this university (S. B. University, 2020).

Results of interview with the director of Physical Education Department of Shahid Beheshti University:

Table 7. Strengths of Shahid Beheshti University sports venue

Strengths	
1	Two standard halls out of four available halls.
2	Standard flooring.
3	Two football fields, two indoor tennis courts, indoor and outdoor pool, gym, futsal hall, volleyball and badminton hall.
4	The centrality and orientation of sports spaces within the university has facilitated the access to them.
5	All sports facilities are rented to students and the general public during non-training hours, and the proceeds from such classes are fully spent for the development and maintenance of these facilities.

Table 8. Weaknesses of sports venue of Shahid Beheshti University

Weaknesses	
1	Due to the short roof of the halls, it is not possible to use them for official sports competitions.
2	The lighting is not suitable and complete.
3	Due to the location of sauna and Jacuzzi at a height lower than that of the pool level, the savior does not have enough view of the area.
4	It is difficult for the elderly to use the pool due to its location downstairs.
5	The safety of outdoor places is less than indoor ones.
6	Available spaces are not enough because the per capita ratio of sports facilities to existing students is low.
7	The halls have specific spaces, but due to their dispersion, the spaces are difficult to maintain and more labor is needed for this purpose.
8	Lack of a comprehensive plan for university sports threatens the development of sports.

Table 9. Suggestions for improving the utilization system of Shahid Beheshti University sports venue

Proposed suggestions	
1	Standardization of existing places (increasing safety and modifying available lighting).
2	Turning existing sports venues to multipurpose places saves costs.
3	Improving and modifying available sports facilities instead of demolishing and rebuilding in order to save costs because it is not possible to rebuild but there is a possibility of improvement.

Sharif University of Technology

Sharif University of Technology was inaugurated in 1965 with the aim of training and providing part of the specialized staff at high scientific grades for the country. This university is a young and growing university compared to many other universities in Iran and the world. Fortunately, during its activity, it has been able to establish itself as a leading scientific institute in industry, modern technologies and applied sciences in the field of science both regionally and globally. The graduates of this university have always been among the strongest engineers and have occupied the highest scientific, technical and executive management posts of the country. In addition, at centralized entrance exams and in terms of average grades as well as percentage of promotion from bachelor to master, the university has the highest position among the universities of the country in most fields of technology, engineering and basic sciences. Besides, students who have gone abroad to continue their study have had brilliant records in the international level and have become a source of valuable services after achieving high academic grades. Sharif University of Technology has 475 faculty members, including 162 full professors (34%), 139 associate professors (29%), 163 assistant professors (34%) and 11 instructors (2%). This university has 13 faculties (Technology, 2020).

Results of interview with the director of Physical Education Department of Sharif University of Technology:

Table 10. Strengths of Sharif University of Technology sports venue

Strengths	
1	Two multi-purpose halls.
2	Standard indoor pool.
3	Existence of wrestling hall, gym, futsal, volleyball, and badminton halls.
4	Easy access to public transport (especially subway).
5	All sports facilities are rented to the public during non-training hours (especially the indoor hall) and the income earned from such classes is spent on the maintenance costs of these facilities

Table 11. Weaknesses of sports venue of Sharif University of Technology

Weaknesses	
1	Due to the unfamiliarity of sports space design engineers with the nature and necessary applications for such spaces in universities, the spaces usually lack the required standards and we have problems using them.
2	The existing sports spaces do not have a preliminary plan.
3	Due to the lack of a preliminary plan, the presence of huge columns in the main gym is problematic.
4	Lack of natural light.
5	Hall flooring is not standard.
6	The existing wrestling hall is not useful due to its single purpose nature (the number of athletes is small compared to the hall space)

7	The available spaces are not enough because the per capita ratio of sports facilities to existing students is lower.
8	In addition to inappropriate design, the halls do not have proper lighting.
9	Necessary and timely budget does not reach sports facilities.

Table 12. Suggestions for improving the utilization system of Sharif University of Technology sports venue

Proposed suggestions	
1	Designers of sports spaces in universities should have the required expertise and perform the design according to the existing needs to avoid arbitrary decisions. Therefore, it is necessary to have a comprehensive plan in this regard so that these spaces are designed and used in all universities in the same standard way.
2	It is necessary to give facilities and authority to the experts of designing university sports spaces so that the spaces are built according to international standards and are optimally used.

Arak University

As the mother university of Markazi Province, Arak University has currently 300 full-time and more than 400 part-time faculty members in seven faculties: engineering, basic sciences, humanities, literature and foreign languages, agriculture and natural resources, sports sciences, arts, law, and economics; as well as four research institutes of water, renewable energy, nanoscience and new technologies, and a research center on grains. Besides, a significant number of professors at Arak University have completed at least one degree in foreign universities and are well aware of how to interact with foreign students. This university was established in 1971 and since then has always been on the path of progress so that a large number of top managers in the country have graduated from this university (Arak University, 2020).

Results of interview with the director of Physical Education Department of Arak University:

Table 13. Strengths of Arak University sports venue

Strengths	
1	Two multi-purpose halls.
2	An artificial turf ground, indoor pool, gym, futsal, volleyball, and badminton halls
3	Suitable lighting (sufficient natural and artificial light).
4	All sports facilities are rented to the general public during non-training hours (especially indoor halls) and the income earned from such classes is spent on college expenses.

Table 14. Weaknesses of sports venue of Arak University

Weaknesses	
1	Due to the lack of a preliminary plan and thought for the use of existing sports complex, we are facing a shortage of office and educational spaces.
2	The proximity of office spaces to the gym in a building has caused problems for employees.
3	Due to the location of major sports facilities outside the city, students' access to the sports complex is difficult and time consuming.
4	The necessary standards have not been observed in designing and covering the floor of halls.
5	The available spaces are not enough because the per capita ratio of sports facilities to existing students is low.
6	Existing sports facilities are scattered and their maintenance is time consuming and requires a lot of manpower.
7	There is no comprehensive plan for the design and specific use of university sports venue, which causes high costs for the university.

Table 15. Suggestions for improving the utilization system of Arak University sports venue

Proposed suggestions	
1	Providing the necessary budget for separating office and educational spaces from sports halls and allocating more space to office and theoretical training sections.
2	Standardization of available places in terms of safety and lighting
3	Inauguration of the adjacent gym that is under construction as soon as possible.

Information from interviews with directors of sports venues at Canadian universities

Mac Gill University

Mac Gill University is located in Montreal, Quebec, Canada. The university was founded in 1821 by James Mac Gill. Mac Gill University is one of Canada's oldest universities, which inaugurated 46 years before Canada was founded during the British colonial period. Mac Gill University has grown from a small college to a large, crowded university with 2 campuses, 11 colleges, 300 majors and 39,500 students. The university is known for attracting the top elite students from Canada, the United States and the world, and its students have the highest GPAs and grades in Canada. With an international sports stadium, this university has the ability to hold important world sports events, and it has also multi-purpose indoor sports halls and outdoor sports fields in various sports, so that it annually distinguishes many athletic talents among students and leads them to national and international competitions (M. G. University, 2021).

The result of interview with director of Physical Sciences[†] in Mac Gill University is as follows.

Table 16. Strengths of Mac Gill University sports venue

Strengths	
1	Compassionate, loyal and specialized staff in the field of education, repair and maintenance of these spaces. He believed that these qualified personnel should have a culture of training the public to be able to succeed in their business. Our staff is the most important factor in the development of the university sports complex.
2	The multi-purpose sports facilities of the university were mentioned as another strong point, so that all the spaces of this sports complex are rented for different occasions, including holding end-of-semester exams, seminars, public gatherings for various reasons, national and international competitions, renting out to schools lacking proper sports facilities, and finally outsourcing to companies and trade centers to hold business events, which generates good revenue for the complex.
3	We maintain and develop our sports venues and always support sports programs, not our personal interests. For example, if we have a yoga program at lunchtime, the yoga class will take precedence over lunch. Therefore, we support the program.

Table 17. Weaknesses of sports venue of Mac Gill University

Weaknesses	
1	Regarding the sports facilities of Mac Gill University, the director of complex told that the structures of these spaces are complete, but they need more equipment as well as completion of internal facilities, which is not possible due to budget deficit of the university
2	The director of the complex stated that one of the weaknesses of Mac Gill University sports venues was the lack of necessary income because he believed that revenues did not cover current expenses for maintenance of these spaces.
3	He stated that students spend an average of \$ 30,000 a year on their studies, but only \$ 5,000 is spent on their sports activities. They also told that they could not make money from university sports venues like American universities. "Since we rent our spaces to schools that do not have sports facilities,

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especially in hockey, football and rugby and because they only pay \$ 200 per hour according to the tariff, we have increase tuition fees to make up for the lack of income”.

Table 18. Suggestions for improving the utilization system of Mac Gill University sports venue

Proposed suggestions	
1	The manager of complex believed that if they did not have students, they would lack financial resources nor employees; therefore, the key to their success in attracting students was to admit more students, but currently the budget deficit is not due to shortage of students but because of their low payment.
2	The development of sports among young students will help them grow mentally and physically and maintain balance in society.
3	Government investment has a great impact on people's happiness.
4	The government listens but does not see everything, so we talk to the government.
5	The government must penetrate into society to observe the facilities of universities and support them.

University of Montreal

Founded in 1878, the University of Montreal has more than 350,000 graduates worldwide and offers overseas study opportunities in more than 50 countries. The university helps students who want to improve their French language skills in a variety of ways, including through individual instruction, French conversation workshops, online tutorials and a language link program. Students from all over the world who are interested in studying in Canada make this university their priority.

Cepsum Sports Center, which dates back to 1976 Olympics in Montreal, is at the center of the university and it was the training ground for all athletes participating in the Olympics and thereby met all the necessary standards for the Olympics. Today, more than 40 years after the construction of this sports complex, it still stands with all the equipped and updated spaces and provides sports services to thousands of university students, as well as generating a lot of income from its extracurricular activities such as educational and recreational classes for different strata of the society (taken from the official website of University of Montreal, 2021).

Interview with the Director of Physical Education* at University of Montreal Cepsum Sports Center:

Table 19. Strengths of University of Montreal sports venue

Strengths	
1	Since the sports facilities of the University of Montreal were built simultaneous with the construction of Olympic Village for the 1976 Montreal Olympics, it has all the necessary facilities and standards for the training of Olympic athletes, so that in that year, Montreal Olympics athletes practiced in this space and competed in the Olympic Village. Since then, the University of Montreal has always been diligent in maintaining and updating the facilities of this sports complex, and today all university students use the sports facilities of Cepsum Complex as educational, recreational and sports classes.
2	The university is located inside the city of Montreal and the Cepsum Complex is situated in the heart of the university, so access for all students is possible and easy.
3	The available facilities are suitable and standard for holding student competitions at both national and international levels, hence it is often a proper candidate for holding Framework for Improving Student outcomes (FISO) Olympiads.
4	The priority of holding classes is with training sessions of the students of physical education as well as those of other disciplines, and then the available spaces are given to the extracurricular unit, which is mainly responsible for generating income from these spaces.
5	This complex is able to provide sports services to different strata of the society (children, youth, middle-aged and elderly).

*. Manon Simard

- 6 This complex provides attractive tours for students and tourists to visit and use these sports facilities, and the young student volunteers help us in this respect, and we have a good income through this approach.

Table 20. Weaknesses of sports venue of University of Montreal

Weaknesses	
1	Maintaining such sports facilities (indoor and outdoor) requires specialized and efficient personnel, as well as the purchase and equipment of sports facilities, which are expensive for the complex, the university cannot afford these expenses and we must therefore focus on generating more revenue. We spend a lot of money to advertise our sports facilities in the city, but we do not have the expected reception from the people.
2	Membership fees in this complex are relatively high and the general public cannot easily afford membership in various sports.
3	The culture of engaging in sports activities has diminished among the people and they prefer to spend their leisure time in other ways that are less expensive.

Table 21. Suggestions for improving the utilization system of University of Montreal sports venue

Proposed suggestions	
1	The university should attempt to admit more students to attract more income, especially through foreign students, so that this complex, which has the ability to provide more services, is able to fully use all its capacities.
2	Increasing the level of public awareness about negative effects of inactivity by the government will attract more people to such sports complexes, which can lead to more prosperity and revenue generation of these centers.
3	Employing physical education graduates in the executive management of this center due to their vitality and vivacity in managing classes and proper treatment of the general public.

Concordia University

Concordia University is located in Montreal, Canada and has 46,000 students. The university was founded in 1974 by merging Loyola College with Sir George Williams University. Concordia University has four faculties and one school and admits undergraduate students in 300 majors and graduate students in 200 majors. Considering the challenges faced by the society today, the research attitude of this university is focusing on some interdisciplinary approaches, including in the field of environment, economics and technology. According to QS ranking site, Concordia University was among the top 200 universities of the world in engineering in 2012. The university has two sports complexes. The indoor complex[§] is located in downtown Montreal next to other educational spaces of this university and is completely accessible to students, and its outdoor sports complex is located outside the city, which limits the access of students to some sports facilities (C. University, 2021).

Result of interview with the director of physical training at Concordia University:**

Table 22. Strengths of Concordia University sports venue

Strengths	
1	This sports center is located in one of the main buildings of the University (Faculty of Engineering) in downtown Montreal and has excellent access for students and the general public.
2	It offers a variety of sports to participants, including bodybuilding, aerobics, yoga, Pilates, Zumba, rhythmic movements and all recreational sports.

[§]. SGW Campus, 1515 saint. Catherin. st. w.

². Stefan Tomassini

3	The existing sports venue has an attractive design (i.e. a circular architecture) because it is located in Faculty of Engineering.
4	The university has another sports center outside the city (Loyola) whose strong point is the large stadium with the ability to hold professional sports such as football, hockey, basketball as well as sports requiring a lot of space for training and competition.
5	At this center, university sports teams train and prepare for competitions at various levels.

Table 23. Weaknesses of sports venue of Concordia University

Weaknesses	
1	The most important weakness is the existence of two separate sports facilities because to participate in outdoor sports, students have to travel outside the city to Loyola Center by different vehicles, which decreases the willingness of students and the general public to use its facilities.
2	SGW Sports Center, which is located inside the city, is a limited space with restricted facilities, which causes overcrowding of classrooms throughout the year and leads to the exhaustion of equipment and facilities.

Table 24. Suggestions for improving the utilization system of Concordia University sports venue

Proposed suggestions	
1	There are 60 employees in this sports center who are under my management, and their main job is to communicate with people who need modern means of communication, including websites, software and up-to-date equipment; therefore, it is necessary that this center constantly update its communication equipment with the public.
2	This sports complex provides sports services to about 5,000 people annually, so it should always be ready to provide popular and up-to-date sports services to participants and take their suggestions and criticisms seriously.

According to the results of interviews with physical education directors of the universities under study in Iran and Canada, the following is a summary of the results of interviews (From table 1 to 24).

According to the results of the above table, we find that none of the universities under study in Iran (except for Tehran University) has a comprehensive plan and access to the construction, launching and operation of sports venues. This problem indicates that the spaces under operation do not have a design and development certificate and that no specialists have been recruited to design and construct sports spaces.

Aesthetic elements have not been used in the design of sports venues in any of the universities under review, which reduces the attractiveness of these spaces and leads to a lack of tendency of students and the general public to use these spaces.

We also understand from the above table that the universities under study in Iran do not have equal facilities and opportunities to provide sports services to students and the general public, and thus they do not have the same chance of generating income and holding competitions at both national and international levels.

Regarding the observance of construction, operation and safety standards, we also realize that except for University of Tehran, other universities do not have such complete facilities, which reduces the students' inclination to sports activities.

According to the results in the above table, it can be seen that all three universities under study in Canada have had a comprehensive plan for the design, inauguration and operation of university sports facilities, and such comprehensive plans have been certainly performed by designers and builders specializing in sports structures.

As can be seen, attention to aesthetic elements and observance of safety principles and standards are included in all universities.

Regarding the income generation of sports facilities, the managers were not satisfied with the existing revenue generation because they believed that the proceeds would not be commensurate with the costs of repairing, maintaining and developing such facilities.

In terms of availability and ability to host international competitions, only Concordia University did not have these capabilities due to having two separate sports facilities (one inside the city and the other outside it); however, Mac Gill and Montreal Universities had the ability to hold international competitions due to possessing the necessary facilities and standards.

Now, according to the characteristics of each of the studied universities in Iran and Canada, which were mentioned in Tables 1 and 2, we compare the features of these universities in terms of the status of space utilization.

Discussion and Conclusion

By reviewing the results of interviews with physical education directors of Iranian universities (Al-Zahra, Tehran, Shahid Beheshti, SUT and Arak) as well as interviews held with physical education directors of selected Canadian universities (Mac Gill, Montreal, and Concordia), we notice a common denominator between all of them, namely the deficit of university revenue and the need to monetize sports venues. However, the differences are more than similarities, meaning that in Canadian universities under study, the sports venues are built according to basic principles of design and construction in universities, which makes it easy to manage the use of those spaces over time, and all spaces are at the service of students and the general public with highest standards of use.

Construction of sports venues by engineers (structural engineers and architects) specialized in the field of university sports spaces leads to beautiful structures with long life. For example, the sports facilities of University of Montreal (Cepsum), which were built to house the Montreal Olympics athletes in 1976 with beautiful and strong structures, are still a tremendous source of revenue for the University after 43 years. Obviously, it should be noted that the restoration and maintenance of this great sports venue is always done by the university, so that by looking at this building, the structures appear to have been recently built.

On the other hand, in Iranian universities, we noticed that there was no comprehensive plan in the hands of builders for sports venues, none of whom had expertise in the construction of university sports facilities and each of them performed their task with personal tastes. During construction, no attention has been paid to long-term use of these spaces, and in many cases, the relevant standards are not considered in the design and construction of such spaces. This has led to the non-standardization of such spaces, short life of venues and failure of effective utilization of these facilities for student activities.

The sports facilities of universities under study in Canada are so vast and versatile that they seldom remain unused over the year, thereby generating significant revenue for the university. This links the general public with the university spaces and makes people more willing to use the universities to study or take advantage of sports facilities of universities in their spare time.

However, in Iran, we have accepted that the university is only a place for students to study and it is less thought that university spaces can be used for holding various public events. Otherwise, people would be able to get to know the university and its capacities, and as a result of these connections, universities could have a greater chance of generating revenue. Perhaps many of the university spaces remain unused throughout the year, which imposes high costs for repair, maintenance and renovation of such spaces.

The universities under review in Canada are barrier-free, making it easy for the general public to communicate with universities, while in Iran, even students at the same university have to go beyond student card control gates to enter their university, which minimizes the relationship between

universities and the general public and leads to minimal use of spaces (especially sports facilities) and decreases the university's revenue-generating potential.

According to the mentioned experiences, to improve the use of sports facilities in Iranian universities, it is necessary for Office of Development Plans of MSRT to consider the following measures.

1. First, in order to build sports spaces for universities, it is necessary to conduct climatic studies to determine the suitability of existing and available spaces to build safe and secure structures for students.
2. The structural engineers and architects with specialty in designing and constructing standard university sports spaces should be invited by Civil Plans Office of MSRT to participate in the call for tenders and submit their plans to the ministry to consult with experts and review the structures of reputable foreign universities in order to choose a comprehensive and standard plan and pattern in the country so that a model can be achieved with the supervision of officials in that ministry in future plans for the construction of such spaces.
3. The Office of Development Plans of MSRT must always have strict supervision over the construction, inauguration and operation of sports facilities in its affiliated universities, as well as exerting continuous supervision for repairing, maintaining and restoring such facilities
4. Sports venues should be constructed and commissioned in such a way that they always have multi-purpose application to earn more revenue for these spaces and the relevant universities, so this goal should be considered by specialized engineers in designing such spaces
5. Universities should also attempt to introduce the capacities of the entire university spaces in general and those of sports spaces in particular to the general public in various ways in order to create the necessary attractions in them for the use of these spaces and thereby generate a lot of revenue for universities.

Table 25. Comparison of utilization status of sports facilities in selected Iranian universities

Features	Arak University	Sharif Technical University	Shahid Beheshti University	Tehran University	Al-Zahra University
Having a comprehensive plan for launching and developing sports spaces in the university	-	-	-	<	-
Using engineers specialized in designing and constructing university sports venues	-	-	-	<	-
Availability of sports spaces and facilities	<	<	<	<	<
Adequate sports space and equipment in the university	-	-	-	<	-
Paying attention to aesthetic elements in university sports spaces	-	-	-	-	-
Adequate and appropriate income from sports venue in the university	-	<	<	<	-
Ability to hold international sports competitions	-	-	-	<	-
Ability to develop the infrastructure of university sports facilities in the future	<	-	-	<	-
Observance of safety and standard issues in the construction and operation of university sports facilities	-	-	-	<	-
Using different methods of mass communication to attract students and the general public to sports activities	-	-	-	-	-

Table 26. Comparison of utilization status of sports facilities in selected Canadian universities

Features	Concordia University	Montreal University	Mac Gill University
Having a comprehensive plan for launching and developing sports spaces in the university	✓	✓	✓
Using engineers specialized in designing and constructing university sports venues	✓	✓	✓
Availability of sports spaces and facilities	-	✓	✓
Adequate sports space and equipment in the university	✓	✓	✓
Paying attention to aesthetic elements in university sports spaces	✓	✓	✓
Adequate and appropriate income from sports venue in the university	-	-	-
Ability to hold international sports competitions	-	✓	✓
Ability to develop the infrastructure of university sports facilities in the future	-	✓	✓
Observance of safety and standard issues in the construction and operation of university sports facilities	✓	✓	✓
Using different methods of mass communication to attract students and the general public to sports activities	✓	✓	✓
Having a comprehensive plan for launching and developing sports spaces in the university	✓	✓	✓

Table 27. Comparison of utilization features of sports venues from selected Iranian and Canadian Universities

Common characteristics of selected Canadian universities	Common features of selected Iranian universities
-Having a standard model and principles (initial comprehensive plan) for designing and building sports spaces that have the ability to provide sports services to all university students as well as the general public.	-Generating income from university sports spaces outside formal student's instruction time and spending these revenues to repair, maintain and renovate existing sports facilities
-Using structural and architectural engineers with expertise in designing and building university sports spaces	-Lack of access to the initial plans for the construction of sports facilities available at universities
-Paying attention to aesthetic elements in the design of university sports spaces	-Not recruiting design and construction engineering specialists who are specialized sports spaces of universities
-Predicting future plans for the expansion and utilization of university sports facilities.	-Lack of a comprehensive plan for future design, construction and operation of sports venues in universities
-Multi-purpose use of available sports spaces (holding national celebrations, important university and localevents, etc.) to earn more revenue to maintain these spacesand for the entire university	-Presence of basic problems in the operation and utilization of existing sports spaces due to non-compliance with standards and safety tips in the design and construction of such spaces
-Adopting the necessary and various measures to attract more people to these spaces and consequently have higher income	
-The secret of success is in effective and continuous communication with students and the general public	

Acknowledgments

This article is taken from the activities of a research core entitled "Qualitative study of architectural engineering of sports spaces in selected universities of the world and presenting a model for building sports spaces in Iranian universities", which was approved in 2018 at Al-Zahra University.

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