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Sports and recreation facilities in schools – history and present state

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Obiekty sportowo-rekreacyjne w szkołach – historia i stan współczesny

Streszczenie

Tradycje szkolnej infrastruktury sportowej mają swoje korzenie w cywilizacjach antycznych, przede wszystkim w gimnazjach i palestrach starożytnej Grecji. Zachowane do naszych czasów ruiny starożytnych budynków gimnazjonów w Delfach, Olimpii, Milecie, Priene, Dedynie, Pergamonie, Efezie czy Thermessos, dobrze dokumentują, jak ważna była infrastruktura sportowa, traktowana jako niezwykle istotny element systemu edukacji i wychowania. Greckie gimnazjony i palestry były nie tylko obiektami publicznymi o przeznaczeniu sportowym, ale także miejscem spotkań towarzyskich miejscowej ludności oraz edukacji młodzieży. Współczesne przyszkolne obiekty sportowe (sale gimnastyczne i boiska) wywodzą się z XIX-wiecznej koncepcji programu szkoły, obejmującej także obiekty dla „zespołowych ćwiczeń cielesnych”, jak to wówczas określano. Obecnie, zgodnie z podstawą programową Ministerstwa Edukacji Narodowej, celem zajęć wychowania fizycznego jest przede wszystkim kształtowanie wśród dzieci i młodzieży nawyku aktywności fizycznej. Na tych zajęciach powinno się rozwijać odpowiednie zainteresowania i postawy uczniów. Szkolne zajęcia sportowe powinny zatem zaspokajać w możliwie najpełniejszy sposób potrzeby uczniów, uwzględniając ich zainteresowania, wiek, płeć, dojrzałość fizyczną i psychiczną, posiadane umiejętności, stopień sprawności fizycznej. Aby było to możliwe, podstawa progra-

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mowa zaleca, by zajęcia wychowania fizycznego miały miejsce w dobrze wyposażonych salach gimnastycznych lub na boiskach szkolnych.

Słowa kluczowe: historia sportu, edukacja, obiekty sportowe

Abstract

The tradition of school sports facilities has its roots in ancient civilizations, primarily in ancient Greece. The preserved ruins of gymnasiums at Delphi, Olympia, Milet, Priene, Dedina, Pergamon, Ephesus or Thermessos, document well that sports facilities were a major part of the education system. They served not only for students and sports training but were opened to the public, used for social gatherings, political meetings and disputes. Contemporary school sports facilities derived from the 19th-century concept of the school's educational program. It also included the indoor and outdoor physical education classes and facilities used for 'body-building exercises' - as it was named. In Poland, according to the current basic curriculum of the Ministry of National Education, the goal of physical education is to shape the long life habit of physical activity. The school activities should develop the appropriate interests and attitudes of students. Therefore, school activities should meet the needs, interests and abilities of the individual student as fully as possible. The present regulations of the Ministry of Education demand, that such classes should take place in a well-equipped sports hall or on a school playground.

Keywords: history, sport, education, sports infrastructure.

Introduction

School children must have access to sport and games. Numerous physical benefits include maintaining a healthy weight, preventing obesity and chronic diseases, learning the skills and helping to maintain a healthy lifestyle. The importance of sports in school encompasses more than that. It promotes higher self-esteem, motivates students, increases their mental alertness [15, 16, 25]. The appropriate sport and recreation facilities are extremely helpful to complete these tasks.

The origins of sports and recreation infrastructure accompanying educational facilities have their roots in ancient civilizations, primarily in Greek gymnasiums and palaestras. Preserved ruins of gymnasiums in Delphi, Olympia, Pompeii, Ephesus, Miletus, Priene, Thermessos or Aspendos, along with the accompanying sports fields and baths, prove and document very well, how important, the prioritized element of the education and upbringing system sports and recreation infrastructure was in the ancient world. How important it was in the structure of the city. This was mainly due to the multiple functions of the gymnasium, extremely important for the Greek society at that time. They were public facilities not only for sporting and educational purposes but also served as a place for social gatherings [4, 9].

In Europe, contemporary sports and recreational facilities in schools, come from the nineteenth-century concept of the school's functional program, which also included 'team physical exercises', as it was then described [9, 19].

Currently in Poland, according to the core curriculum of the Ministry of National Education (MEN), the main goal of physical education classes should focus on shaping the habit of long-life physical activity [28]. It means that students' interests and attitudes towards sports and active recreation should be stimulated and developed. For this reason, school activities should meet the needs, interests and abilities of an individual student in the broadest possible way and the appropriate sports facilities (indoor and outdoor) are necessary to complete these tasks responsibly [15, 16].

Today the core curriculum of the Ministry of National Education requires that physical education classes should take place in the gym halls or on the school playgrounds. The school is obliged to provide sports facilities and equipment necessary for students to acquire skills and knowledge in different sports disciplines [27, 28]. However, based on Statistical Office Poland data (years: 2010–2014), it is known, that the spatial distribution of school-based sports and recreation infrastructure in Poland (playgrounds, gym halls, indoor swimming pools) is still neither sufficient nor even [27, 28, 29] (Table 1, 2).

Table 1. Quantitative status of school sports and recreation infrastructure in Poland (years: 2012–2014)

Year / Sports facilities	Basketball court	Soccer field	Handball court	Volleyball court	Beach soccer court	Tennis courts
2012	6572	8965	5697	7328	856	994
2014	6997	9516	6174	3250	1063	11301

Source: author's study, based on Statistical Office Poland, Ministry of Sports and Tourism, Ministry of National Education data [27, 28, 29].

Table 2. Quantity of school sports and recreation infrastructure in Poland, sports halls and indoor swimming pools (years: 2012–2014)

Year / Sports facilities	Sports halls	Indoor swimming pools
2012	<p>Total: 18115</p> <ul style="list-style-type: none"> – Sports halls larger than 44 m × 22 m: 634 – Sports halls with dimensions from 36 m × 18 m to 44 m × 22 m: 978 – Sports halls with dimensions from 24 m × 12 m to 36 m × 18 m: 4524 – Sports halls smaller than 24 m × 12 m: 11979 	<p>Total: 229</p> <ul style="list-style-type: none"> – Sports swimming pools 25 m × 16 m: 16 – Swimming pools 25 m × 12.5 m: 101 – Training and recreation pools 16.67 m × 8.5 m: 112

Table 2. Quantity of school sports and recreation infrastructure in Poland... (cont.)

Year / Sports facilities	Sports halls	Indoor swimming pools
2014	Total: 18921 (No detailed data for this period)	Total: 236 – Sports swimming pools 25 m × 16 m: 37 – Swimming pools 25 m × 12.5 m: 81 – Training and recreation pools 16.67 m × 8.5 m: 118

Source: author's study based on Statistical Office Poland, Ministry of Sport and Tourism, Ministry of National Education data [27, 28, 29].

The presented material was prepared on the base of the statutory research projects carried out at the Józef Piłsudski University of Physical Education in Warsaw. These scientific projects were undertaken on the base of the Ministry of Science and Higher Education grants. The research was focused on the systematic collection and analysis of data related to the school sports infrastructure – in the past and today. To achieve these goals the research process involved using a variety of methods, research techniques and tools such as historical research (extensive literature survey connected with the problem), contemporary school infrastructure requirements (extensive literature, law regulations and documents survey together with a case study undertaken in the selected schools in Warsaw, a survey performed with the use of structured forms). Analysis and interpretation of the collected data (primary and secondary, qualitative and quantitative) allowed formulating conclusions. This article presents selected research results and the synthesis of a general character.

School sports infrastructure in the antiquity

The concept of functional linking a school with sports and, consequently, educational facilities with sports buildings have their origins in ancient times. Greek gymnasiums were partly roofed constructions, intended primarily for physical exercise under the guidance of a coach, but later they served also for other school activities. There were classrooms for teaching, talking and discussing (exedras), changing rooms (apodyterium), rooms for massages and rubbing with oil (elaiothesion), rooms for sand massages (conisterion), rooms for exercising wrestling and other martial art disciplines (palaestras), indoor racetracks (dromos) and baths (balaneion). In the Hellenistic period gymnasiums were formal structures of diversified programmes, comprising courts for athletes, tanks for bathers, dressing rooms and toilets, stores, places for rest and conversation, exedras and ephebeums, which served as classrooms. It is to be highlighted that palaestra was a wrestling school, whereas today the term is usually used interchangeably with

gymnasium [4, 9]. It should be noted that the gymnasium was a public place, an open educational centre, serving not only young people for education and physical exercise of all kinds but also serving city residents of different age who went there not only for sports training but also for political and philosophical discussions. Few gymnasia had an outdoor swimming pool (Olympia) or stadiums or hippodromes (Olympia, Delphi, Ephesus). The ancient Greek stadium was a 182-metre running track. The first stretch of the track was straight and the last stretch was semicircular. The multifunctional gymnasia, as these located at Olympia, Ephesus and Pergamon, were functionally the prototypes of the Roman *thermae* [4, 9].

School sports infrastructure in the 19th and the early 20th century

Since the end of the 19th century, in many European countries (England, France, Germany, Sweden and Switzerland) educational facilities (schools and boarding schools) have been built along with rich sports infrastructure facilities such as playgrounds, gym halls, even outdoor and indoor swimming pools [1, 3]. In Poland at the beginning of the 20th century, examples of European schools, having various sports facilities (including toilets and showers), were presented in the professional literature and recommended as a good practice in school planning [5]. Unfortunately, this time in Poland, mainly due to financial barriers, such projects were rarely implemented, especially in rural areas of Russian and Austrian partitions. It was no better in the cities, where school classes were regularly conducted in common housing facilities (tenant houses), often short-time rented and poorly adapted to education functions. For example, small, private schools used to be located on a single floor, occupying a regular apartment in a tenement house. In these rooms, physical education classes were not possible to be carried out. One can read about it in numerous memoirs from that period (Zofia Nałkowska, Maria Dąbrowska, Józef Hen, Melchior Wańkiewicz and Kornel Makuszyński). Józef Holewiński, who noticed this problem, wrote in 1908:

Gymnastics, as one of the most important factors in the proper physical development of children, should be included in the programs of all schools without exception. Gymnastic exercises, if weather conditions allow, should be held outdoors; while in bad weather and too much cold – in spacious and well-ventilated school gym halls [5] [all transl. – author].

The guides for architects published in Europe before World War I recommended to erect school gym halls as a separate building (for better sound insulation); recommended dimensions for primary schools were: 10 m × 15 m × 5.5 m; recommended dimensions for secondary schools were: 22 m × 14 m × 5.5 m. Moreover, it was suggested that a multifunctional sports field for team games should be located near the gym hall, and its area should be planned per the number of students – approximately 4 m² per student. To conduct gymnastics classes, it

was recommended to provide an outdoor gym pitch with ‘Swedish ladders’ and a gym hall equipped with climbing ropes, climbing poles, asymmetric bars, pommel horse, vaulting horse, horizontal bars, rings, trampoline spotting rig, parallel bars, springboards.

The books and papers that appeared at that time showed practical examples of how to plan school infrastructure, but the real obstacle was not the lack of knowledge, but the serious limits of financial resources. In Poland, which was then an invaded and conquered country, it was mainly due to the lack of interest of the occupant governments in raising the level of education, including physical culture. Furthermore, within the partition regions, the differences could be also noticed. The educational facilities, including school sports infrastructure, had a relatively better level in the Prussian partition (although they were far worse equipped than schools located in wealthy cities in the interior of Germany), than the sports infrastructure of the schools located in the Austrian and Russian partitions. These were much more neglected. In Poland before World War I, Szkoła Handlowa w Lublinie [the Lublin School of Commerce], which had a gym hall of area 180 m² and additionally a storeroom for gymnastic equipment, was proudly described by the professional press as a unique example of a state-owned educational institution, well equipped in the respect of sports infrastructure (Journal “Architekt”, 1904, pp. 74–75). Another widely praised sensation was the project of the primary school in Warsaw, located at Leszno Street, which was provided with a modern, well-equipped gym hall (Journal “Architekt”, 1907, p. 122).

Naturally, the situation was different in the luxury private schools, which had their edifices and resources and could offer to their students exceptionally rich sports and recreation infrastructure (as gym halls and auditoriums for recreational purposes, exercise fields and well-kept school gardens – a recreation parks). These were based on the functional program modelled on the examples of contemporary modern schools of wealthy European countries: England, France, Germany, Sweden or Switzerland. An example of such a well-equipped private school was the project of Niepubliczne Gimnazjum im. Adama Mickiewicza we Lwowie [Adam Mickiewicz Secondary School in Lviv], located at Senatorska Street, prepared by architects Sosnowski and Zachariewicz (Journal “Architekt”, 1908, p. 94).

It was soon after Poland gained its independence after World War I that Ministerstwo Wierzeń Religijnych i Oświecenia Publicznego [the Ministry of Religion and Public Education] (MWRiOP), introduced several strict and mandatory regulations for planning standards for educational facilities. This way the problem of equipping schools with adequate sports facilities and necessary sports equipment was solved comprehensively – unfortunately only for secondary schools. It should be emphasized, that this does not mean that there were no school gym halls and playing fields in Poland before 1918. However, as it was mentioned earlier, such school sports facilities were very rare, considered mainly

as an unaffordable luxury. The school infrastructure, including sports facilities, largely depended on the investor funds (private, government) and the occupant legislation, which was different in the three partitions: Austrian, Prussian and Russian.

It should also be emphasized that the various names of sports facilities and sports activities at that time, were very different from modern terms. For example, in the professional literature on the subject of physical education in schools in the 19th and the first half of the 20th centuries, the authors used the following terms: for gym halls – ‘a gym house’, ‘a ball house’, ‘a games room’ or ‘an assembly hall’; for the school playground – ‘a body training area’, ‘a physical activities field’; for the indoor ice rink – ‘an artificial slide’, ‘an ice stadium’ or ‘a winter stadium’; for the indoor swimming pool – ‘a bathing house’; for the physical education teachers – ‘a physical exercise teacher’ or a ‘physical educator’ [1, 3, 5].

The Second Republic of Poland (1918–1939)

During the Second Republic of Poland, due to legal regulations and increased awareness of the importance of physical exercise in the development of children, newly erected schools, especially secondary schools (junior high and high schools), were routinely equipped with rooms for conducting sports activities following the latest European trends in this field. Ustawa o zakładaniu i utrzymywaniu publicznych szkół powszechnych [The Act on the Establishment and Maintenance of Public Elementary Schools] (Dziennik Ustaw [Journal of Laws] No. 18 of the Year 1922) imposed the obligation to provide secondary schools with gym halls and sports fields. The guidelines of the Ministry of Religion and Public Education set out in detail the principles of the program [13, 14]. For example, rural primary (elementary) schools only had to provide a ‘recreation room’ of an area of 40 m², where the indoor physical exercises could be carried out. Furthermore, the communication corridors in schools, at least 4 m wide, were considered to be suitable for indoor physical education classes. The legislator also stipulated that in schools not having a special ‘recreation room’ (this was particularly true concerning small rural schools) – simply a classroom could be used for conducting physical exercises lessons, after sliding off the benches. One should not be surprised by such an approach of the Polish government: in 1918 the country was in ruin, funds were scarce, and the main task was primarily to eliminate illiteracy and reorganize public education in the spirit of universal access. Even with these shortages and limits – there was a huge difference and significant progress in comparison to the 19th century when the invaders most often neglected schools and education, as well as physical education and sports infrastructure in schools. It is to be underlined, that during the Second Republic of Poland (the interwar years: 1918–1939), restrictions and limits on sports and rec-

recreation investments mostly concerned only remotely located, rural schools, with a small number of students [13, 14].

The situation was different for junior high and high schools, where more demanding requirements were imposed on school sports infrastructure. This time, the dynamic development of physical education and new teaching methods for this education level, required adequate sports infrastructure in schools. As a consequence, the construction of gym halls for indoor exercise and playgrounds for outdoor exercise was recommended for secondary schools [13, 14]. Reservation of outdoor areas for the team games and physical exercise' of the total area of c. 2000 m², with a minimum width of at least 36 m was recommended. Furthermore, building gym halls with dimensions of 20 m × 10 m × 5.5 m and in its vicinity provide changing rooms, toilets and showers. In 1936, the gym hall equipment was regulated in details by the MWRiOP directive [13]. According to the Ministry's catalogue such apparatuses as, climbing ropes, climbing poles, asymmetric and parallel bars, horizontal bars, vaulting horses, pommel horse, trampoline spotting rig, springboards and benches had to be found in the gym hall. It was interesting that the Ministry regulations did not mention basketball tables or volleyball nets. In 1918–1939, following the Ministry directive, many new schools were planned and erected with sports facilities required by the regulations. For example, in the interwar period of the Second Republic, all the secondary schools newly planned and built in Warsaw had playgrounds for outdoor team games and gym halls for indoor physical exercises, along with cloakrooms, sanitary facilities and showers. The following secondary schools were very well equipped: Gimnazjum im. Stefana Batorego [the Stefan Batory High School], planned by architect Tadeusz Tołwiński; the Miejskie Gimnazjum Żeńskie [Municipal Junior High School] in Rozbrat Street, planned by architect Tadeusz Majewski; the secondary schools [gimnazja miejskie] Stawki Street and Żelazna Street, planned by architect Roman Sołtyński; the secondary school [gimnazjum miejskie] in Krajewskiego Street, designed by architects Romuald Gutt and Józef Jankowski; the school in Kolektorska Street, designed by Wilhelm Henneberg; the secondary school [gimnazjum miejskie] in Zuga Street, planned by Jerzy Przymanowski; secondary school [gimnazjum miejskie] in Raszyńska Street, designed by architects Mieczysław Łokciowski and Maria Wroczyńska; Gimnazjum im. Juliusza Słowackiego [the Juliusz Słowacki High School], designed by architect T. Nowakowski. Not only schools erected in large cities had such rich sports facilities (playgrounds and gym halls). Similar schools were located in wealthy industrialized regions of Gdynia and Silesia. They were: the Zakład dla Głuchoniemych w Lublińcu [School for the Deaf in Lubliniec] (designed by architects Tadeusz Łobos and Jan Zarzycki); Seminarium Nauczycielskie w Pszczynie [the Teachers' Seminary in Pszczyna], which not only had gym hall and the outdoor pitch, but also an open swimming pool (designed by architects E. Cmielowski and W. Soboń). It is true that the sports facilities in the

schools located away from central Poland, in the so-called borderlands (in the eastern regions), were poorly equipped with sports infrastructure. One of the rare examples of a well-equipped school was Gimnazjum Państwowe w Lidzie [the State Junior High School in Lida] (designed by architect Jerzy Beill, 1929). It should be emphasized that the concept of school sports facilities, was developed on the base of activities, enthusiasm and efforts of several professional groups – physical education teachers, coaches, architects, medical doctors, social groups and associations (such as sports clubs), government and private institutions.

It is also worth recalling that since the 19th century, to improve the conditions of students' recreation and learning environment, 'school gardens' have been established in Europe. In Poland, school gardens became popular much later, at the beginning of the 20th century. School gardens had different functions and programs (recreation, didactic), depending on the region of Europe, the period of creation and the degree of education (primary, secondary, vocational schools), but always had a common goal – to provide children with a healthy environment for leisure and learning. During the Second Republic, school gardens were created based on legal regulations, inseparably connected with the construction of a school. Consequently, hundreds of schools in Poland were then designed with a "school garden". In Warsaw, there were: Gimnazjum im. Stefana Batorego [the Stefan Batory Secondary School] (1924), Gimnazjum im. W. Giżyckiego [the W. Giżycki Junior High School] (1924), Państwowe Gimnazjum im. Emilii Plater [the Emilia Plater State Junior High School] (1929), Gimnazjum im. Juliusza Słowackiego [the Juliusz Słowacki Junior High School] (1933). Some of these gardens had occupied a relatively large area and had developed mature landscape forms with a rich composition of park-like character. After 1945 some of these school gardens were converted into urban, public parks (Łódź, Łowicz, Piotrków Trybunalski). Unfortunately, only a few historical school gardens survived until our times, and the current regulations of the Ministry of National Education do not consider creating school gardens [2].

The period after World War II (1945–1990)

In Poland after World War II, due to war damages, despite the enormous efforts to rebuild the country, in the first post-war years, there were significant difficulties with the public access to sports infrastructure. During this period, schools were mostly deprived of playgrounds and gym halls. Even if a school building survived, rarely did it have a playground with sufficient equipment or a gym hall with facilities necessary for physical education classes. An anonymous author of the article titled *Nowy Rok Szkolny* [New School Year], which was published in the weekly Polish magazine "Sportowiec" ["Athlete"], wrote about this problem:

Schools must be helped. They must be provided with sports equipment and have access to gym halls, pitches and swimming pools. They must have qualified instructors and trainers to conduct physical education classes. It is necessary to convince parents (and often school managers) of the importance of physical education in the general process of education ("Sportowiec", September 1, 1949, p. 3).

The efforts to rebuild Polish schools after the war damages posed a real challenge. The reconstruction process very often involved participation not only of professional building workers but also of teachers, schoolchildren and their parents, often supported by soldiers or volunteering workers from nearby industrial plants. This was the case of the Szkoła Podstawowa [Primary School], located in Dobra Street in Warsaw. In 1948, the school was rebuilt and in 1953 – a gym hall and a playground were completed, through a community effort.

In Poland, shortages of school sports facilities and equipment were so common, that physical education teachers and coaches were forced to look for unconventional solutions. For example, better-equipped schools shared their facilities with the neighbouring schools. Public sports and recreation areas, city parks, riverside boulevards, and in lower urbanized areas – meadows and pastures were used for physical education classes. Know-how manuals were published to help prepare the open area for physical education classes properly, just as in the inter-war period. These guides were addressed to school managers, physical education teachers, coaches and parents, provided them with tips and ready-made technical and organizational solutions. For example, the guide *Wiejskie budownictwo sportowe* [*Rural Sports Constructions*] published in 1951, was probably extremely useful for those, who searched for advice on how to construct school playgrounds, small-calibre shooting ranges, open swimming pools (bathing areas), marinas and ice rinks [8]. Furthermore, another author, who wrote the *Poradnik organizatora – budowa urządzeń i sprzętu sportowego* [*Manager's Guide – Construction of Sports Facilities and Equipment*], being aware of the shortages on the sports equipment market, even recommended that some of the facilities for school gym halls equipment could be made by 'DIY' method [21]. One of the examples was a gymnastic bar that could be made of half of a tree trunk. The book contained detailed instructions on how to do it. Another example from the book was the detailed instruction on how to build a swimming training area on a river or lake, with a starting platform made of wooden boards. These and similar guides were re-published many times in 1950–1960, which indicates great interest and demand.

In Poland, the governmental project 'One Thousand Schools for the 1000th Anniversary of the Polish State' initiated at the turn of the 1950s and 1960s (in fact, more than 1,400 primary and secondary schools were erected), became a great opportunity for the implementation of many updated educational facilities, especially in small towns, located in neglected areas of the eastern provinces. It was a chance for these centres to obtain school sports facilities, well equipped, with modern gym halls and sports fields.

At the beginning of the 1950s, the Ministry of Education [Ministerstwo Oświaty] and the Ministry of Construction [Ministerstwo Budownictwa] jointly developed technical and construction recommendations for new educational facilities. According to that document, three elements of the school sports and recreation infrastructure were required: a gym hall, a sports field and an outdoor recreation area. They formed the basis for the organization of indoor and outdoor physical education classes. The Ministry recommended planning several separate outdoor playgrounds: recreational with greenery and leisure benches (approximate area of 3 m² per student was anticipated), an area of 500 m² for outdoor gym exercise (communicated with the gym hall) and a 25 m × 50 m sports field for team games and athletic exercise. It means, that the program of the sports field was to include: a 60-meter or 100-meter run treadmills with 4 tracks, each 1.25 m wide; a long jump with a 2.75 m × 9.00 m landing pit and a 40 m run-up; a high jump with a 5.00 m × 5.00 m crash mat for landing and 15 m run-up; as well as a covered circle for throws (shot). Arranging volleyball or basketball courts was not recommended on the outdoor school field pitch, because in winter when an ice – rink could be arranged on this pitch, the boards and posts might be damaged. If there was more space, the courts for these games were arranged (a volleyball had an area of 14.00 m × 23.00 m and a basketball court had an area of 18.00 m × 30 m). Interestingly, the construction of larger sports fields, e.g. for playing football, was not recommended. The argument against playing football indicated the aggressive nature of this sport, which was considered unsuitable for children and schoolchildren [10]. Depending on the type of school (primary level – secondary level), the recommended dimensions of the gym halls were different. The recommended area for primary schools was 9 m × 18 m × 5 m and for secondary schools it was – 11 m × 22 m × 5.5 m. Placement of changing rooms, toilets and showers functionally connected with the gym hall was obligatory.

In Poland, in the decades after World War II, the aforementioned normative standards for school sports facilities were modified several times, based on subsequent legal acts and following changes in physical education syllabuses. They were in chronological order: Zbiór normatywów technicznych projektowania Instytutu Urbanistyki i Architektury z 1953 roku [Collection of Technical Design Standards IUiA (Institute of Architecture and Urban Planning), Warsaw 1953]; Dziennik Budownictwa nr 17 z 1962 roku [Building Law No. 17 of 1962]; Dziennik Budownictwa nr 1 z 1964 roku [Building Law No. 1 of 1964]; Wytyczne programowo- funkcjonalne projektowania szkolnych terenowych urządzeń kultury fizycznej, Zarządzenie Ministerstwa Oświaty i Wychowania z 1979 roku [Program and Functional Guidelines for the Design of School Physical Culture Facilities, Ordinance of the Ministry of Education and Upbringing of 1979]; Wytyczne programowo-funkcjonalne projektowania szkolnych sal sportowych, Zarządzenie Ministerstwa Oświaty i Wychowania z 1979 roku [Program and Functional Guidelines for the Design of School Gym Halls, Ordinance of the

Ministry of Education and Upbringing of 1979]; Założenia programowe budynków szkolnych szkół podstawowych Zarządzenie Ministerstwa Oświaty i Wychowania z 1979 roku [Design Program Assumptions for the Primary School Buildings, Ordinance of the Ministry of Education and Upbringing of 1979].

School sports facilities today

Today the basic conception for facilities in schools is the assumption, that the role of the school is both education and integration of community group. The idea includes the possibility of using school infrastructure for the local community needs (gym hall, library, playgrounds). In Europe, this philosophy is not new. It was originated in the early 20th century and had been related to the idea of a co-operative housing estate program. In Poland, the creation of a ‘community school’, opened to all residents, as a sports and cultural centre, was popular especially in the years 1970–1990. There is no doubt, that the origin of the ‘community school’ idea was the program of the ancient Greek gymnasium. Primary schools and secondary schools, with such a rich socio-cultural program, were established throughout Poland, accompanying the construction of some more ambitious and prosperous cooperative housing estates. Examples of such a solution are the school built in Sadyba District in Warsaw (designed by an architect, professor. H. Skibniewska, 1972) or the school built in the housing estate in Opole (designed by architects J. Grzegorzak and J. Rak, 1990). The two schools have rich educational, sports and cultural programme, which goes far beyond the needs of a standard school. It means the extensive sports indoor and outdoor facilities and equipment, spacious school gym halls designed as a meeting place for residents; the spacious libraries, exceptionally well-stocked with an opulent collection of books. Today modern theories of ‘communal school’ planning [23] draw attention to the legitimacy of equipping the school not only with a gym hall with space for the audience, a set of pitches with places for small stands but also an indoor swimming pool (12.5 m × 25 m) and even separate sports clubrooms. Such assumptions, of the rich sports infrastructure and equipment, additional to the standard school syllabuses and open for the local community needs and expectations enable the school to perform important integrating functions. The way of designing the sports segment of their school, understood as a separate and independent part, should enable the residents of the nearby housing estate to use the sports infrastructure (gym hall, swimming pool, playground) without any interference, especially during out of class hours (at weekends and in the afternoons).

In Poland, since the beginning of the 20th century, the design standards for sport educational facilities have recommended a gym hall size of 10.5 m × 18 m × 4.5 m, which excluded the possibility of organizing many sports activities. It

was changed in 1983 when the Ministry of Education directive recommended a group of rooms for the indoor physical education classes: 30 m × 18 m (main gym hall), 18 m × 12 m (supplementary gym hall) and a storage room with an area of 80 m². However, in 1994 the planning normative for sport schools facilities was suspended and today there are no longer norms, applying to school design. In consequence, it means, that there are no recommendations concerning school sports infrastructure and equipment. As for the number and size of gym halls and the size and equipment of playgrounds, it is to the school manager and an investor of the building process to decide. Usually, they are the Ministry of National Education (MEN), school manager and members of the school board and municipal authorities. The situation is different with investments co-financed by the European Union grants because the instructions of the grant coordinator should be strictly followed then. As it happens very often the grant formal conditions usually require a rich sports infrastructure program and increased parameters for multifunctional gym halls.

As a consequence, we deal with multiple solutions concerning school sports facilities in Polish schools which were created in various formal and legal conditions during the past 150 years. Currently, the Statistical Office in Poland and Ministry of National Education statistics, distinguish the division into four types of school gym halls [27, 28, 29]:

- a) Gym halls smaller than 24 m × 12 m (the most popular in our schools, there are currently 11979 such gym halls in Poland),
- b) Gym halls of dimensions from 24 m × 12 m to 36 m × 18 m (less popular, currently there are 4524 of them in Poland),
- c) Sports halls of dimensions from 36 m × 18 m to 44 m × 22 m (less popular, there are currently 978 of them in Poland),
- d) Sports halls with dimensions over 44 m × 22 m (rather a rare solution, there are currently 634 such sports halls in Poland).

In contemporary European literature on the subject of school sports infrastructure, we can observe multiple approaches to the design of sports facilities aimed at physical education. The differences depend on the tradition of physical education in a given country, regulations of the law, the role of schools in the local community and its resources. It means that the sports infrastructure and equipment in the newly erected schools are different in England, France, Germany or Switzerland (e.g. a school in Dorpen, Germany; a school in Borkop and Nordre-Hobro, Denmark; a school in Eindhoven, Netherlands; schools in Warsaw, Poland; a school in Uglegårds, Norway; a school in Vaudreuil, France).

It is worth to highlight the recent project of school sports facilities in London designed by the famous architect Zaha Hadid from Zaha Hadid Architects Design Office (project 2010, implementation 2012). The project investor was the British government, the Ministry of Children, Schools and Families. This project has been recently widely commented on in the architectural professional press be-

cause the architects unconventionally treated school sports grounds. For example, the treadmill is partially covered with a roof (as it was in the ancient Greek gymnasiums), which allows conducting outdoor physical education classes despite the vagaries of the weather. The long and wide red treadmill penetrates the school interior and is treated as the main communication corridor, forming the symbolic backbone of the school and having integrative importance for students. Besides, the school has three pitches, including one football-sized, having an area compliant with the latest FIFA recommendations: 70 m × 120 m and is aimed not only for educational needs but also for the use of the local community [26].

Although there is no uniformity in the program of school sports and recreation infrastructure within a given country, it is clear, that enthusiasts of the ‘open community school’ dominate among the European pedagogues, teachers, social activities and local community members who are attracted by this ideology. It seems, that a philosophy developed in the 20th century (based on cooperative housing estate assumptions) still serves well as an answer for physical education facilities. Moreover, the philosophy of ‘open community school’ is even more popular today; supported by the belief in the significant value of educational inclusion, the need for integration of students and local community residents (all age groups, three generations – including people with different impairments).

Following the principles of the open community school according to which a school should be a base for sports and active recreation for all local community members, the program of school sports facilities should be of universal character. Spatial layout, sports infrastructure and equipment, must consider the requirements of physical education classes, as well as local community needs and expectations. It means that both, the gym hall and outdoor playground should be prepared (in terms of parameters and equipment) for a school program and extra-curricular activities. For example, a gym hall should, if there are adequate space and equipment, be used for different popular sport and recreation activities, such as team games (netball, basketball), gymnastic, yoga, boxing, wrestling and martial arts (aikido, judo, kendo, karate), table tennis, fencing or fitness. It creates more opportunities for indoor physical education classes and could be used as the local community sports club. As sports equipment must be easily accessible, storage must be ideally placed next to the gym hall. It should be noted that inadequate storage space (for sports equipment) or its distant location from the gym hall, happens to be a very common mistake.

The outdoor sports courts should allow playing various team games, such as volleyball (18 m × 9 m with a free zone of at least 3 m), basketball (15 m × 28 m), football and handball (50 m × 100 m), netball (30 m × 25 m), tennis (24 m × 11 m), badminton (6 m × 14 m) and athletics activities (treadmill, shot, long jump and high jump), gymnastic exercise (including on handrails and ladders). A universal outdoor playing field (multi-purpose, including football) should have dimensions of at least 50 m × 100 m (if not even 70 m × 100 m), plus a racetrack for runs,

long and high jump areas, grassy areas for gymnastics (possibly enriched with 'green gym' equipment).

Such a versatile use of school sports facilities and equipment requires appropriate zoning of functions, enabling the simultaneous or multiple uses of such facilities and devices. Because the area should also include greenery, plus places for recreation, like walking and rest (benches) – the whole site may require an area of even 24,000 m²: 16,000 m² for sports fields and exercise areas, and 8,000 m² for strolling, quiet recreation and greenery – [7, 20]. Such an opulent sports and recreation programme needs to be rationalized by integrating the school facilities with public recreational areas, intended for universal use. It could be treated by local community members as a sports and recreation park.

Naturally, the school sports infrastructure and its arrangement (although shared with residents) must strictly correspond to the requirements of the school program. For example, in Poland, the recent introduction of structural changes into the organization of schools resulted in closing down junior high schools. As a consequence, it forced changes in the organization of school sports areas and their preparation for specific physical education lesson programs, recommended at a given stage of the child's development. Today, the organization of the primary school includes 'zero' (pre-school) classes for 6-year-old children. It means that there is a need to implement the necessary changes in sport and recreation infrastructure and reorganization of physical education. The infrastructure and equipment must be adapted to the needs of this age group. Usually, the problem of pre-school sport and recreation facilities is solved by providing a separate outdoor playground with a safe surface and such devices as 'spider', swings and slides, 'monkey bridges', low climbing wall – a bit more complex than typical kindergarten facilities.

It should be underlined, that the described concept of an 'open community school' and the possibilities of the multi-purpose use of the school sports and recreation infrastructure also could be welcomed by teachers, who thus could have more freedom and flexibility in planning their physical education classes. Furthermore, such a rich and varied program of gym hall equipment and outdoor sports facilities could also serve various forms of permanent learning (life-long learning), including seniors attending the Uniwersytet Trzeciego Wieku [University of the Third Age] classes.

School sports facilities without barriers

Since both disabled school children and local community members with different impairments should be able to access school grounds, these facilities must be safe and accessible to them. Therefore, when the creation of an 'inclusive environment' and barrier-free space is the case – entrance to the buildings, their

surrounding, interior communication, cloakrooms, toilets and showers must be accessible to people with different disabilities. In particular, the wheelchair users needs and movement limits should be taken into account, together with the anthropometric data of wheelchair users [6, 11, 12, 18, 24]. For example when details are considered, the equipment of showers with waterproof 'white wheelchairs' should be taken into account and special handrails helpful for people with movement disabilities should be installed in toilets and showers.

The literature on the subject [6, 24] does not recommend major changes to be introduced to the dimensions of the gym hall itself or the outdoor pitch, except for the removal of level differences, ensuring adequate passage widths and anti-slippery surface. However, there are several changes in the selection of sports equipment suggested. For example, the special devisees to adjust the height of the suspension of the board for basketball (to allow the wheelchair team to play basketball) are recommended.

It should be emphasized that the storage room at the gym hall should be much larger to be able to store such specially designed equipment as sports wheelchairs, which have a different design and parameters. Such a room could be also a convenient place to change a standard wheelchair into a sports one. If the school has a swimming pool – it must ensure its accessibility for wheelchair users. Special requirements for people with disabilities must be met. In addition to adjusting the cloakroom, sanitary and hygienic rooms, there should be enough space for wheelchair movement, enabling a convenient and safe transfer of the disabled person to a waterproof 'white' wheelchair. Furthermore, special equipment is necessary to enable wheelchair users to descend into the pool. A specially designed moving ramp, water pool basin properly profiled and adjusted or gentle, anti-slippery steps with handrails could be helpful. Some swimming pools have special cranes helping to transfer a disabled person directly from the wheelchair into the water.

The above remarks could also apply to the way school outdoor playgrounds for 'zero' (pre-school) classes are arranged. These facilities should be unquestionably accessible to children with different disabilities and their careers. This applies to special devices, for example, the specific construction of swings, rockers, slides and trampolines – enabling secure attachment of a wheelchair, as well as a thoughtful arrangement of devices on the playground. For example, walking paths should be even, smooth, but not slippery; sidewalks should be wide enough to be accessible to wheelchair users, with no surface-level differences higher than 2 cm.

Summary

In Poland, despite the visible improvement, some primary and even secondary school students do not have access to safe and functional sports infrastructure.

This applies especially to rural locations, which is indicated in the Statistical Office in Poland, Ministry of National Education the Ministry of Sports and Tourism (MSiT) data in their recently published reports [26, 27, 28]. These issues are also confirmed by other documents, for example, the research study ‘Diagnoza Społeczna Zapotrzebowania na Infrastrukturę Sportową i Rekreacyjną’ [‘Social Diagnosis of the Demand for Sports and Recreation Infrastructure’] by the MSiT. It shows, that the shortages in school sports facilities, is a fact. Moreover, the accessibility to the outdoor and indoor swimming pools, sports halls, multi-purpose sports fields, climbing walls and green gyms for people with different impairments is often difficult. These limitations happen, despite constant efforts of subsequent government institutions, responsible for the conditions of physical education classes and youth sports activities.

It turns out, that many decades (or one may say – centuries) of neglecting school sports facilities are not easy to overcome. It requires long-term uninterrupted actions and serious investments. No one dares to neglect this problem, as the importance of school sports has been shown in numerous works published by sociologists, pedagogues, economists, historians, physical education teachers, psychologists and medical professionals. In February 2017, the Ministry of Sport and Tourism (Department of Sports Infrastructure) announced the ‘Program rozwoju szkolnej infrastruktury sportowej na lata 2017–2020’ [‘Program for the development of school sports infrastructure for 2017–2020’]. The goal of the program was to improve the condition of school sports infrastructure, facilities dedicated not only for the sole purposes of physical education classes but enabling the organization of different sports activities. Moreover, as this project was inspired by the ‘open community school’ idea, the new sports facilities should serve the local communities [28, 29]. The important assumption of the planned investments was their public access and openness during the extracurricular period to the residents living nearby: in the afternoons and at weekends. Undoubtedly it is an extremely important postulate for the effective promotion of the idea of ‘sport for all’. Accordingly to the Ministry documents, the funds would be allocated for the construction of indoor swimming pools, sports fields, sports halls and for the renovation of existing, but neglected and in poor technical state school sports facilities. Therefore, it should be expected that as a final result of this and other similar projects, numerous school sport and recreation facilities will be created, enabling various types of physical activities for a wide group of recipients: i.e. students, and in the after-school time – residents of nearby settlements. Hopefully, the school sports and recreation facilities, through appropriate development and diversity, have a chance to play an important integration role for the entire local community. Hopefully, it will also apply to the well-equipped school playgrounds erected for the youngest children (attending ‘zero’ pre-school classes) – unfortunately currently not always available to external users.

Finally, it should be emphasized that the appropriate design of greenery surrounding school sports and recreation facilities cannot be overestimated. Green areas are not only more aesthetic and pro-ecological (as improving the school microclimate: regulating humidity and lowering the temperature of the atmospheric air, absorbing pollution and suppressing noise), but also functional, helping to zone individual segments of the outdoor sports area, isolating from them from one another – also optically. These can significantly increase the qualities of school sports and recreation facilities and enhance the comfort of its users.

Another important aspect of sustainable and rational managing is the problem of the economical use of expensive sports and recreation infrastructure in schools. It means, that these facilities should be used almost all year-round (as multi-seasonal). The appropriate design could make outdoor sports facilities available throughout the year in changing weather conditions. For example team games, gymnastic and athletic exercises can take place outdoors, in comfortable conditions when having good artificial lighting, screens and greenery protection against wind, noise and dust; as well as partial roofing, which might protect outdoor recreation grounds against excessive insolation or rain and snow. Nothing new under the sun – such solutions were already well known in the ancient Greek gymnasiums.

Funding for school sports facilities might have come from a variety of sources, including central government, local government, self-government authorities, National Lottery ‘Lotto’, different kind of foundations, private sector companies, voluntary sector, EU funds and public donors. These institutions might be either solo investor or one investor. However, it is clear, that the main responsibility for providing school sports and recreation facilities has the government. Why is that? Sports and physical recreation at schools have a vital role by giving students a sense of pride, an opportunity for self-expression, provide a sense of camaraderie and friendship. Sport teaches students how to win and how to lose, helping to alleviate the consequences of social and economic disadvantages, having a positive effect on their mental and physical wellbeing. Moreover, sports has been also an important part of the Polish school culture and tradition, in past and present.

Since there is no single, universal and ideal model of the school sports facilities, the program concept is still an idea open for discussions. Furthermore, professional studies and researches, discussions with all the involved parties, should be constantly conducted – theoretically, in the form of scientific researches and practically, in the form of experimental planning [17, 22].

Overall, one universal planning rule should always be applied: the openness and inclusiveness of sports facilities must be granted. Therefore, to meet new expectations, only flexible solutions should be considered, allowing the possibility of adapting the sport and recreation facilities to the current needs of not only the school program but also the ever-changing nature of the local community.

Therefore, it is a necessity and obligation to monitor constantly such needs, discuss with the school children, physical education teachers, parents and local community members – what their opinions and expectations are (Table 3).

Table 3. The school sports and planning recreation facilities – main stages of the decision-making process

No	Decision-making stages
1	Defining a problem, gathering information and identifying possible solutions of school sport and recreation grounds
2	Consulting implications and solutions with students, physical education teachers, parents, local community members investors (donors)
3	Making the decision and deciding a course of action to implement a selected and formulated project
4	Communicating the decision to all parts interested: students, physical education teachers, parents, local community members
5	Implementing and following up the decision to create (improve) school sports and recreation facilities
6	Monitoring, considering the opinions of users of the school sports and recreation facilities and equipment
7	Evaluation, feedback and modification accordingly to the expectations of the school sport and recreation facilities users

Source: author's study on the base of statutory research projects: ds-114, ds-300 and ds-316 – carried out at the Józef Piłsudski University of Physical Education in Warsaw.

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Figures 1–6



Fig. 1. The ruins of an ancient gymnasium in the Greek city of Thermessos dated the 2nd century AD (now: southern Turkey, Taurus Mountains). Almost 100 meters long and 14 meters wide, the relatively well-preserved facade of the building is decorated with pilasters and arches from the later Roman period. Source: photo by Maciej Piechotka, 2017.

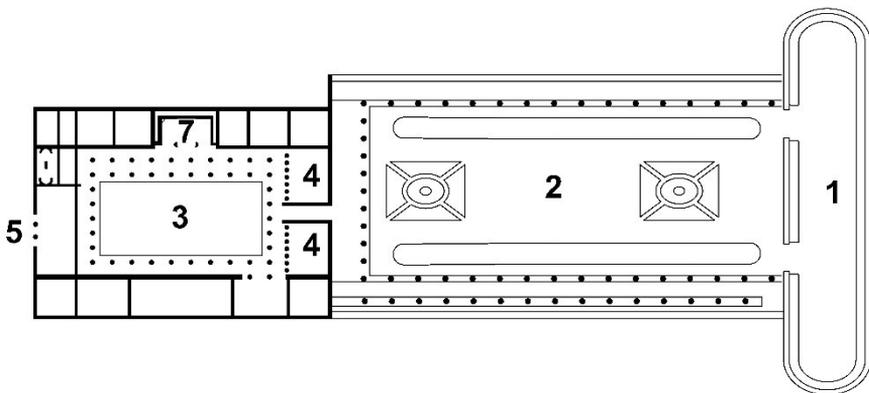


Fig. 2. The theoretical plan of an ideal gymnasium. Notes: 1 – stadium, 2 – gymnasium, 3 – bar, 4 – exhedra, exercise rooms, warehouses, 5 – entrance, 7 – ephebeon. Source: drawn by Anna Pawlikowska-Piechotka, Maciej Piechotka, study based on: Wojciech Lipoński, *Historia sportu [History of sports]*, Wydawnictwo Naukowe PWN, Warszawa.



Fig. 3. The school gymnasium and school playground in Gdańsk-Oliwa (Jahnstrasse), dated at the end of the 19th century. Source: Photo (author unknown, about 1900), collection of archival photographs 'Sedina', with the consent of the Society of Friends of Szczecin (Poland) 'Sedina'.



Fig. 4. The school gymnasium and school playground in Gdańsk-Oliwa (formerly: Jahnstrasse), erected at the end of the 19th century. The school view after renovation works. Source: Photo Yaneck, digital photo archive from the platform <fot opolska.eu>, a public domain (no copyright restrictions), access in 2016.



Fig. 5. The primary school playground and primary school gymnasium in Jelenia Gora. Presented is a typical school constructed in 1971 ‘tysiąclatka’ (called after 1000 – years anniversary of Poland). The presented state is after major renovation and modernization work. Source: Photo Antypuszcza, digital photography archive platform <fotopolska.eu>; public domain (no copyright restrictions), access in 2016.



Fig. 6. The newly built secondary school in London (years of construction: 2006–2010). The long track and field track is embracing and ‘encircling’ the school complex, running both outside and inside school buildings (similar to the ancient ‘dromos’ in gymnasiums – allows students to exercise in various weather conditions). Source: www.zaha-hadid.com (access: in July 2016), published with permission obtained from Zaha-Hadid Architects, London.

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