

A Research on the Determination of Physical Planning of School Gardens in Canakkale City

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ABSTRACT

Education is the most important factor, which forms the futures of individuals and society. In the beginning of 21st century, this strategically importance of education has more increased. Now, the development levels of societies are determined by how much they integrate with the world economy and they carry the characteristics of an information society. The initial investment, which will be made for the development and improvement of a country, is, to provide the best education opportunities given to children and young people. Therefore; the schools must be well planned where the psychical, social, emotional, psychological and mental developments of children are supported. In this research, the situation of school gardens in Canakkale city is examined. The physical side, in the light of landscape architecture planning principles, has analyzed the general characteristics of school gardens-planning criterions and standards. In the result of the research, it is understood that the school gardens in the city center are insufficient according to planning criterions and standards and also that it is a necessity to make activities urgently concerned with rebuilding of school gardens with the common-works of educators, different planning and designing profession disciplines and local community.

Key words: Canakkale, open-green areas, landscape planning, school gardens, Turkey

INTRODUCTION

In the duration of industrialization and urbanization started with 19th century Industry Revolution, while building densities increase connecting to speedy population increase especially in urban areas, on the condition that speedy industrialization and non-planned urbanization, the natural environment and ecological order have been started to destruct and pollute and in the result of these developments, urban open-green areas have been faced with the danger of annihilation.

Open-green areas which are used for the increase mankind's psychological standards with the activities such as developing and increasing the human health, providing exercise and relaxing opportunities and watching nature, are the urban places which especially school-age children and young people are interested in for the active recreation.

In our world that the improvement has nearly no limitation, one of the initial fascinating factors of improvement is human resources. For that reason, the countries consider that to evaluate rationally the human resource in their own national-borders by the education way, is an important element.

To be able to get complete theoretical-practical knowledge and to be able to use this information actively is only possible to provide by physically and psychologically well-balanced generation. For that reason, it is a necessity to have garden areas, which can respond to students' needs in education establishments. It is also necessary for a healthy society the planning works which will be made in the same fields should be in determined principles (Yilmaz, 1995).

The future; the cultural, scientific and technical power of a nation is constituted by children. And for that reason, one of the most import and greatest duty of a society is to train the children well. In training children, the ordering of school garden and environment is important as much as the school, teaching and lesson materials (Tanriverdi, 1987).

The initial investment, which will make for the development and improvement of a country, is to provide the best education opportunities given to children and young people. Therefore, the schools must be well planned where

the physical, social, emotional, psychological and mental developments of children are supported. An important dimension of the contemporary education intelligence is, the fact that the classroom and school environment's characteristics and necessities, in which is lived. It is thought that the school and classroom environment is an ecosystem.

Most of the areas in Europe and USA, especially where the excessive urbanization movements are seen, in order to utilize from the urban place maximally and mostly, the school gardens have been planned related with the play and athleticism grounds. Thus, it is both possible to give a chance to school for the open areas and also along the all year the urban people can utilize from the garden foundation. Besides, when both the school and the municipality take the responsibility of building of these foundations, this also economically results in a positive way.

Particularly in USA, the idea of park and school couple is so assumed that with some special taxes financial sources are found and urban governors, education foundations are started to work together in a strict coordination (See, 1954 and Akdogan, 1972).

Again in the same countries, more detailed workings have been made about the schools and their gardens. Before everything, in addition to school's educational and instructive function, it is concentrated on as a planning feature, which has an effect such as child's psychological and physical development, forming of his character, increasing his attention towards the environment. As a matter of fact, it is accepted as a main principle, planning the school and environment as a place where the child would see to go to school as a pleasure.

In this research, the situation of school gardens of Canakkale city, which are in urban-fields, in open-green areas system, half-open to community, has been examined. Physical side in the light of landscape architecture planning principles has analyzed the general characteristics of school gardens-planning criterions and standards.

MATERIALS AND METHODS

The research material is consisted of primary education schools and high schools, which occupy in Canakkale City Municipality Borders. The elements in research are the school gardens, the number of school-age children population in urban population, the number of students in education foundations and local and foreigner literatures about the subject.

In the research in the evaluation of climate datum, Canakkale Meteorology Station Management records are used.

The information concerning the population is taken from the datum of Government Statistics Institutes's 2000 General Census.

The datum about the school and number of students have been got from Canakkale the Administration of Education and school managers.

In the research; data collecting, analyzing and synthesis method is used. In Canakkale city the factors affecting the planning is determined. The general features of school gardens-planning criterions and standards are brought up. The physical planning analyses of school gardens in city center are made.

After the information was collected, analyzed and synthesized, planning and design proposals were suggested to the school gardens.

RESULTS AND DISCUSSION

The factors affecting planning in canakkale

In planning school gardens, the main effect actors are natural and cultural features. Natural factors are influenced by the climate factor. Temperature, rainfall, moisture and wind are important climate elements. In cultural factors, the demographic structure of the urban population is important. Especially, the most important factor affecting the planning is the number of school-age children population in urban population and the number of students in education establishments.

In Canakkale, transition climate of Mediterranean and Black Sea Climate, prevails. Daily weather temperature in summer season is highest 38°C and lowest 20°C. But in winter season, cold weather coming from Balkan Peninsula affects these coats and the temperature may decrease below 0°C. The rainfalls usually fall in spring and winter months and generally as rain and average 600-800 mm annual. The annual average of snowy days is 3-4 days. Average relative ratio is 73%. Along the year in Canakkale the wind is at southwest direction and average wind

speed is 4.4 m sec^{-1} (Anonymous, 1998a).

According to 2000 General Census, the population of Canakkale is 75,810 (Anonymous, 2000). The number of school-age children population in urban population is 18,345. By 2002, the number of total student in primary education and high schools are 17,450 (Anonymous, 2002a).

The general characteristics of school gardens-planning criterions and standards

The speedy population increase in recent years and together with it in urban areas where the excessive urbanization movements are seen, aiming optimum and maximum usage in urban places, planning of school gardens in relation with the parks play and sport grounds presents a great importance.

School gardens are one of the most important elements in the system of urban open-green areas, half-open to community usage. For that reason, there are so many matters, which should be considered on the specialties of general planning of school gardens. School gardens, before everything, should be the places where providing the continuity of education inside the school, supporting the physical, social, emotional, psychological and mental development of the child developing the interest on environment and nature (Anonymous, 1998b).

It should be accepted as a main principle to plan the school and its environment in a way that the child would think going to school is a pleasure. Another important case is to design the school and its environment which go well together with its environment's visual and physical features and also to design it in a way, which can help to its environment with its open and green areas.

School gardens should offer some opportunities which can respond students' education and recreation needs and also which may feel themselves comfortable and spend their time in an outside place which has attractive qualities and has a good atmosphere for them at the time remaining from lesson hours (Golby and Appleby, 1997).

School gardens support to increase social-wish, common aim and cultural values as much as bridging between students, school personnel, families, local employment places and organizations (Anonymous, 2001).

One of the initial matter which should be concentrated on when planning the school gardens is, the number and ages of girl and boy students consisting the school and also the number of teachers (Gülez, 1989).

It is also necessary to pay attention to have some equipment, which can serve the physically disabled people when planning the schools and their gardens. Especially in the places, which have ladders, ramps in a suitable slope should be placed and it should also be provided for the physically disabled people to wonder comfort in the garden field and utilize from the sitting places.

The playgrounds in the school gardens are the main parts of every society and every school. The children spend many hours of daily occupations with the opportunities offered by playing grounds (Anonymous, 2002b).

School gardens should be open, even out of the school hours, for the usage of local people and should be used along the year (Belcher and Hazel, 1960). But, now, it has been seen that those places are being closed for the community usage. However, school gardens have the specialty in order to be used as a solving way, for responding the needs of the cities such as parking-lot problem, sport and play grounds' absence (Huber and Kobelt, 1989).

It is important to emphasize the arrangements, which will provide the school gardens being used along the all year. So, it is necessary to pay attention firstly to climate conditions in the arrangements.

School gardens may be the right environment for the students during the learning period of plant-growing, society-plants-wild life relations and when they are working together with their teachers, families and volunteer people. A school garden should function not only an education center for students but also should serve the other parts of society (Anonymous, 2002c).

School gardens provide different opportunities to teachers and students and help the members of society influencing by each other. This influence provides to advance social skill among the people and teaches students how can be worked with their own friends and old people. At the age of this urbanization the relation with nature of children has decreased. A school garden gives the opportunity of working in an outside place, which will not be gone into fear and also of gaining learning-influence specialty about nature (Anonymous, 2002d).

In planning of school gardens, it is not solving to leave only open-areas. Open areas should be planned by considering the criterions such as the quality of school; level, form, function of education; the social structure and recreation opportunities of its environment.

School areas should contain some natural landscape features. These are; to be near by a pasture area, a stream, part of a forest or in a wide forest. If these features or elements can't be found, it should be thought to build a new foundation. The new foundation should contain open or kept parts such as shadowy and sunny areas, plain and

sloppy areas, dry and wet environments in the borders of school garden.

In the school area, the samples of plant and animal, geological and land features should be exhibited (Hough, 1969).

In the school gardens, the plants, which develop fast and strong for the stroke, should be preferred. The trees and bushes which don't fall their leaves are more suitable because of they stay green all year. The plants whose fruits and flowers are poisonous and whose branches can be easily broken and also the plants, which take the bees with their flowers, shouldn't be used in the school gardens. The qualities of places in school garden should be thought carefully in choosing the kind of plant. For that reason, in planting works of school gardens, landscape architecture planting design principles should be considered.

According to Tanriverdi (1987) in an ideal school-garden there must be surrounding elements, rest and ceremony areas, botanic and zoology gardens, classroom gardens (agricultural practice areas), open-air classroom or theater and special gardens.

The standards, which can be valid for school gardens, together with being distinguished according to countries and cities, generally accepted opinion is, for school-buildings 'environments', to shelter possibly wide areas.

According to Richter (1970), it should be calculated 25 m² open-area for each student. Inside of this area, 5 m² should be accepted as the minimum open space, which will especially serve the rest times between the lessons.

It is given different standards for school open areas at streets in different population densities, by American Public Health Association (APHA) for the primary schools. According to this situation, at a street for 2000 people, calculating 180 students, 14.5 m² open space for each student; at a street for 5000 people, calculating 450 students, 8.5 m² open space for each student is suggested.

According to Neufert (1978), school building-lot (including construction area) should be 25-30 m² person⁻¹ and rest garden should be at least 5 m² person⁻¹.

According to Public-Works Rule numbered 3194 and the regulation commands which explains it About Making Public-Works Plans dated 9.11.1985, the standards about the school gardens are determined as follows by considering city population; nursery-school 0.7 m² person⁻¹, primary school 2.0 m² person⁻¹, secondary school 1.8 m² person⁻¹ and high-school 2.0 m² person⁻¹.

According to rule published in Official Newspaper numbered 23.804 and dated 2nd September 1999 it is established as follows by considering city population at urban, social and technical sub-structure; day nursery-nursery school 1 m² person⁻¹ primary school 4 m² person⁻¹ and secondary school 3 m² person⁻¹. Again, in the same rule education foundation sizes are established as follows; nursery school 3000-5000 m²; primary schools 8000-15.000 m²; High Schools-Anatolian High Schools- Commercial High Schools-Girls Professional Schools-Imam Preacher Schools 10.000-15.000 m²; Industry Professional High Schools-Programmed High Schools 20.000-25.000 m²; Practice Art Schools 3000-5000 m²; Science High Schools-Anatolian Teacher High Schools-Hotel Industry Professional High Schools-Fine Arts High Schools 20.000-30.000 m²; Folk Education Centers 4000-8000 m² (Anonymous, 1999).

The physical analyses of school gardens of canakkale city

According to research made in Canakkale City, the number of schools in Canakkale is total, consisting of 20 primary school and 14 high schools. In Table 1, 2 the schools, number of students, including the building and open areas, land uses and sub-structure evaluations are given.

According to General Census, in Canakkale city, which is determined, the number of school-age children is 18.345, the present 34 schools cover 193.307 m² areas in total. 7.80 m² open-area and including the building, 9.47 m² area fall to each student's lot in primary schools in Çanakkale city. 10.94 m² open-area and including the building 13.62 m² area fall to each student's lot in high schools. It is established that all the schools (including buildings and open areas) cover 193.307 m² area and for each student there is 11.08 m² area. If it is concerned as open-area, 9.02 m² open area falls to each student's lot. When these values are researched, it is seen that the amount of area for each student in Canakkale city under international standards.

It is established from the research, the school, which has open-area with 16.700 m², is Canakkale Private Primary Education School-High School, the school, which has the smallest open-area with 423 m², is Gazi Primary Education School. And also, the school which has the greatest education-area with 66 m² person⁻¹ is Anatolian Hotel-Industry Tourism Professional High School and the least education-area with 1.56 m² person⁻¹ is Ömer Mart Primary Education School.

Table 1: Land Uses of Primary Schools and Evaluation of Sub-Structure

| Education Institute | Land use and sub-structure | | | | | | | | | | | | | Land use of school surroundings | | | | |
|---------------------|----------------------------|-----------|-------------------------|----------------|---------|-------------------|---------------|------------|-------------------|------------------------------|----------|-------|----------|---------------------------------|-------|----------|--------|--|
| | Number OF student | Land (m²) | Construction area (m²) | Ceremorry Area | Parking | Circulation roads | Sitting place | Sport area | Outside show land | Equipment of disabled people | Lighting | Waste | | school surroundings | | | | |
| | | | | | | | | | | | | bins | Planting | Home | Trade | Industry | Forest | |
| Primary | | | | | | | | | | | | | | | | | | |
| Atatürk | 524 | 6122 | 664 | ◆ | ◆ | ◇ | ◇ | ◆ | ◆ | ◇ | ◇ | ◇ | ◇ | - | | | | |
| Anafartalar | 368 | 3751 | 664 | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | + | ◇ | ◇ | ◇ | - | | | | |
| Anıburun | 377 | 2934 | 594 | ◇ | + | ◇ | ◇ | ◇ | ◇ | + | ◇ | ◇ | ◇ | - | | | | |
| Barbaros H.P. | 430 | 3230 | 664 | ◆ | ◇ | ◇ | ◇ | ◇ | + | + | ◆ | ◇ | ◇ | - | | | | |
| Cumhuriyet | 301 | 5472 | 912 | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | - | - | | | |
| Vali Fahrettin | 677 | 4531 | 912 | ◆ | + | + | ◇ | ◇ | + | + | ◇ | ◇ | ◇ | - | | | | |
| S.Fatma Camoglu | 556 | 7358 | 986 | ◆ | ◆ | ◇ | ◇ | ◆ | ◆ | + | ◆ | ◇ | ◇ | - | | | | |
| Mustafa Kemal | 697 | 4942 | 920 | ◆ | + | ◇ | ◇ | ◆ | ◆ | + | ◇ | ◇ | ◇ | - | | - | | |
| Canakkale Özel | 233 | 17900 | 1200 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | - | | | - | |
| Merkez | 1145 | 5360 | 1290 | ◆ | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | - | | | | |
| Turgut Reis | 512 | 3000 | 912 | ◆ | ◇ | ◇ | ◇ | ◆ | ◇ | + | ◆ | ◇ | ◇ | - | | | | |
| Istiklal | 447 | 2698 | 670 | ◇ | ◇ | ◇ | ◇ | ◇ | + | + | ◇ | + | ◇ | - | - | | | |
| Onsekiz Mart | 909 | 2972 | 1018 | ◇ | + | + | ◇ | ◇ | ◇ | + | ◇ | ◇ | ◇ | - | | | | |
| Cevat Pasa | 144 | 1082 | 460 | ◇ | + | + | + | + | + | + | ◇ | + | ◇ | - | - | | | |
| Gazi | 823 | 2020 | 1597 | ◇ | + | + | ◇ | ◇ | + | + | ◆ | ◇ | ◇ | - | | | | |
| Ömer Mart | 1121 | 1749 | 975 | ◆ | ◇ | + | + | ◇ | + | ◇ | ◆ | ◇ | ◇ | - | | | | |
| Özlem Kayalı | 160 | 4871 | 1105 | ◆ | ◇ | + | ◇ | ◆ | ◆ | ◆ | ◆ | ◇ | + | - | | | | |
| Kepez Atatürk | 602 | 1760 | 653 | ◇ | ◇ | + | ◇ | ◆ | + | + | ◆ | ◆ | ◇ | - | | | | |
| K.M. Akif Ersoy | 474 | 11600 | 653 | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | + | ◇ | ◇ | ◇ | - | | | | |
| Özel Gökkuşagi | 200 | 8000 | 1000 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◇ | ◆ | ◆ | ◇ | - | | | | |
| TOTAL | 10700 | 101352 | 17849 | | | | | | | | | | | | | | | |

◆ Sufficient ◇ Insufficient + Not Existing

Table 2: Land Uses of High Schools and Evaluation of Sub-Structure

| Education Institute | Land use and sub-structure | | | | | | | | | | | | | | Land use of school surroundings | | | |
|----------------------|----------------------------|-----------|-------------------------|----------------|---------|-------------------|---------------|------------|-------------------|------------------------------|----------|------------|----------|------|---------------------------------|----------|--------|--|
| | Number of student | Land (m²) | Construction Area (m²) | Ceremorry Area | Parking | Circulation roads | Sitting place | Sport area | Outside show land | Equipment of disabled people | Lighting | Waste bins | Planting | | | | | |
| | | | | | | | | | | | | | | Home | Trade | Industry | Forest | |
| Fen | 226 | 8074 | 1520 | ◆ | ◆ | ◇ | ◇ | ◇ | ◆ | ◇ | ◆ | ◇ | ◇ | - | - | | | |
| Canakkale | 1054 | 5962 | 3425 | ◆ | ◆ | ◆ | ◇ | ◆ | ◆ | ◇ | ◆ | ◇ | ◇ | - | | | | |
| Ibrahim Bodur | 949 | 7221 | 912 | ◆ | ◇ | ◇ | ◆ | ◆ | ◇ | + | ◆ | ◆ | ◇ | - | - | | - | |
| M. Piyango Anadolu | 1049 | 12845 | 2316 | ◆ | ◆ | ◆ | + | ◆ | ◇ | + | ◆ | ◆ | ◇ | - | | | | |
| K.Avukat Ibrahim | 178 | 4611 | 322 | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | - | | | | |
| Endustri Meslek | 769 | 7414 | 1340 | ◆ | ◇ | ◇ | ◆ | ◆ | ◇ | + | ◆ | ◇ | ◆ | - | - | | | |
| Ciraklik Egitim Mer. | 1010 | 2549 | 624 | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | + | ◆ | ◇ | + | | | - | | |
| Imam Hatip * | 22 | 5405 | 895 | ◆ | ◇ | + | ◇ | ◇ | ◇ | + | ◆ | ◇ | ◇ | | - | | | |
| M.A.Ersoy A.T. | 111 | 5405 | 895 | ◆ | ◇ | + | ◇ | ◆ | ◆ | + | ◆ | ◇ | + | - | | | | |
| Anadolu O.T. Mes. | 634 | 13616 | 895 | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | - | | | | |
| Nedime Hanım K.M | 199 | 13078 | 3815 | ◆ | ◆ | ◇ | ◇ | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | | - | | | |
| Canakkale Özel | 306 | 4434 | 813 | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | ◆ | | | | - | |
| H. Ali Yücel * | 84 | 17900 | 1200 | ◆ | ◇ | + | ◇ | ◇ | ◇ | + | ◆ | ◇ | ◇ | | - | | | |
| K.Güzel Sanatlar | 159 | 6746 | 1177 | ◇ | ◇ | ◇ | ◇ | ◇ | + | + | ◆ | ◇ | + | - | | | | |
| Total | 6750 | 91955 | 18054 | | | | | | | | | | | | | | | |

* Education is continuing at the same building

◆ Sufficient

◇ Insufficient

+

The schools in Canakkale city don't indicate a balanced distribution in city general. The schools that are distributed in the old settlement places of city at the beginning have been inadequate day by day as the result of developing of the city-development in the direction of north and south-southeast by the time. Recently, these necessities are tried to be responded with the new primary education schools but the solutions at the right level couldn't be still found for this problem of high schools in city in general. These necessities especially in south-south east part where urban development continues fast are more.

The schools in city (except private schools) are inadequate for the equipment elements belonging to activities in school garden which are the continuation of lesson-education inside school and have the importance as much as it, the equipments for general usage (such as ceremony area, green tissue, parking lot, bicycle parking lot, ways, sitting places, lighting elements, sport and playing grounds and waste bins etc.) presents partly in normal schools except the private schools in city but they are inadequate for number and quality.

The playing and sport grounds, which have an important place in school open-areas, are consisting of only a basketball-volleyball field made from concrete materials and football field with a soil ground in the most of schools of city. Besides, there are closed-sport-areas in some schools.

The parking-lot necessities are responded in present open-areas parted for the other usage in school garden or at the sides of pavements outside the school. The schools, which have greater open-area, (especially in private schools) there has been left enough and regular area for parking lot. It is also established that there hasn't been places for bicycle parking, for the students who go to school by bicycles.

Using the plants chosen by chance, except planting designing principles makes the plantings in school gardens. The functional qualities of plants such as siege, shadowing, noise-control, preventing the wind aren't considered. And also, in most of the school gardens the grassy surface is inadequate.

The surrounding elements of school gardens are generally consisted of concrete screening, brick or briquette walls and iron railing, wire cage on these walls. Besides, wrapping and climbing plants are used for alive fence.

The deficiencies are found at sub-structure opportunities of school gardens in Canakkale city. These are: the deficiency or lack of underground and overgrown drainage system, inadequacy or unhealthy of ground-covering materials and inadequacy of lighting elements.

An important dimension of the contemporary education intelligence is, the fact that classroom and school environment is the one which is formed by the environment's characteristics and necessities, in which is lived. It should be thought that school and classroom environment is an ecosystem.

Preparing of school garden where the student's physical, social, emotional, psychological and mental developing are supported and the student's interest about the environment and nature are developed and also which is an inseparable part of school education which is one of the most important factors forms the future of individuals and society; providing suitable materials and places for this, is so important. But unfortunately it is seen that this subject isn't considered enough in our country and in Canakkale, school's open-area preparing criterions and standards aren't placed at public-works plans or these criterions and standards aren't paid attention.

In our country, which struggles for reaching the level of contemporary civilization, planning of school gardens in away which can supply the mental, physical and socially developments of children who are the security of our future and also applying by these plans are the inevitable phenomenon.

For the purpose of making the schools, in Canakkale city center, more contemporary and modern education foundations; firstly it is necessary to establish working-groups which contains different planning and designing personnel such as educators, the technical personnel of society-foundations, landscape architects, architects, civil engineers, city-district planners and local society representatives; to analyze the present situations of all schools by the helps of the planning and designing principles of these professions' disciplines; than to get suggestions in order to improve the present situations; to perform these suggestions quickly by applicants.

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