

Evaluation of Primary School Gardens with Landscape; Van /Turkey Concept Design Sample

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Abstract

It has been supported by many studies that learning areas are not limited to classrooms and the positive physical activity of the environment is a part of education. School gardens, which can contribute positively to the physical, spiritual and social development of children, are also accepted as areas where children acquire permanent habits, behaviors and thoughts during their education period.

This study focuses on the evaluation of primary school gardens with landscape design. In this direction, it is aimed to determine the compliance of the primary school gardens in the city center of Van with the determined guidelines and standards and to model an exemplary landscape design project. In the schools where the current situation analysis was made, it was seen that the area per person and the usage areas that should be in the school garden were insufficient. It has been revealed that the existing usage areas do not comply with the determined guidelines and standards. The study area is located in İpekyolu district, which is the city center district of Van7Türkiye. On-site observation and examination, oral interviews with children and expert opinion were obtained in 12 primary schools selected according to certain criteria. As a result, it has been determined that the existing schools should be improved in terms of usage areas in a way that will contribute to the development of children. Landscape design modeling was carried out with the aim of setting an example for the pilot school selected with the data obtained at the end of the study. It is thought that the outputs of the study can constitute a basis for the improvement works to be done in the gardens of the existing schools or for the school garden projects to be made in the future.

Keywords

Modeling, Primary School gardens, Landscape design

1. Introduction

School gardens, which can contribute positively to the physical, spiritual and social development of children, are accepted as areas where children acquire permanent habits, behaviors and thoughts during their education period. It has been supported by many studies that learning areas are not limited to classrooms and the positive physical activity of the environment is a part of education. Numerous studies have determined that children often prefer to play in natural or wild areas (Maxey, 1999). This kind of areas more attractive for children because of their diversity and sense of timelessness (White ve Stoecklin, 1998). Children's access to nature provides an important aspect of growth, and many adults have stated that their natural or outdoor

environment is their most important place (Sebba, 1991). Outdoor education and natural environment experiences have positive effects on their personal development as well as cognitive and psychological benefits (Wells, 2000). Research examining the potential impact of outdoor education on students' social, mental and/or physical health is categorized as well-being (Remmen and Iversen, 2022). For example, regarding physical well-being, it has been found that primary school students increase their physical activity when they are exposed to outdoor education during their school day (Bølling et al., 2021; Austin, 2022). Similar findings are reported for social welfare. For example, Bølling et al., (2019) reported that students exposed to regular outdoor training showed the

greatest improvement in social behavior. Hartmeyer and Mygind (2016) and Austin (2022) stated that the social relationships experienced during regular out-of-school education may also have a positive effect in the long run. It was also stated that cooperation and participation are counted among the benefits that affect the social relations of the students in the following school years.

Schools in many countries around the world have included outdoor learning in their curriculum. Remmen and Iversen (2022) School-based outdoor educational activities, fieldwork, field trips, excursions, outdoor learning and teaching and 'learning outside the classroom' in Scandinavian countries (Denmark, Finland, Iceland, Norway and Sweden). classroom'; LOtC). He also stated that definitions such as 'Scandinavian outdoor culture' indicate a strong sense of outdoor activities tradition and thus a strong tradition of outdoor education in Scandinavian schools. In our country, the importance given to outdoor education and school gardens can be increased with the awareness of the very positive effects of primary school gardens on children in physical, social and spiritual ways. Turkey is a country with a young and rapidly growing population. The fact that the young population is high indicates that the population of that country is more than studying. TÜİK (2020-2021) According to the data of Turkey, there are a total of 18 million 170 thousand 987 students, of which 1.629.720 are at the pre-school level, 5.279.945 at the primary education level and 11.261,322 at the secondary education level. On the other hand, there is a need for qualified manpower in the 21st century, which is called the information-digital age. Qualified manpower is provided by qualified educational institutions.

2. Schoolyard Concept

Schoolyards are an innovative teaching tool and strategy that allows educators to combine hands-on activities with a variety of interdisciplinary, standards-based lessons. It is a laboratory that allows students to be active participants in the learning process, where the lessons are taken from real-life experiences rather than textbook examples. Thanks to the garden, students learn about ecosystems and the life cycles of plants and animals (Deichler, 2005). More than one definition has been developed about school gardens. According to Tandoğan (2017), school gardens; defines the

area around the building as the areas where children spend time during breaks or in their spare time. On the other hand, school gardens are defined as areas where children spend most of their time, do activities, make friendships, and socialize (Nicholson, 1971).

The first criterion in determining the suitability of school gardens is to determine the area per student in the garden. For this purpose, the number of students, the approximate size of the school gardens calculated and the garden area per student were revealed via the Ministry database MEBSİS. In their study on this subject, Şişman and Gültürk (2011) found that 45% of the schools examined in the province of Tekirdağ had a garden area of 5 m², while 55% revealed that they had an area lower than this standard. Again, Aksu and Demirel (2011) determined in their study in the province of Trabzon that there is 5.41 m² of garden area per student in the schools examined, while Kelkit and Özel (2003) determined that each student has an area of 7.80 m² in their study in Çanakkale/Türkiye.

3. School Garden History

Horticultural studies emerged many years ago when the great Persian king Cyrus arranged the gardens where the sons of the nobles trained as gardeners (Miller, 2005). At the beginning of the sixteenth century, botanical gardens began to be designed almost everywhere. John Amos Comenius said, "A school garden should be built in every school where children are taught to enjoy and look at trees, flowers and plants comfortably." In the seventeenth century, Jean Jacques Rousseau emphasized the importance of nature and school gardens in education. Later, Basedow included school gardens among educational institutions. In the nineteenth century, the Austro-Hungarian court decided to establish a schoolyard, which was practical in every rural school (Miller, 2005). Schoolyards have developed throughout Europe, particularly in Switzerland, France, Germany, Belgium and Scandinavia. Only kindergarten children were introduced to the environment, and each child was given a plot of land to grow a garden (Wellhausen, 2002). There were more than 100,000 schoolyards in Europe in 1905 (Shair, 1999). John Dewey's educational advancement, Maria Montessori's education of the senses, moral development and appreciation of nature through gardening, Mahatma Gandhi's belief that natural and rural



Figure 1. Garden work in a Swedish elementary school c.1900 (Stockholm: Norstedts, 1902; Åkerblom, 2004).

environments are important educational contexts, and Patty Hill's traditional approach to teaching young children emphasized the importance of gardening in children's learning (Subramianiam, 2002; Wellhousen, 2002). The tradition of school gardening in Sweden dates back to schools in the early nineteenth century. Since the first national arrangement in 1842, the school garden has been recognized as a teaching place. At first the primary reason for school gardening was food supply, but even in the 1800s creating a place that was pleasing to both the eye and the soul was also considered. The landscape architecture perspective is dominated by the planning and construction of primary schools from 1865 to 1995 (Åkerblom, 2004). This view from the example of gardening in 1900 in a primary school in Sweden is given in Figure 1.

When we look at the Turkish education system, there are two purposes for the emergence of school gardens. The first one is to train farmers who will contribute to

agricultural development, and the other is to provide education according to new education techniques as a result of the reflection of the new schools in Europe to our country. As a result of such legal arrangements, it is seen that practice areas were created in school gardens between 1940 and 1950. Since the importance given to agricultural production in the early years of the Republic and the 1960s did not continue in the following periods, school practice gardens also lost their importance over time (Gedikler, 2018). Figure 2 shows the Works in the Application Garden of Ankara Akçaviran Village Primary School.

In this study, it is aimed to create safe alternative environments where children can spend time in school gardens during both education and vacation times as a result of the decrease in open green areas and children's playgrounds in the city center of Van. Therefore, the gardens of 12 primary schools selected within the



Figure 2. One of the application garden of Ankara Akçaviran village primary school (Thrower, 1966).

framework of certain criteria affiliated to the Van Province İpekyolu Central District National Education Directorate were examined and analyzed in terms of landscape design standards. A landscape design proposal was developed in the garden of the primary school, which was selected in accordance with the standards, in line with the opinions of experts from the relevant occupational groups and the wishes of the students, keeping the needs, safety and health of children in the foreground. The prepared landscape design project proposal is thought to constitute a base that can set an example for the relevant shareholders in terms of the development of future or existing schools.

4. Material and Method

4.1. Material

The main material of the study was the gardens of primary schools in the central district of İpekyolu, which contains the most crowded and densest workplaces and public buildings from the central districts of Van, Edremit, Tusba, and İpekyolu. There are a total of 950 primary schools in the city of Van. In the study sample, the physical competencies of the school gardens were examined within the framework

of landscape design norms, and the landscape modeling of the Zaferler primary school garden, which was chosen as a pilot school, was carried out in order to improve it with the opinions of relevant experts and students. In order to develop the exemplary landscape design of the school garden, Zaferler Elementary School in the İpekyolu District, which is the densest in the city of Van, was chosen as the pilot school because it has the largest number of students and a large garden area (Anonymous, 2021), (Figure 3).

4.2. Method

The method process of the study; After determining the purpose and scope, it consisted of three main parts: Preparation, Data Collection-Analysis-Projecting and Evaluation. In the preparation phase, it consists of reviewing the literature on the subject and the field and examining the domestic and foreign related studies and projects. As a result of these researches, the landscape design norms and criteria of the school gardens were determined and it was decided to choose the school to carry out the study. The next stage includes data collection, analysis and project

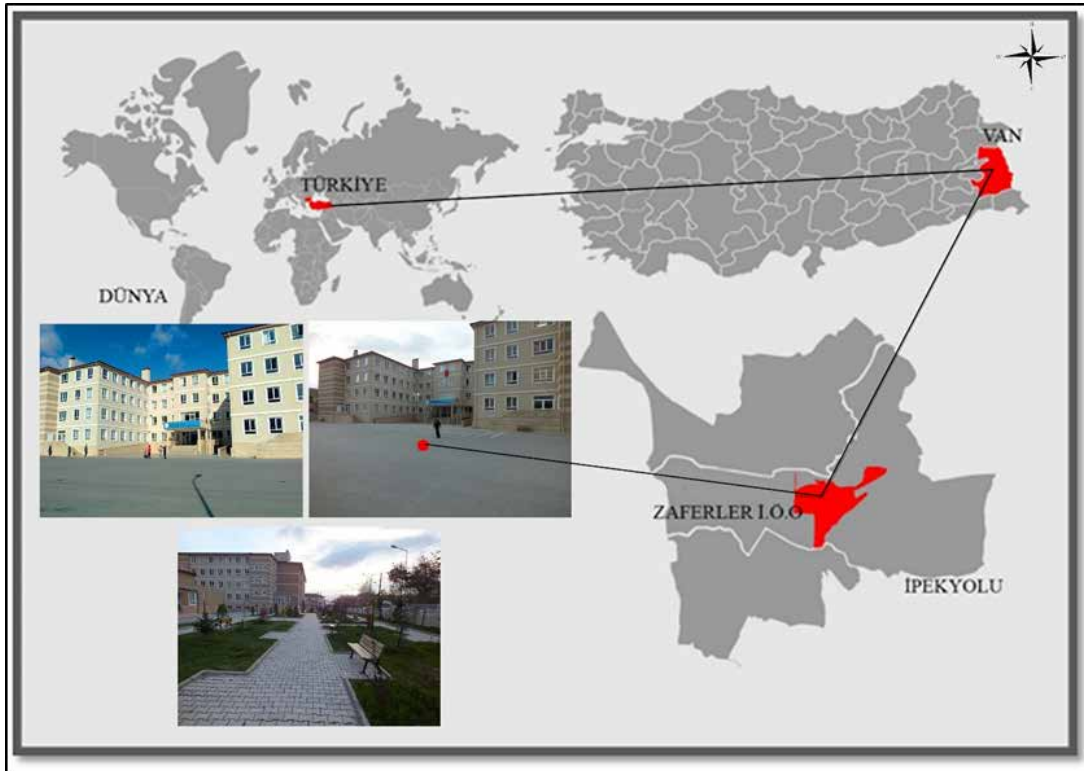


Figure 3. Location of the research area.

design. In this context, in line with the information received from the Van Provincial Directorate of National Education, the physical qualifications of 12 primary school gardens

selected from among 75 primary schools in İpekyolu district were examined within the framework of landscape design norms (Figure 4).

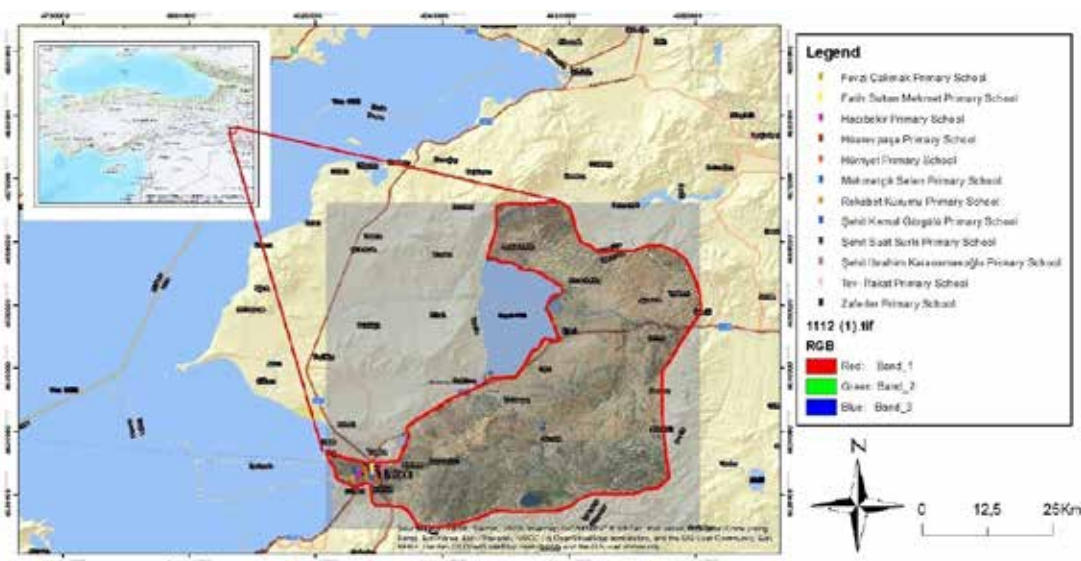


Figure 4. Location of 12 selected primary schools in İpekyolu district

After the current situation analysis, on-site examinations were made in all the selected primary schools and relevant information was collected from the school administration, students, teachers and staff. In addition, the necessary measurements were made to determine the compliance of the gardens with the norms and their adequacy in the spatial studies that will take place, and they were supported by photo shoots. Then, verbal interviews were made with the children in the relevant schools, and questions were asked, and information was obtained about what kind of areas the children wanted in the school garden. Oral interviews were conducted with 1 Psychologist, 1 Sociologist, 2 Psychological Counseling and Guidance Teachers, 2 Primary School Class Teachers and 4 Landscape Architects consisting of expert group. One-on-one interviews were conducted with this expert group and information was obtained about what they expected from the school gardens. Due to the pandemic conditions, 219 students consisting of 2-3-4-5-6 and 8th grade students in Mehmetçik Selen Primary School and Zaferler Primary School, which are two schools in İpekyolu District, were asked for their opinions on 9 questions. In line with these opinions, demands and suggestions, the landscape design project for the garden of Zaferler Primary School, which was determined as a pilot school, was realized.

5. Findings and Discussion

5.1. Garden Sizes of the Schools in the Study Area and Area Per Student

The values of the area calculated for 12 schools in İpekyolu District are presented in Table 1. Among the selected schools, it is seen that Hürriyet Primary School has the highest score per student with 6.09, and the Competition Authority Primary School has the least with 1,1. In the remaining 10 primary schools, the area per capita is between 0-5 m². According to the "Minimum Standards Guide for Educational Buildings" and "Primary Schools Physical Settlement General Rules Standard" published in 2015, the ideal standard that should be in developed regions is 20-25 m², but it has been observed that the areas per capita in the schools examined are far from this standard. Only 1 of the schools analyzed meets the standard of 4-4,5 m² according to the population specified in the Regulation on the Principles of Planning, published in the Official Gazette No. 18196. Only 7 of them comply with the 2 m² standard determined by the MEB (The Ministry of National Education) Private Education Institutions Standard.

Institutions Primary Schools	Building Face Measurement (m ²)	Garden Face measurement (m ²)	Total Students Number	Per Student Falling Garden Area (m ²)
Fevzi Çakmak	1.461	3.540	1.280	2,76
Hürriyet	739	3.734	613	6,09
Tev- İfkat	1.486	3.428	2.047	1,67
Hüsrevpaşa	1.058	3.656	1.663	2,19
Şehit Suat Surki	1.094	3.656	721	2,93
Rekabet Kurumu	1.002	2.767	2.449	1,1
Zaferler	1.646	7.142	2852	2,50
Mehmetçik Selen	737	1.658	1234	1,34
Şehit Kemal Görgülü	825	2.315	629	3,68
Fatih Sultan Mehmet	735	3.602	1.331	2,7
Şehit İbrahim Karaoğlanoğlu	1.025	2.357	981	2,4
Hacıbekir	728	5.008	1.306	4,06

Table 1. Title of the table in sentence case.

5.2. Current Situation Analysis of Uses in School Gardens

In the research area, information about the landscape elements that should be in the school gardens was obtained in terms of the school gardens landscape design principles. With the information forms prepared, one-to-one observations were made in 12 primary schools selected, and the data on the status of the landscape elements in the school gardens were analyzed. The results of the analyzes and examinations are given in Table 2.

Landscape elements that should be suitable (+), present but unsuitable (*), and absent (-)

As a result of the examinations made in 12 primary schools regarding the usage areas that should be found in the school gardens in the research area, it has been seen that the sports areas that are important for the development

of the students are insufficient. In the interviews with the students, 14.61% of the students stated that sports fields should be included in the school garden. However, when the current situation of the schools is examined, it has been determined that 91.66% of the 12 primary schools have football fields, 91.66% have basketball courts, 100% volleyball courts and 100% tennis courts are insufficient or not at all. In the study conducted by Vural (2016), in the city of Erzurum, it was determined that 90% of the football fields, 76% of the basketball courts, 70% of the volleyball courts and 98.5% of the tennis courts are insufficient or not at all. Considering the climatic conditions of the region where the research was conducted, it was seen that the indoor sports halls were also insufficient. Only 2 of the 12 primary schools examined have indoor sports halls. In Table 3, the image of some land uses in the gardens of the relevant schools are given.

School Name Primary Schools	Parade ground	Recreation Area	Outdoor Classroom	Football field	Basketball court	Volleyball court	Tennis court	Sitting Bench	Fountain	Lighting	Trash can	Practice Garden	Traditional Game Garden	Security hut	Car park
Fevzi Çakmak	+	-	-	-	-	-	-	+	-	-	+	-	-	+	+
Hürriyet	+	*	-	-	+	-	-	*	-	-	+	-	-	-	-
Hüsrevpaşa	+	-	-	-	*	*	-	+	*	-	+	-	+	+	-
Tev-İfkat	+	-	-	-	*	*	-	-	-	+	+	-	-	-	-
Şehit Suat Surki	+	*	-	-	-	-	-	*	-	-	+	-	-	-	-
Zaferler	+	-	-	-	*	-	-	-	-	+	+	-	*	+	-
Rekabet Kurumu	+	+	-	-	*	-	-	+	-	+	+	-	+	+	-
Mehmetçik Selen	+	-	-	-	-	-	-	+	+	-	+	-	-	-	-
Şehit Kemal Görgülü	+	*	-	-	-	-	-	-	*	-	+	-	+	+	-
Fatih Sultan Mehmet	+	-	-	-	*	-	-	+	-	+	+	-	+	-	-
Şehit İbrahim Karaođlanođlu	+	-	-	-	-	-	-	-	-	+	*	-	*	-	-
Hacıbekir	+	*	-	+	-	-	-	*	*	+	+	-	-	-	-

Table 2. Analysis of current use of school gardens
















		
Hürriyet P.School	Şehit Kemal Görgülü P. School	Mehmetçik Selen P.School
Examples of existing recreation areas in school gardens		
		
Şehit İ. Karaoğlanoğlu P. School	Zaferler P. School	Hüsrevpaşa P. School
Examples of existing containment elements in primary school gardens		
		
Şehit Kemal P. School	Şehit İ. Karaoğlanoğlu P. School	Hüsrevpaşa P. School
Examples of existing traditional playgrounds in schoolyards		
		
Hürriyet P.School	Tev-ıfkat P. School	Hacıbekir P. School
Examples of existing ceremonial areas in school gardens		
		
Mehmetçik Selen P. School	Fatih Sultan Mehmet P. School	Hacıbekir P.School
Examples of sports fields available in school gardens		

Table 3. Some land uses in the gardens of the relevant schools

The inadequacies in the current situation of the schools in the research area do not apply only to the gymnasium. Of the other uses, 91.67% are sitting areas, 100% are open-air classrooms, 100% are amphitheater, 58.34% are benches, 50% are lighting elements, 91.67% are fountains, 100% are There is insufficient or no application garden in the world, traditional playground in 66.66%, and parking area in 83%. In other studies, conducted in Turkey, evaluations were made about the uses in the school garden. In the study conducted in Erzurum city, it was determined that 89% of them have insufficient seating, 79% of them parking lots, 95% of them sitting benches, 95% of them fountains, 73% of them lighting and 64% of them garbage bins are insufficient or not at all (Vural, 2016). As seen in the study area and in other studies conducted in Turkey, there are the most ceremonial areas in the school gardens. In 100% of the schools examined within the scope of the research, the ceremony areas is at a sufficient level. Flag ceremonies, special days and national holidays make use of the ceremonial areas. For this reason, school administrations attach great importance to ceremonial areas. However, according to the school administrators, it was seen that other areas of use were not as important as the ceremonial area. According

to the results, other areas of use in the school area are not given much importance. Another important issue for children playing during recess is the flooring they play. In all of the schools examined in the research area, there is an excess of hard floors. Asphalt is generally used as hard ground. On the other hand, the green areas are sloppy, it is noteworthy that the grass areas are generally eroded. Similar determinations were made by Karakaya and Kiper (2013), Başar (2000), Vural (2016), Aksu and Dermirel (2011), Şişman and Gültürk (2011), Erdönmez (2006) for other provinces. For example, according to the results of the study conducted by Karakaya and Kiper (2013) in Edirne, it was stated that most of the school gardens analyzed were composed of asphalt and concrete floors, plant areas were insufficient, and there were no areas that would contribute to the physical, psychological, and social development of children. Another study is the study of Erdönmez (2006) on school gardens in our country.

As a result of the interviews about the transportation of the students to the school, it was determined that 63.01% of the children went to school by walking, 10.50% by public transport and 26.48% by private bus. The questions asked about the way students benefit from the school gardens are

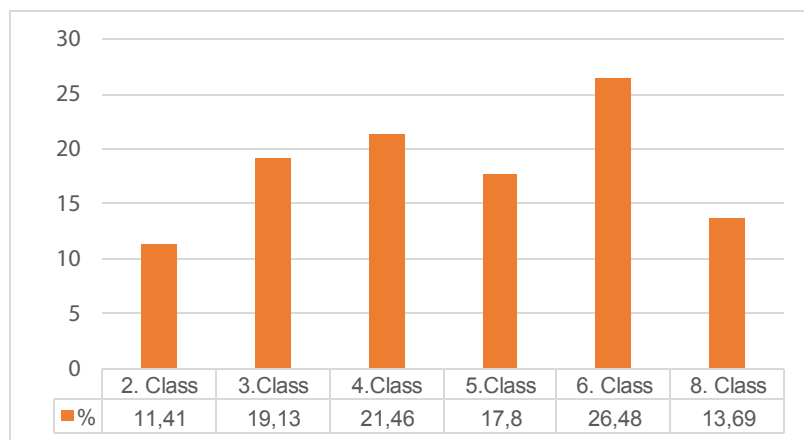


Figure 4. Graphical distribution of the students who participated in the interview by grade

Reply		Number of Students	%
Students Time at Recess The Areas They Passed	In the classroom	123	56.16
	In School Hallways	52	23.74
	In the school garden	44	20.09
	Total	219	100
Reply		Number of Students	%
Students' School Using Your Garden Purposes	Educational Purposes	37	16,89
	Game-Sports Purpose	124	56,62
	For Social Activity Purposes	52	23,74
	Other Purposes	6	2,73
	Total	219	100
Reply		Number of Students	%
Outside School Hours Schoolyard For what Are you using?	Play a game	42	19,17
	Sports Activity	36	16,43
	Meeting with Friends	53	24,20
	Other Activities	35	15,98
	I don't use	53	24,20
	Total	219	100

Table 4. How students benefit from school gardens

given in Table 4.

As a result of the interviews conducted with the students about where they spend more time during breaks outside of class hours at school, it has been determined that 56.16% of the students spend their time in the classroom during recess as well. When the students were asked for what purpose, they mostly used the school garden, as a result of the interviews, 56.62% of the students used the school garden for play and sports, the students were asked whether they use the school garden outside of school hours

(weekend, semester break, summer vacation) and if they do, for what purpose. According to the information obtained at the end of the interview, it was determined that 24.20% of the students did not use the school garden, while 24.20% used the school garden to meet with friends. The students were asked which areas of use they would like to have had the school garden been rearranged. According to the data obtained as a result of the interview, it was revealed that the students wanted the most exhibition space with 15.98% (Table 5).

Reply		Number of Students	%
In the schoolyard of your materials Whether You Want Color They don't want	I want it to be colorful	130	59.36
	It doesn't matter	54	24.65
	I don't want it to be colored	35	15.98
	Total	219	100
Reply		Number of Students	%
of the schoolyard Is it enough not	Sufficient	81	36.98
	Sufficient but lacking	97	44.29
	Insufficient	41	23.74
	Total	219	100
Reply		Number of Students	%
Students to School Arrival and Lesson Influence on His Work	It Has an Effect	129	58,90
	It doesn't matter	59	26,94
	No Effect	32	14,61
	Total	219	100

Table 5. Students' opinions about the school garden

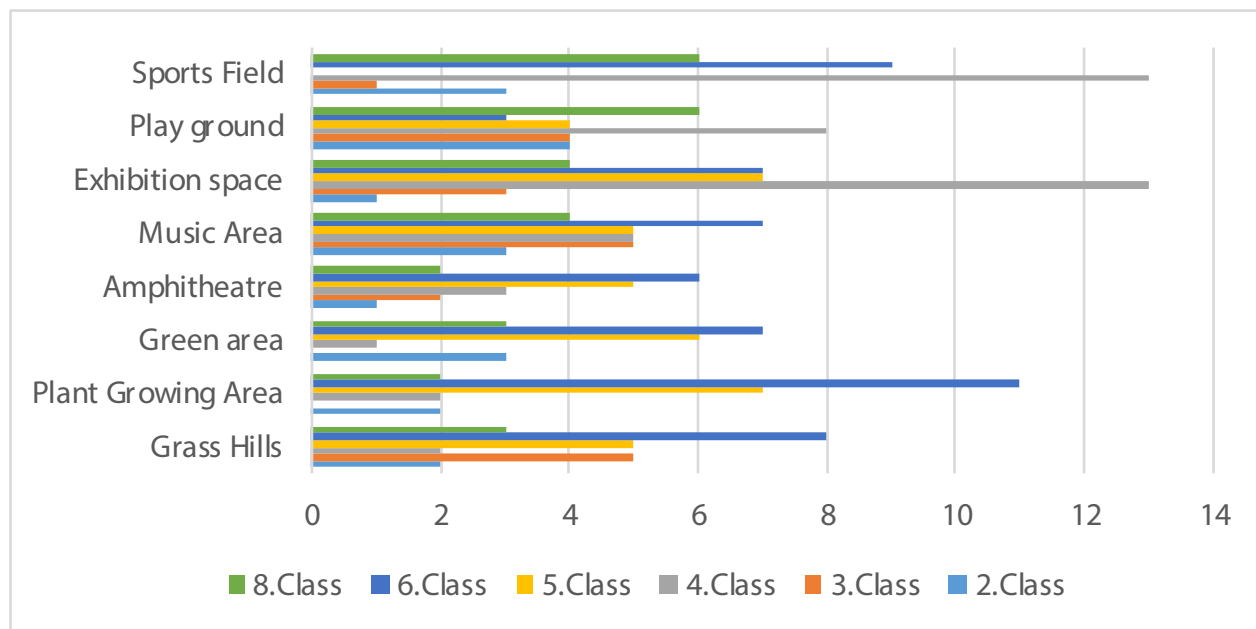


Figure 5. Student preferences for the uses they want to be included in the schoolyards by grades (%)

The students were asked whether the school garden was sufficient. 44.29% of the students stated that the school garden was sufficient but there were deficiencies. When asked about whether they wanted colored materials in the school garden, 59.36% of them stated that they wanted colored materials. It was asked whether the school garden had an effect on the students coming to school and studying, and 58.90% of the students stated that the school garden had an effect on their coming to school. The distribution of the areas that they would like to have in the school garden in case the school garden is redesigned, according to the classes, is given in Figure 5.

In the interview with 25 second-year students, 21% of the students stated that they wanted the playground the most. In the interview with 20 students studying in the 3rd grade, 25% of the students stated that they wanted music areas and grass hills the most.

In the interview with 47 students studying in the 4th grade, maximum 13% of the students stated that they wanted an

exhibition area and a sports area.

In the interview with 39 5th grade students, maximum 18% of the students stated that they wanted an exhibition area and a plant growing area.

In the interview with 58 6th grade students, maximum 19% of the students stated that they wanted a plant growing area.

In the interview with 30 8th grade students, maximum 20% of the students stated that they wanted a sports field and a playground.

6. Conclusion and Recommendations

School gardens should not be thought of only as ceremonial areas and playgrounds. There should be spaces where children can learn about life, be in touch with nature, have fun, and learn while having fun. It should not be forgotten that these areas should raise individuals' sensitive to nature as well as the physical and spiritual development of children. In general, it was seen that the 12 primary schools examined in Van province were very inadequate in terms of the areas that should be included in the school garden. It has been examined in studies conducted in different

provinces and it has been observed that school gardens are generally insufficient in all provinces. However, it has been observed that the usage areas are better in other provinces compared to the province of Van. The reason for this is the geographical location of the province of Van, unconsciousness and the benefits of school gardens for education. In this study, student and expert opinions were sought to determine the proficiency levels of school gardens. The opinions of students who are users of school gardens are of great importance. In the interviews with the experts, it was stated that there are insufficient areas where children can spend time in the school garden and contribute to their development. In the interviews with the students, 44.29% stated that the areas of the school gardens are sufficient, but there are deficiencies in terms of functionality. The visuals of the areas included in the proposed landscape design project are in Table 6 and their functions are given below:

1- Pedestrian and vehicle entrance- Parking lot: In the design proposal, the pedestrian entrance and the vehicle entrance were designed separately, and the north door was used as the pedestrian entrance. At the entrance, it is recommended to use the green and yellow spotted hedge plant *Euonymus japonica* 'Aurea'. The south part is designed as a parking lot for 20 cars. *Liquidamber orientalis* Mill, which, as a tree, will be able to see four colors together in red, orange, yellow and green tones in autumn. A vegetative design has been proposed to soften the concrete appearance of the parking lot with the color effect of, *Cercis siliquastrum* L. with its pink flowers blooming in spring, and *Picea pungens* 'Glauca' an evergreen coniferous species. As a shrub, *Lonicera nitida* L. with its fragrant white flowers, resistant to drought and giving the area a green cover texture, *Buddleia davidii* Franch with its long-term blooming fragrant purple flowers has also been suggested to use *Buxus sempervirens* L. as an evergreen and suitable for pruning restraint.

2-Ceremony area: It was integrated with the entrance of the garden and was designed considering the number of students in accordance with the Spatial Plans Construction Regulation. This area creates a large open space for students. In addition, it is aimed to provide motivation

to the children by writing quotations on the ground in the ceremony area. *Platanus orientalis* L. which provides dominance in the field with its use of shadow and solitary herbal, has been suggested.

3- Demonstration area and open classroom: In the interviews with the students, 9.58% of the students stated that they wanted a demonstration and open classroom space. The area designated as a demonstration area and an open classroom in the design has been proposed to be used jointly for two different purposes. In this area, there are amphitheater and blackboards where students can freely paint and draw with the thought that they will contribute to their mental development. In herbal design, *Malus flaribunda* is one of the plants recommended, giving users the chance to collect fruit from the trees with its small and sweet fruits as well as the color effect from the trees.

4- Music wall: This wall is colorfully designed with replaceable materials and considering the students' color preferences. A music wall was designed, where students would be familiar with different sounds by creating rhythms together and suggesting more creative ideas. As a result of the interviews with the students, 13.24% of the students stated that they wanted a field of music. Especially since there are many disabled students in the school designed, the music area was designed considering that it would be important for the development of disabled students.

5- Texture transition area: In this area, which consists of different textures and colors, children can be taught numbers, colors, and geometric shapes in a fun way. An area has been designed that visually impaired students in the school can also benefit by touching.

6- Dialogue way: This road includes different functional features and is designed as an area where children will communicate more with each other, learn together, and spend time together. In this area, the use of *Ligustrum japonica* with its variegated color effect, *Syringa vulgaris* that adds movement to the area with its purple-colored flowers in the form of shrubs, and *Rosa* sp.

7- Exhibition space: In the interviews with the students,

it was stated that the majority of the students wanted an exhibition space at the rate of 15.98%. The exhibition area is associated with the amphitheater area and the use of panels designed specifically for this area is suggested.

8- Playgrounds: As a result of the interview with the students, 15.06% stated that they wanted a playground. In the light of interviews with experts and students, it was emphasized that playgrounds should be made according to age groups. In the design, playgrounds are designed as areas where children can play many games at the same time by using more complex playground equipment. The survivor area and the traditional playground, where children's competitive and sharing features develop, are integrated into these areas. These areas consist of different textures such as sand, soil, bark, grass. A children's playground with a separate sand floor is designed for kindergarten students, and a separate children's playground is designed for other

students. In planting design, *Cupressocyparis leylandii* M.L. was used in order to create a green wall with a curtain feature that will not harm children, especially where children will not run or hang out and *Cupressus arizonica* Greene, *Ligustrum japonicum* Thunb. has been proposed. In the area designed for kindergarten children as flooring, silica sand is recommended where children will not be harmed when they fall, and tree bark is recommended for the other playground.

9- Visitor waiting area: In the school garden, the areas where parents, students and teachers can wait, rest and students can sit and talk are designed in a dialogue way.

10- Garden of senses: It has been proposed to design a fragrance garden integrated into the music wall and to include suitable plants with different scents and colors. A garden has been designed for visually impaired students



1- Schoolyard pedestrian entrance



2- Parade ground



3- Demonstration space, open classroom, and doodle walls



4- Music wall



5- Tissue area



6- Dialogue way



7- Exhibition space



8- Play ground



9- Visitor waiting and meeting area



10- Sense garden



11- Plant growing area



12- Grass hills

Table 6. Images of landscape modeling in Zaferler Primary School Garden Example

that can perceive the area with smells.

11- Plant growing area: As a result of the data obtained from the interviews with the students, 10.95% of the students stated that they wanted a plant growing area. The plant growing area is designed with the concept of nature and children, as an area where children grow their own plants and especially have the opportunity to get to know local plants.

12- Grass hills: The grass hills in the proposed design are integrated into other playgrounds. By providing a slope on the ground, an area where children can climb and engage in

physical activity is designed.

As a result, according to the data obtained from the studies conducted in the study area and in other cities, it was determined that the areas that should be school gardens are insufficient in terms of quantity and quality. In addition, it has been determined that the activity areas in the school gardens do not comply with a certain standard and there is no detailed legislation belonging to the Ministry of National Education. According to these results, attention should be paid to the improvement of existing schools, the space per student and other uses in the schools to be built in the future. However, the following recommendations should be



Figure 6. The entire proposed project area

considered in terms of landscape principles.

- Flag ceremony, celebration, etc. For the use of activities, a ceremonial area should be provided with 1 m² area per student, taking into account the number of students. Some studies should be done to instill love for animals in school gardens.
- Flooring, playgrounds, etc. The equipment elements should be chosen carefully and they should be designed in such a way that they will not cause any harm to the children.
- There should be one classroom open-air classroom space in each school yard. This open-air classroom area should be arranged as 1 m² per student.
- Playgrounds in school gardens should be arranged according to age groups and should be designed according to the wishes and needs of each age group.
- Playgrounds should be shaded and in such a way that children can create a space for themselves.
- The playground should be separated by using plant or structural elements limiting the playground for small age groups.
- Green areas should be increased and regularly maintained, plants should be used to prevent dust and noise.
- Areas should be created for activities such as running, jumping and jumping, which are necessary for the physical development of children.
- In order to establish a link between the past and the future, traditional playgrounds should be preferred in school gardens as well as modern playgrounds.
- The school garden should be aesthetically pleasing, and plant selection should be made by considering all seasons.
- An area should be designed where teachers can rest between lessons.

Many scientific studies have shown that it is of great importance to design school gardens to meet the needs of children. Within the scope of this study, a landscape design project for the primary school garden was developed, which was chosen with an understanding that will bring environmental awareness to children and contribute to the physical, spiritual, and cognitive development of children. It is thought that the outputs of the study can contribute to the literature and set an example for the improvement works to be done in the gardens of the existing schools or for the school garden projects to be done from now on.

Conflict of Interests

The authors declare no conflict of interests.

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