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Beyond the Classroom: Schoolyards as Alternative Learning Environments Across Socioeconomic Context

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Article

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Posted Date: November 13th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11205939/v1

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Additional Declarations: No competing interests reported.

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Abstract

This study examines how school gardens function as alternative learning environments across primary schools representing different SES levels. Using a multiple case study design, data were collected through semi-structured interviews with 18 classroom teachers and naturalistic observations in six primary schools representing low-, middle-, and high-SES contexts. Findings indicate that while the physical characteristics of school gardens were largely standardized across schools, their pedagogical use varied by socioeconomic context. Gardens in low-SES schools were used mainly for physical education, whereas those in middle- and high-SES schools were more frequently integrated into science, mathematics, and literacy instruction. Teachers identified limited physical facilities, curriculum and time constraints, safety concerns, and parental expectations as key barriers to effective use. Interpreted through Bourdieu and Passeron's theory of social reproduction, the findings suggest that the educational value of school gardens depends not only on physical infrastructure but also on teacher competencies, institutional support, and socioeconomic context.

Keywords: School grounds, outdoor learning environments, socioeconomic context

INTRODUCTION

From the earliest periods of human history, societies have strived to transmit their knowledge and values to future generations; with the invention of writing, this process gained a systematic character. As societies became more complex, the transmission of knowledge became institutionalized, and education developed as one of the fundamental institutions of society. The school, which emerged as a concrete response to this need, assumed the function of a fundamental institution where social order is reproduced, cultural heritage is preserved, and the individual's integration into society is ensured (Başaran, 1994). Throughout history, the functions of the school have diversified; in addition to its functions of cultural transmission and instruction, it has also played important roles as a tool for political, moral, and ideological construction (Durkheim, 1956). From the 20th century onwards, schools have built upon these historical roots, acquiring a multifaceted set of functions: beyond the transfer of knowledge and skills, the socialization of individuals, preparation for economic life, the reproduction or transformation of social inequalities, and the shaping of cultural identity are all responsibilities simultaneously undertaken by the modern school (Parsons, 1959; Bourdieu & Passeron , 1990; Arvasi , 2008; İhtiyaroğlu , 2020; Dikici, 2022).

Learning is not a process that takes place solely within the classroom; the entire physical environment of the school has an important pedagogical function (Gislason , 2010). However, schoolyards have for many years been primarily considered as areas for recess and rest. In recent years, however, they have been reconceptualized as alternative learning environments that support students' cognitive, social, physical, and emotional development (Martensson et al., 2014).

Schoolyards, considered as alternative learning environments, are recognized as important outdoor learning and play areas that support children's mental capacities, social competencies, motor development, and interaction with nature. This function makes them particularly prominent in the context of early childhood education (Algan and Uslu, 2009; Clemente , 2016; Largo- Wight et al., 2018; Tuuling et al., 2019). Outdoor spaces offer a unique learning experience that keeps children's curiosity alive by allowing them to get to know both themselves and nature through their senses (Louv , 2008; Ouvry , 2003). With their natural and semi-structured nature, schoolyards enable children to gain freedom of movement, establish meaningful relationships with their peers, and reinforce the knowledge they acquire in the classroom through concrete experiences (Fjortoft , 2001).

The schoolyard is considered not merely a physical outdoor space, but a structured learning environment that facilitates planned learning activities. Miller (2005, p. 49) defines schoolyards as planned agricultural activity areas located within school boundaries, designed and developed by students, and based on a garden-based learning approach. In this respect, schoolyards contribute to students' learning of concepts related to mathematics, science, and other disciplines through direct experiences by enabling the concretization of abstract concepts through natural materials and experience-based activities (Miller, 2005; Ouvry , 2003).

All kinds of educational activities that can be carried out in schoolyards allow children to use their creative thinking processes and physical skills holistically because they simultaneously activate different senses such as touch, sight, smell, and hearing (Chakravarth, 2009). The literature frequently emphasizes that multisensory learning environments increase the retention of learning, support attention and motivation, and contribute to children's ability to construct knowledge in a more meaningful way (Montessori, 1967; Sousa , 2017). It is particularly noted that experience-based and sensory-based learning strengthens children's cognitive development; and that knowledge acquired through concrete experiences becomes more permanent (Dewey, 1938; Piaget, 1952). In addition, it is stated that outdoor learning environments positively affect children's problem-solving, creativity, attention span, and environmental awareness levels (Louv, 2008; Kellert, 2005). In this respect, schoolyards are considered functional learning spaces that support children's processes of exploration, planning, and implementing those plans (Chakravarthi , 2009).

Schoolyards, with all these functions, also constitute a privileged learning environment in terms of acquiring 21st-century skills. 21. The changing conditions of the 21st century information society require individuals not only to access information but also to develop skills that enable them to question, produce, and effectively utilize it. In this context, schoolyards stand out as privileged learning environments that allow students to conduct research, collaborate, utilize scientific process skills, and construct knowledge through experience (Türkmen, 2018). Skills such as critical thinking, collaboration, communication, and creativity, which form the basis of 21st-century skills, cannot be expected to be acquired solely in the classroom (Türkmen, 2018). Interaction with the natural environment strengthens creative thinking by supporting attention, focus, and mental flexibility; therefore, schoolyards are considered important learning environments that allow students to generate original ideas, collaborate, and develop 21st-century skills through experience (King & Gurland, 2007; Silva, 2009; Trilling & Fabel, 2009).

For this reason, schoolyards are important learning environments that support the development of 21st-century skills.

The learning opportunities offered by schoolyards are of particular importance for primary school students who learn through concrete experiences and direct interaction with the environment. In this respect, schoolyards are not only recess areas; they are important educational environments that support students' academic, social, and emotional development and integrate learning with real-life experiences. Indeed, Patchen et al. (2024) revealed that regular access to schoolyards in primary schools has significant positive effects on students' attention, school belonging, social development, and stress levels. Similarly, a participatory action study conducted over two years in five primary schools in the Netherlands by Van Dijk-Wesselius et al. (2020) showed that when greened schoolyards are integrated as outdoor learning environments, they positively affect academic achievement, observational thinking, and reasoning skills, but also drew attention to the various obstacles teachers face in using these areas for educational purposes. Mann et al. A systematic review by (2022) synthesized 147 studies examining the effects of outdoor learning on the personal and social development, well-being, and academic progress of school-aged children; it emphasized that natural environments have a strong potential, especially in terms of socio -emotional competencies. In a study conducted by Kuo et al. (2018), it was found that after outdoor lessons, children's focus on classroom tasks increased significantly, and the need for teacher guidance decreased by almost half. These findings show that primary school gardens are not only areas where physical activities are carried out; they should be considered as important pedagogical learning environments that support students' attention, motivation, and socio-emotional development, and improve the quality of learning processes. The findings of an experimental intervention study conducted by Verheyen et al. (2025) show that enriching green spaces in school gardens with biodiversity contributes to significant improvements in children's selective attention, cognitive performance, and prosocial behaviors. These findings demonstrate that nature-based school environments support children's cognitive and socio-emotional development. Becker et al. While (2017) points out methodological limitations, the existing evidence suggests that outdoor teaching is more effective than traditional classroom teaching. Accordingly, schoolyards are considered pedagogically important learning environments for primary school students. However, the number of studies on how this pedagogical potential of schoolyards is shaped in different school contexts and how it is reflected in teaching processes is quite limited. The limited number of studies in the literature examining the effects of socioeconomic environmental conditions on the physical characteristics, usage patterns, and learning opportunities offered by schoolyards necessitates considering schoolyards as alternative learning environments in different socioeconomic contexts.

The opportunities offered by schoolyards as learning spaces vary according to socioeconomic context. Research shows that limited access to nature-based learning opportunities, especially in schools with low socioeconomic status, can exacerbate academic achievement inequalities. Ray et al. (2016), in their study conducted in urban elementary schools in the USA, found that the participation of students from low-income and minority groups in schoolyard activities positively affected their academic achievement. This finding demonstrates that schoolyards are

important learning environments that can contribute to supporting equal opportunities in education. In a comprehensive study conducted by Browning and Rigolon (2019), it was documented that in low socioeconomic schools across the USA, nature access scores decreased as the rate of impoverished students increased. When considered within the framework of models supported by Sirin 's (2005) meta-analytic synthesis in educational research and developed in subsequent years, it is seen that the effect of socioeconomic status (SES) on student achievement at the individual level intersects with SES; A large data study covering 54 countries found that school-level SES was a stronger predictor of individual SES than school-level SES (Dyment, 2005a). This finding implies that schoolyard quality and equipment level should be considered as a component of the SES effect dissipated through pedagogical processes in the classroom. Similarly, umbrella reviews in the field of educational psychology emphasize that policies aimed at improving learning outcomes for students with low SES should adopt multidimensional approaches that highlight students' strengths, broaden access to resources, and directly target structural inequalities (Wang & Degol, 2024). Therefore, schoolyards have the potential to reduce educational opportunity inequalities, especially in socioeconomically disadvantaged communities; when considered as alternative learning environments, their socioeconomic context should be taken into account as well as their pedagogical functions.

Theoretical Framework

This research is based on three fundamental theoretical perspectives. First, the experiential learning theory, established by John Dewey (1938) and Jean Piaget (1952), argues that learning occurs through doing, experiencing, and experimentation. In this context, schoolyards are natural learning environments that allow students to construct abstract concepts by experiencing them in real-life contexts. The second theoretical perspective is Lev Vygotsky's (1978) sociocultural theory and the concept of the Zone of Proximal Development (ZPD). According to this theory, learning takes place through social interactions with teachers and peers; schoolyards provide collaborative learning environments that support this interaction. From this perspective, schoolyards are social learning environments where students participate in processes of exploration, problem-solving, and collaborative knowledge production by interacting with their peers and teachers. The third theoretical perspective is Pierre Bourdieu and Jean-Claude Passeron's (1990) theory of social reproduction in education. According to this theory, the education system, in addition to imparting knowledge and skills, can also reproduce social and cultural inequalities. In this context, the learning opportunities offered by schoolyards can also differ depending on the socioeconomic environment of the schools; unequal learning opportunities may arise among students in terms of physical characteristics, equipment, and learning materials. These differences can affect students' access to experience-based learning opportunities, contributing to the reproduction of educational advantages and disadvantages. In this respect, schoolyards can be considered not only as physical spaces but also as learning environments where social and cultural capital is reflected in educational processes.

Dewey's experiential learning approach, Vygotsky's sociocultural learning theory, and Bourdieu and Passeron's social reproduction theory are considered together, it becomes clear that the

educational function of schoolyards cannot be explained solely by their physical characteristics. This research, starting from this theoretical framework, examines how the socioeconomic context shapes the potential of schoolyards as learning environments. Accordingly, the characteristics of schoolyards in primary schools at different socioeconomic levels and the ways in which these areas are used in teaching processes are compared.

Importance of the Current Study (Purpose and Significance of the Research)

The main objective of this research is to comparatively examine how schoolyards in primary schools located in different socioeconomic regions function as alternative learning environments in terms of physical equipment and teacher usage practices. In line with this general objective, the research investigated: (1) how the physical characteristics and equipment features of primary schoolyards in different socioeconomic levels differ, (2) in what ways teachers use schoolyards for pedagogical purposes and what factors influence this use, and (3) how the socioeconomic context shapes the physical characteristics of schoolyards and their integration into teaching processes. The research was designed using a qualitative research approach; schoolyards in primary schools representing different socioeconomic levels were comprehensively evaluated through observation and semi-structured interview methods.

A review of the literature reveals that research on schoolyards mostly focuses on highlighting the educational and developmental contributions of these spaces, but only to a limited extent addresses the impact of the socioeconomic and environmental context in which these contributions occur (Berezowitz , Bontrager; Yoder & Schoeller, 2015; Becker et al., 2017; Mann et al., 2022; Van Dijk-Wesselius et al., 2020). This situation points to a significant knowledge gap regarding how the pedagogical functions of schoolyards are shaped in different socioeconomic contexts. Furthermore, the literature is largely based on research conducted in Western Europe and North America (Van Dijk-Wesselius et al., 2020; Verheyen et al., 2025). Studies in Turkey, on the other hand, mainly focus on the physical characteristics and usage levels of schoolyards in preschool education institutions (Algan & Uslu, 2009; Özdemir & Çorakçı, 2011; Sarıtaş, Şahin & Türköz, 2016; Tepebağ & Aktaş Arnas, 2017). Therefore, research is needed to examine how the pedagogical opportunities offered by schoolyards as alternative learning environments vary in different socioeconomic contexts.

Therefore, there is a need for qualitative research that comparatively examines schools at different socioeconomic levels. Furthermore, schoolyard research has not adequately addressed how teachers integrate these spaces into teaching processes, under what conditions they use them effectively, and the challenges they face (Rickinson et al., 2004; Dyment, 2005b; Waite, 2011; Van Dijk-Wesselius et al., 2020). This research aims to contribute to the literature by examining schoolyards within the framework of socioeconomic context and teacher experiences, building upon these gaps.

Research Problem

The main problem of this research is to determine how the physical characteristics of schoolyards as an alternative learning environment, their integration into teaching processes,

the difficulties encountered in their use, and suggestions for their effective use differ in primary schools at different socioeconomic levels.

Sub-problems

1. How do the physical characteristics and learning opportunities of schoolyards differ in primary schools from different socioeconomic levels?
2. How do teachers in primary schools from different socioeconomic levels integrate schoolyards into the teaching process?
3. What are the challenges encountered in using schoolyards for teaching purposes in primary schools from different socioeconomic levels?
4. What are some teacher suggestions for making more effective use of schoolyards for teaching purposes in primary schools from different socioeconomic levels?

METHODOLOGY

Research Design

This research is designed as a multiple case study based on a qualitative research approach, aiming to examine how primary schools in different socio -economic environments utilize their schoolyards as learning environments. A multiple case study involves examining the same phenomenon in different contexts and comparing the findings between these cases (Yin, 2018). Stake (2006) also states that multiple case studies offer researchers the opportunity to understand each case within its own context, as well as to reveal common patterns among cases. In this research, each school was first analyzed in detail within itself, and then similarities and differences between cases were examined to determine general themes and patterns. Each school was considered as a separate “case” within its own physical, social, and socio -economic characteristics. In the study, six primary schools representing high, medium, and low socio-economic levels were considered as separate cases; after examining each school within its own context, comparisons were made between the cases.

Working Group

Purposive sampling was used to determine the study group for this research. Since the research comparatively examines the experiences of primary schools at different socioeconomic levels in using their schoolyards as learning environments, a socioeconomic stratified sampling approach was adopted. Accordingly, six primary schools representing high, middle, and low socioeconomic levels (SES) were included in the study. The selection of schools was based on data from the Turkish Statistical Institute (TÜİK), the socioeconomic characteristics of the neighborhood where the school is located, and information obtained from school administrators. In accordance with ethical principles, the real names of the schools included in the research were not reported; codes A, B, and C were used for each school (Table 1). Furthermore, the study included a section explaining the impact of neighborhood-based environmental and social differences on children's developmental experiences, titled " Neighborhood ". Within the framework of the "environmental effects " approach, the decisive

role of children's living environment on learning opportunities, social interaction patterns, and outdoor experiences has been considered (Bronfenbrenner, 1979; Brooks- Gunn, Duncan, Klebanov & Sealand, 1993; Leventhal & Brooks- Gunn, 2000). It has been accepted that the impact of environmental factors on children's cognitive, social, and physical development processes can be reflected in the ways schoolyards are used.

Maximum diversity sampling, a type of purposeful sampling, was used to select the teachers who would participate in the research. The main purpose of maximum diversity sampling is to reveal different dimensions of the phenomenon under investigation by presenting the views and experiences of participants with different characteristics that may be related to the research topic (Patton, 2015). In this context, the aim was to reflect different experiences and perspectives regarding the use of schoolyards in teaching processes by considering the teachers' gender, professional seniority, and the grade level they work in when forming the study group. The study group consisted of a total of 18 classroom teachers working in six different primary schools representing high, medium, and low socioeconomic status (SES) (Table 2). The number of participants was not determined beforehand; the data collection process was carried out in accordance with the principle of data saturation. The data collection process was terminated when the data obtained from the interviews began to repeat and no new themes or categories emerged.

Table 1. Socio -economic indicators of schools.

School	Socioeconomic Level	Education Level %	Neighborhood Characteristics	Garden Features
School A1	High	61% Bachelor's Degree	High level of education and income	Structured garden
School A2	High	53% Bachelor's Degree	High level of education and income	Structured garden
School B1	Middle	35% Bachelor's Degree	Middle income and education level	Semi-structured garden
School B2	Middle	42% Bachelor's Degree	Middle income and education level	Semi-structured garden
School C1	Low	5% Bachelor's Degree	Low income and education level	Unstructured large garden
School C2	Low	4% Bachelor's Degree	Low income and education level	Unstructured garden

Table 2. Demographic characteristics of participating teachers.

Teacher Codes	School	Gender	Seniority	The Class in Which He/She Serves
O1	A1	K	25	1
O2	A1	K	29	2
O3	A1	K	33	3
O4	A2	K	35	4
O5	A2	E	22	1
O6	A2	E	32	2
O7	B1	K	21	3
O8	B1	K	20	4
O9	B1	K	25	1
O10	B2	K	24	2
O11	B2	E	18	3
O12	B2	E	15	4
O13	C1	K	18	1
O14	C1	K	22	2
O15	C1	K	15	4
O16	C2	K	25	2
O17	C2	E	24	3
O18	C2	E	20	4

Data Collection

In this study, semi-structured interviews and natural environment observations were used as data collection tools. Interview data were collected face-to-face from 18 classroom teachers in their respective schools using a semi-structured interview form consisting of 17 questions. With the participants' permission, audio recordings were made and transcribed. To ensure the content validity of the interview form, opinions were obtained from three experts—two from the field of Educational Programs and Instruction, and one from the field of Language and Expression—and the form was finalized after necessary adjustments.

The structured observation form used in the research was developed in line with the research objective, research questions, and interview themes. The form consists of five sections: the physical characteristics of the schoolyard, its use for teaching purposes, students' participation in learning activities, factors supporting and limiting teaching, and field notes. To ensure content validity, the opinions of two experts from the fields of Classroom Education and Curriculum and Instruction were obtained, and the form was finalized after necessary adjustments. To ensure data diversification, natural environment observations were conducted during class hours for one day at each school; field notes were taken in accordance with the observation form by adopting the role of a non-participatory observer.

Data Analysis

The data obtained from the research were analyzed using the content analysis method. Participants' statements were transcribed into written text, coded, and sub-themes were created.

Coding is the process of analyzing data by breaking it down into parts (Creswell, 2013). To ensure the reliability of the research, the data was coded by a field expert outside the researcher, and the sub-themes were compared. Whether the codes for the themes coincided was evaluated using the formula "Agreement / (Agreement + Disagreement) x 100" (Miles & Huberman , 1994). The average reliability for the aforementioned themes was found to be 94% (range: 75-100). Consistency in the research was ensured by conducting analyses until an agreement was reached between the researcher and the expert. The analysis process consisted of the following steps: transcribing the interviews; organizing observation notes; creating open codes; converting the codes into categories and themes; and comparing the themes based on their socio -economic context.

The data obtained from the observation form were analyzed in two stages. In the first stage, they were examined through checklists and comparative tables. In the second stage, the field notes taken during the observation process were subjected to content analysis; similar expressions were coded to create categories and themes. The obtained observation findings were evaluated together with the interview data to ensure data diversification and increase the credibility of the findings.

RESULTS

The data obtained from the participants' opinions and observation forms as a result of the research are presented under 4 (four) themes. The themes are: Physical and functional characteristics of schoolyards, integration of schoolyards into education, difficulties encountered in the use of schoolyards, and suggestions for the effective use of schoolyards. The data are presented in order according to the themes.

Physical and functional characteristics of schoolyards

As a result of the analysis of observation and interview data, this theme was further divided into sub-themes: area size and layout, natural environment and green spaces, and physical limitations (Figure 1).

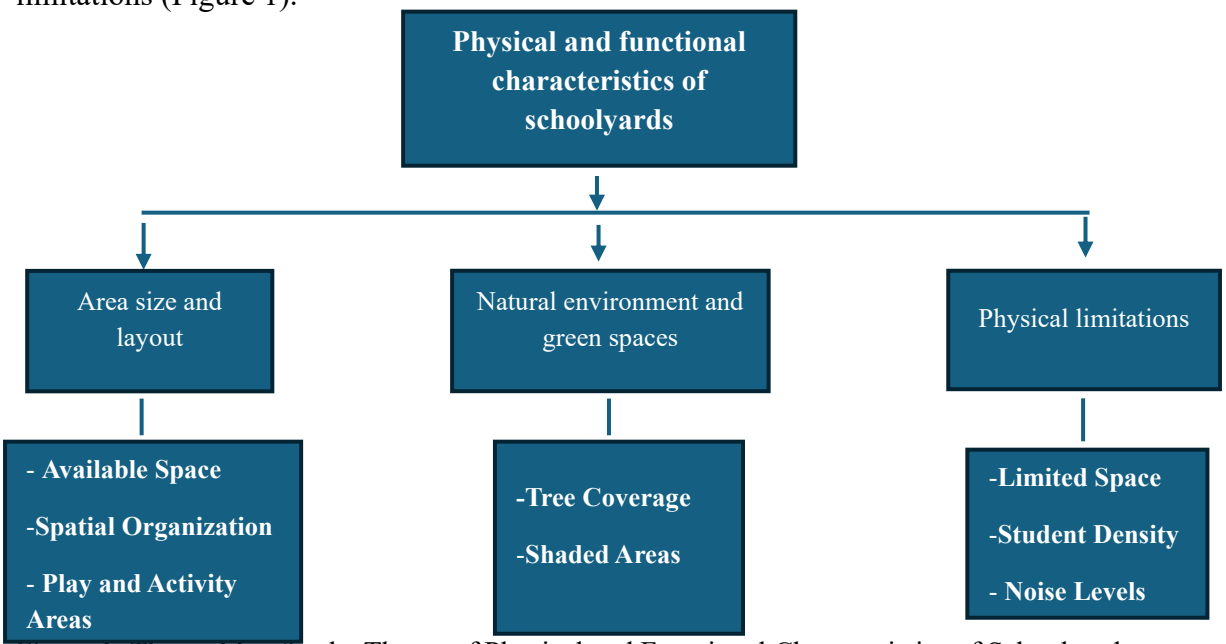


Figure 1: Theme Map for the Theme of Physical and Functional Characteristics of Schoolyards

Analysis of observation and interview data revealed that schoolyards at different socioeconomic levels were largely similar in terms of size and physical layout. This similarity is thought to stem from the standards and regulations set by the Ministry of National Education for the arrangement of schoolyards. However, the way schoolyards are used differs depending on socioeconomic level.

In schools, particularly those in the middle and high socioeconomic levels, student density has emerged as a significant factor limiting the use of schoolyards. Despite similar physical area sizes, the higher student numbers in these schools increase the number of students per square meter, leading to more crowded schoolyards. In contrast, lower student density in schools in the lower socioeconomic levels allows for more manageable use of schoolyard space.

Observation data shows that concrete surfaces are dominant in all schools examined, while natural and green areas are limited (Photo 1). Green areas were observed to be relatively more abundant in schools with lower socioeconomic status, and ground markings created within the scope of the Ministry of National Education's Traditional Children's Games Project were also commonly found in schoolyards (Photo 2). However, hard surfaces and game markings limit natural areas where students can directly interact. Only in one of the low-segmental socioeconomic schools were soil and green areas found where students could carry out planting and cultivation activities.



Photo 1: Schoolyard with concrete floor (High School)



Photo2: Ground markings in schoolyards (Middle School)

The findings indicate that natural environmental elements are largely secondary in schoolyards, and green spaces where students can directly interact with nature are limited. This situation can limit the pedagogical potential that schoolyards offer as outdoor learning environments. Teachers reported experiencing difficulties in distraction, noise, classroom management, and conducting the teaching process due to student density in middle and high socioeconomic status (SES) schools. This finding demonstrates that student density limits the effective use of schoolyards for teaching purposes and is supported by the following teacher opinion:

"We are a large school. My class alone has 38 students. When two classes have lessons in the yard at the same time, the order is disrupted, the students' attention shifts to each other, sound transmission becomes difficult, and chaos ensues. This reduces efficiency. Therefore, our yard is inadequate, especially for teaching purposes." (High Sound, Student Number 6)

Integration of schoolyards into teaching

As a result of the analysis of observation and interview data, sub-themes were created under this theme: usage patterns in lessons and learning activities (Figure 2).

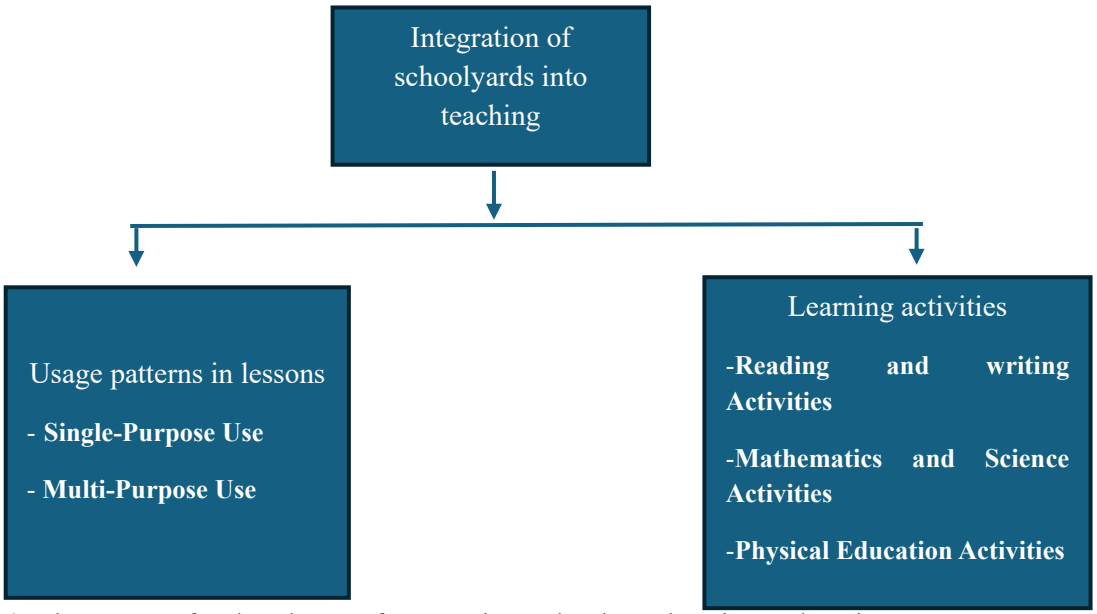


Figure 2. Theme Map for the Theme of Integrating School Gardens into Education.

The level of integration of schoolyards into teaching was found to differ according to socioeconomic context. In low-SES schools, the yard was primarily used for physical and sports activities, while in middle and high-SES schools, it was observed that different subjects besides physical and sports activities were integrated into the teaching process (Table 3). In low-SES schools, the use of the schoolyard for teaching purposes remained quite limited. The use of the yard solely for physical education in these schools was analyzed as "single-purpose use," while the use of it by other schools for subjects such as science and mathematics was analyzed as "multi-purpose use."

Table 3: How schoolyards are used in lessons.

	Low SES	Middle SES	High SES
Ways to use the garden	Physical and sports activities are the main focus.	Physical and sports activities, heavily reliant on mathematics.	Reading and writing activities are emphasized, along with science, mathematics , and physical and sports activities.
Frequency of Use	Low	Middle	Middle

Teachers working in low-SES schools have stated that students do not show sufficient interest in educational activities conducted in the schoolyard because they spend a large portion of their time outside of school on the streets. Students' association of the yard primarily with play and physical activities reduces participation in educational activities and makes classroom management more difficult. Interviews revealed that the schoolyard is mainly used for physical education classes and physical activities, while educational activities are mostly limited to marking the ground and are not sustainable. These findings are supported by the following teacher opinions:

"Frankly, our students aren't very interested in the lessons; we have attendance problems. The number of students is small, but there's no interest or curiosity. We struggle to maintain discipline in the classroom, and it becomes even harder to bring them together when they're outside..." (Ö15 Low SES)

"When the ground markings were first made, we played traditional games, and they enjoyed it. Then their interest waned. I used the garden differently a couple of times for planting and sowing, but they were reluctant. So I didn't use it for anything other than physical education..." (Ö18 Low SES)

Teachers working in middle and high school socioeconomic status (SES) schools stated that while the use of schoolyards for teaching purposes is limited, they are particularly utilized in first-grade reading and writing instruction, mathematics measurement topics, and recycling activities related to environmental education. The teachers emphasized that these activities increase student interest in the lesson, make learning more concrete, and support lasting learning. Examples of the activities carried out are presented in Photographs 3 and 4.



Photo 3: Writing the letter 'Y' with leaves for the first reading and writing lesson (High SES School)



Photo 4: Length measurement activity conducted in the schoolyard using step and foot units (Middle SES School)

Teachers emphasized that the schoolyard offers experiential and hands-on learning opportunities that support students' learning processes. First-grade teachers, in particular, stated that they utilize natural materials in teaching letters and sounds, supporting students' learning through touching, exploring, and doing; and that in mathematics, they use physical elements in the yard as learning materials for topics such as length measurement. Furthermore, it was noted that reading activities conducted in the yard during periods of suitable weather contribute to students' mental relaxation, create a calmer learning environment upon returning to the classroom, and increase their attention levels. These findings suggest that schoolyards may provide valuable opportunities for experiential learning and student engagement. According to teachers' perceptions, schoolyard-based activities can support students' interest, participation, and engagement in the learning process. Some of the teachers' opinions on this matter are presented below:

"I try to use it as much as possible. I get more engaging and lasting learning from the activities in the garden. I used it a lot, especially in teaching the first letters. I asked them to place the sounds we learned from the leaves on the ground. When teaching the letter U, we made and flew kites in the garden... this creates opportunities for students to learn through touch." (Ö4)

"I use the garden quite often in math class. We measure garden walls or the distance between two trees using units of length such as span, step, and meter. Students learn while having fun because they are active both physically and mentally." (Ö11)

These findings demonstrate that schoolyards can be used as functional learning environments that support the teaching process, particularly in subjects requiring learning based on concrete experiences.

Difficulties encountered in the use of schoolyards

As a result of the analysis of observation and interview data, the following sub-themes were created under this theme: physical barriers, time and curriculum constraints, security and administrative issues, parental perceptions and expectations (Figure 3).

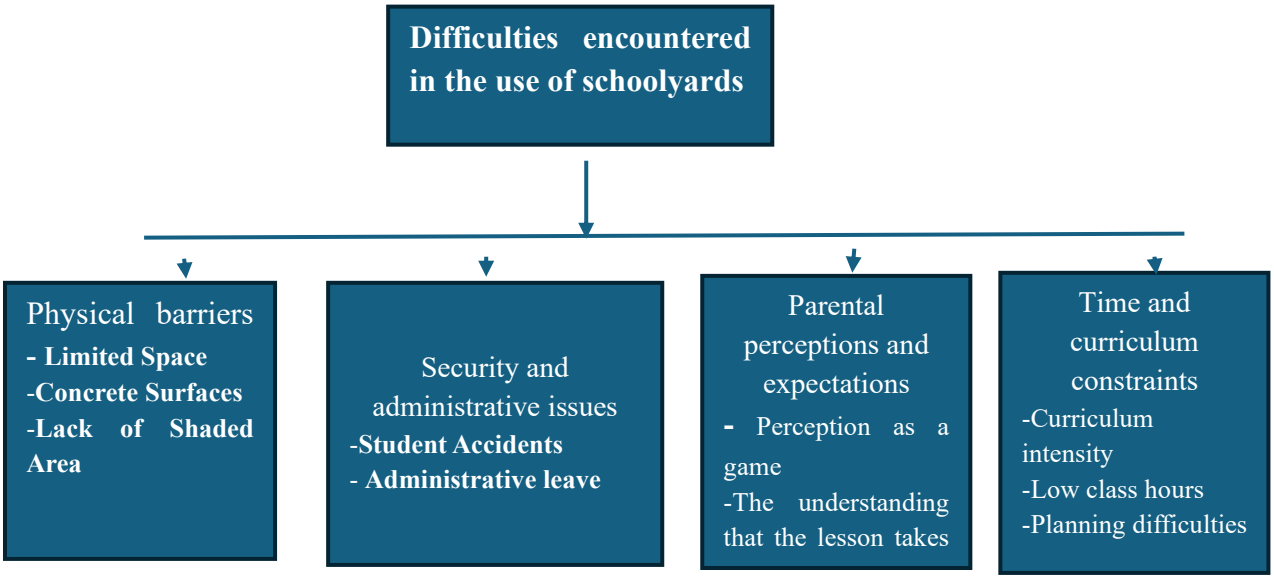


Figure 3: Theme and sub-themes of challenges encountered in the use of schoolyards.

Observational findings indicate that concrete surfaces dominate schoolyards, with insufficient wooded and shaded areas; this limits teachers' ability to plan and implement teaching activities in the yard. Although schools with low socioeconomic status (SES) have larger yards, approximately 70% of the surface is covered with concrete, while in schools with middle and high socioeconomic status, this figure is approximately 80%. Consequently, natural areas are limited in all schools; particularly in schools with middle and high socioeconomic status, they are mostly confined to wooded and soil areas along the edges of the yard.

During the interviews, teachers stated that the prevalence of concrete surfaces and the limited availability of natural areas in schoolyards hinder teaching activities. While it was acknowledged that concrete surfaces offer advantages for some activities, it was emphasized that they create a significant limitation, especially in subjects requiring interaction with the natural environment, such as science. Furthermore, it was noted that in schools with middle and high socioeconomic levels, the high student density, resulting in multiple classes using the yard

simultaneously, causes noise and distractions. Some of the teachers' opinions on this matter are presented below.

"We can't say our garden is small, but it has a hard surface, which is an advantage for traditional games, but it's not suitable for, for example, the content in science lessons…" (Low SES school, O17)

" *So, as you can see, the garden is just concrete, a few trees squeezed into the empty spaces on the edges. We are a large school, but the area is small. If two classes are outside, the sounds and activities get mixed up, and it's not productive…"* (Middle School, Student Number 7)

One of the significant challenges in using schoolyards as learning environments is concern about student safety and the resulting administrative restrictions. This is particularly evident in high-sound-economic status (SES) schools, where teachers have indicated that school administrations are more cautious about lessons and activities taking place in the yard due to the possibility of accidents. In contrast, while minor accidents are considered commonplace in low-SES schools and do not restrict yard activities, teachers in medium-SES schools have expressed greater concern about potential legal and administrative responsibility being placed on them in the event of accidents.

According to the interview findings, one of the significant obstacles to learning activities conducted in the schoolyard is parents' perceptions of these activities. Teachers stated that, especially in middle and high socioeconomic status (SES) schools, parents do not perceive teaching activities conducted in the schoolyard as being as academically effective as traditional classroom teaching due to their academically focused expectations, and that this negatively affects the planning and implementation processes of schoolyard-based learning practices. The opinion of Ö4, who works in a high SES school, regarding this situation is presented below:

"… uh, it's hard to say this, but our parents are getting too involved in the process. When a child describes a learning activity we did in the garden as fun, the parents think they were just playing a game. When we try to explain, they become dissatisfied, then they go to the administration, the administration warns us, and our motivation decreases…" (High SES school, O4).

One of the significant challenges encountered in using schoolyards for educational purposes is the intensity of the curriculum and the resulting time management problems. Teachers, particularly in middle and high socioeconomic status (SES) schools, have indicated that the concern of completing learning objectives within the planned timeframe makes it difficult to allocate sufficient time to yard-based learning activities. In low SES schools, while it is acknowledged that yard activities support learning, difficulties related to students' learning pace, discipline, and classroom management limit the implementation of these activities. The opinions of Teachers 1 and 15 on this issue are presented below.

"…there are many more things that can be done in the garden, the subject of our areas is also very suitable, drama activities can be done, but there is no time, there are so many learning opportunities that we cannot keep up, the lesson is 40 minutes. Should we maintain discipline,

give the topic and reinforce it, attract attention and arouse curiosity? We can't keep up, therefore we cannot constantly create different learning environments" (Ö1 High School).

"Different environments are important in terms of outdoor perception, but our children can't transition from the comfort of playing to the learning stage… I can't manage the classroom in the garden" (Ö15 Low SES school).

Suggestions for the effective use of schoolyards

Analysis of the interview data revealed that teachers' suggestions for transforming schoolyards into more effective learning environments were grouped under three sub-themes: physical arrangements, in-service training needs, and policy and administrative recommendations (Figure 4).

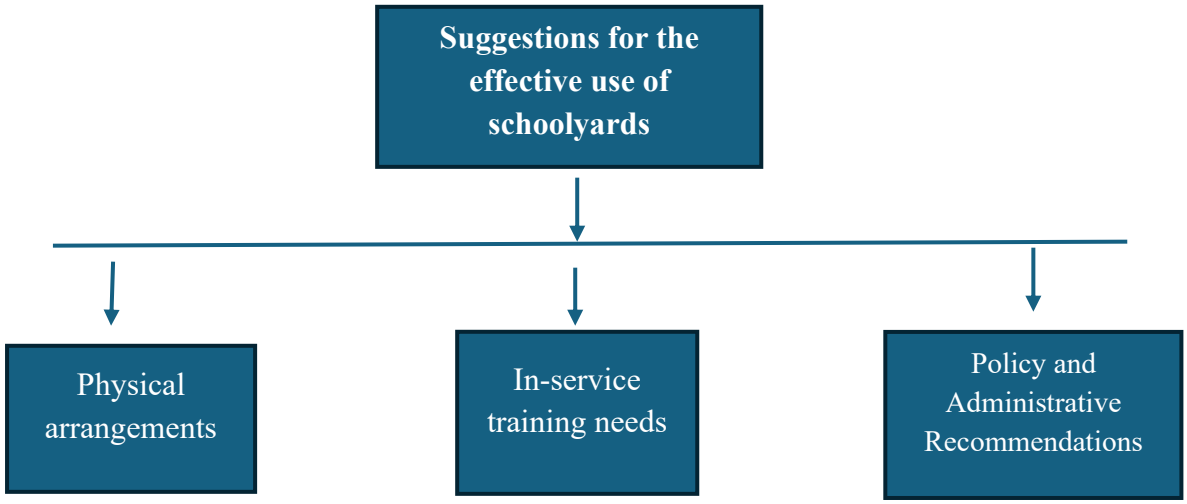


Figure 4. Theme and sub-themes of suggestions for the effective use of schoolyards.

Teachers emphasized that improving the physical layout of schoolyards is crucial for more effective use in teaching processes. Teachers from all three SES schools suggested reducing concrete surfaces and increasing soil and green areas, as well as creating shaded areas and outdoor classrooms that students could use for various lessons and activities. Some of the teachers' opinions on this matter are presented below.

"Our gardens shouldn't be entirely concrete. If we create areas where children can touch the soil and grow plants, our job would be a little easier…" (Low SES school, O17)

"If we could create large shaded areas in the garden and have outdoor classrooms, we could easily conduct many lessons outside. Currently, it's not possible to stay in the garden for long periods in this hot weather…" **(**High SES school, O4)

According to the interview findings, teachers from all three SES schools stated that they did not feel adequately prepared to develop activities that would adapt many curriculum contents and learning outcomes to out-of-classroom learning environments such as the schoolyard, and increase student interest and active participation. Therefore, they suggested providing practical in-service training that includes examples of activity design and implementation for the use of the schoolyard for educational purposes. For example, School 9 (Middle SES school) expressed this suggestion as follows:

“ Hmm …actually, besides measurement, directions, letter teaching, or reading circles, I don’t know what else I can adapt to the schoolyard. Maybe if they gave us practical in-service training on this, we could push the limits…” (Middle School, Student 9).

Teachers have indicated that improvements are needed not only in physical arrangements but also at the program and management levels to make schoolyards more effective in teaching processes. In this context, it has been suggested that curricula be made more flexible to allow for more out-of-classroom learning activities. Teachers, particularly those working in middle and high socioeconomic status (SES) schools, have recommended organizing seminars to raise parental awareness of garden-based learning and adopting an approach that more strongly supports these practices. A teacher's opinion on these suggestions is presented below.

“…parents need to be convinced that the lessons held in the garden are not games. It would be good if the school administration organized meetings with parents on this matter and if the programs were made more flexible…” (Middle School, Grade 8).

A holistic evaluation of the observation and interview findings revealed that the physical characteristics of the gardens of different SES schools, their usage in teaching processes, the difficulties encountered, and teacher suggestions exhibited both common and distinctive features. A comparative summary of these similarities and differences is presented in Table 4.

Table 4. Comparative summary of findings for schools at different socioeconomic levels.

Theme	Low SES	Middle SES	High SES
Physical characteristics	Large garden, partly green area	More limited space, concrete surface predominates,	Concrete surfaces dominate,limited natural space.
Integration into education	Learning-supportive but irregular use	Limited use in different courses.	planned and used in different lessons
Main challenges	Classroom management	Program intensity and time management	Parental expectations, program intensity, and time management.
Suggestions	Physical improvement, easing of schedules.	Physical improvements, in-service training, management support.	Physical improvements, in-service training, parent awareness, management support

DISCUSSION AND CONCLUSIONS

This study examined the physical characteristics of schoolyards in different socioeconomically diverse primary schools, their usage in teaching processes, the challenges encountered, and teachers' suggestions for more effective use. The findings indicate that schoolyards are considered an important learning environment; however, physical conditions, curriculum and time constraints, as well as safety and parental factors, limit the full utilization of this potential.

Furthermore, the findings reveal that, in addition to differences based on socioeconomic level, the need for more effective integration of schoolyards into teaching processes is common across all schools.

Discussions on the Physical and Functional Characteristics of Schoolyards

The findings of this study show that the physical layout of schoolyards is standardized regardless of socioeconomic level; however, usage intensity and access to the natural environment differ according to socioeconomic context. This finding is consistent with international research highlighting that while centralized standards provide a certain degree of equality in physical infrastructure, they are insufficient to address differences in students' daily environmental experiences (Dyment, 2005; Louise Chawla, 2015). Similarly, the literature emphasizes that schoolyards in low-SES schools mostly consist of hard surfaces, lacking plant diversity and natural learning areas; therefore, greening schoolyards is highlighted as an important intervention that can both enhance learning opportunities and reduce environmental and health-based inequalities (Dyment, 2005a; Kuo et al., 2018). In this research, the presence of relatively more green spaces and open areas suitable for planting activities in low-SES schools yielded a result different from the prevailing trend in the literature . This difference is thought to stem more from local conditions such as the size of school grounds, student density, and environmental characteristics than from socioeconomic level. Therefore, environmental opportunities in schoolyards should be explained not only by socioeconomic indicators but also by considering the spatial and environmental characteristics of the school together. Furthermore, the findings show that the intensity of use of the schoolyard, as well as its physical quality, affects teaching processes; and that student density, especially in middle and high socioeconomic status schools, is one of the main factors limiting the use of the yard for educational purposes.

The noise, distractions, classroom management difficulties, and challenges in teacher–student communication reported by teachers are consistent with previous research highlighting the negative effects of environmental noise on children's learning processes. Klatte et al. (2013) demonstrated that noise can interfere with children's speech perception, listening comprehension, and cognitive performance, particularly under unfavorable acoustic conditions. Although these studies have primarily focused on indoor learning environments, the findings of the present study suggest that noise generated by student density and simultaneous activities in schoolyards may also create challenges for outdoor teaching. Therefore, the pedagogical use of schoolyards should be considered not only in relation to their physical characteristics but also in terms of environmental conditions, including noise and student density. Further research involving objective acoustic measurements, such as the signal-to-noise ratio (SNR), is needed to examine how these conditions influence teaching and learning in outdoor school environments. The effectiveness of schoolyards as learning environments should be evaluated not only by their physical characteristics or the amount of green space, but also in conjunction with environmental factors that directly affect the teaching process, such as student density and acoustic conditions. The limited number of experimental studies examining the effect of SNR on students' attention, learning, and academic performance in outdoor learning environments such as schoolyards suggests that this is an important area of research for future studies.

Discussions on the Integration of Schoolyards into Education

The findings reveal that the integration of schoolyards into the teaching process differs according to socioeconomic context. In low-SES schools, the yard is mostly limited to physical education classes, while in middle and high-SES schools it is used as a multi-purpose learning environment integrated with different disciplines. This finding is consistent with international research showing that the pedagogical potential of schoolyards is not solely dependent on physical infrastructure; it is shaped by teachers' pedagogical approaches, school culture, and institutional practices that support outdoor learning (Dyment , 2005a; Dyment & Bell, 2008; Waite, 2011; Beames, Higgins, & Nicol , 2012). From the perspective of Bourdieu's (1986) cultural capital theory, schoolyards with the same physical facilities do not necessarily produce the same pedagogical value in every school. The findings suggest that the pedagogical use of schoolyards varies across the socioeconomic contexts examined in this study. However, these differences should not be attributed solely to socioeconomic status, as teachers' pedagogical practices, school-level conditions, student density, and institutional support may also influence the integration of schoolyards into teaching.

In schools with low socioeconomic status, student disinterest, attendance problems, and difficulties in classroom management, as expressed by teachers, stand out as the main factors limiting the sustainable use of schoolyards as teaching environments. This finding demonstrates that the pedagogical potential of schoolyards depends not only on physical environmental conditions but also on pedagogical and social factors such as teacher competencies, institutional support, and student participation. From Bourdieu's cultural capital perspective, physical facilities can only become educationally valuable when supported by pedagogical and social resources that enable their effective use. This result aligns with the findings of Van Dijk-Wesselius et al. (2020), which show that a lack of experience and self-confidence among teachers regarding outdoor teaching, along with insufficient curriculum support, negatively impacts the sustainability of garden-based practices.

In contrast, the multi-purpose and experience-based garden use observed in middle and high socioeconomic level schools largely aligns with contemporary learning theories. Teachers' use of natural materials such as leaves, stones, and branches in teaching letters, and body measurement units such as steps, spans, and feet in teaching mathematics, allows students to construct knowledge through concrete experiences. This finding is consistent with Piaget's concrete operational stage, Vygotsky's sociocultural learning theory and Dewey's experiential learning approach. Indeed, the positive effects of school garden-based learning activities on academic achievement, learning retention, attention, and cognitive well-being are supported by international research (Berezowitz et al., 2015). Similarly, Aydoğdu and Aydoğdu (2025), who showed that outdoor learning environments improve pre-service teachers' problem-solving skills, reveal that these environments also offer effective learning opportunities for different age groups. These findings show that schoolyards are not only an alternative physical space but also

effective learning environments that support students' cognitive, affective and psychomotor development.

Discussions on the Difficulties Encountered in the Use of Schoolyards

The findings indicate that the use of schoolyards as learning environments is affected by physical, institutional, and social limitations. The prevalence of concrete floors and limited natural and shaded areas in all schools, regardless of socioeconomic level, and the similar physical characteristics despite larger yards in lower socioeconomic status schools, reveal that size alone does not guarantee pedagogical richness. From the perspective of Bourdieu's concept of objectified cultural capital, physical space can only become educationally valuable when it is organized and used to support teaching processes. This finding aligns with Van Dijk-Wesselius et al. (2018) and Rickinson et al. (2004), who emphasize that the effectiveness of schoolyards depends not only on physical infrastructure but also on environmental characteristics and pedagogical design that support learning. Furthermore, the results support Gislason's school environment model, which argues that the physical environment of the school is a fundamental element that either facilitates or restricts teaching practices .

The fact that administrative restrictions based on safety concerns are more pronounced in high-sector socioeconomic schools, while minor accidents are more tolerated as a natural part of the teaching process in low-sector schools, demonstrates that school administrations' risk perception differs according to socioeconomic context. This is consistent with Bourdieu and Passeron's approach that educational institutions reproduce social and institutional practices. Particularly in high-sector socioeconomic schools, priorities such as institutional reputation, accountability, and safety can limit teachers' pedagogical autonomy regarding outdoor learning activities, making it difficult to integrate schoolyards into teaching processes.

In high-sounding schools, parents' academically focused expectations can lead to questioning the pedagogical value of learning activities conducted in the schoolyard and a decrease in teacher motivation for these practices. This finding aligns with previous research that has shown parental perception to be a determining factor in the use of schoolyards for teaching purposes. Indeed, Van Dijk-Wesselius et al. (2020) reported that teachers encountered negative perceptions from parents regarding the academic value of outdoor teaching; Dyment (2005b) stated that the perception of schoolyards primarily as play and rest areas limited their pedagogical use; and Waite (2011) indicated that family support for outdoor learning strengthened teachers' ability to continue these practices. In this study, teachers expressed hesitation in implementing garden-based activities due to parents' perceptions that "lessons are taught in the classroom" and expectations regarding exam success, supporting the impact of parental perception on teacher motivation and the sustainability of these practices.

The limited time teachers can allocate to schoolyard-based activities due to concerns about completing curriculum objectives on time is one of the most frequently highlighted obstacles in the literature . Indeed, Berezowitz et al. (2015) cite curriculum intensity and time constraints as major obstacles to schoolyard-based learning practices . However, this research reveals that this obstacle varies according to socioeconomic context. While teachers in middle and high SES schools emphasize concerns about completing the curriculum and meeting exam-oriented

expectations, difficulties related to student adaptation to the learning process, attention, and classroom management came to the forefront in low SES schools. This finding indicates that practices supporting the integration of schoolyards into teaching processes should be planned taking into account the socioeconomic context and needs of the school.

Discussions on Recommendations for the Effective Use of Schoolyards

The findings in this theme show that teachers have developed three complementary areas of recommendation—physical, professional, and institutional—to more effectively utilize schoolyards as learning environments. This suggests that the challenges outlined in the previous theme have been addressed by teachers with a transformative perspective.

The common suggestions from teachers working in all three SES schools—reducing concrete floors, increasing green and soil areas, and creating outdoor classrooms and shaded areas—confirm that the physical limitations identified in the study are also seen as a fundamental problem by the teachers. This finding shows that the physical environment needs to be redesigned in line with pedagogical requirements in order to effectively use schoolyards for teaching purposes. Indeed, Van Dijk-Wesselius et al. (2018) state that schoolyards enriched with natural elements increase teachers' willingness to teach outdoors; and Martensson et al. (2014) state that these areas diversify teaching activities and support student participation. The teachers' suggestions for outdoor classrooms and shaded areas in this study also reveal that schoolyards should not only physically exist, but should also be planned as functional and sustainable learning environments that support teaching in different seasons and climates.

Another finding is that teachers perceive themselves as inadequate in adapting curriculum outcomes to the schoolyard and express a need for practical in-service training in this regard. This finding is consistent with research showing that teacher training is crucial in the sustainability of schoolyard-based learning practices (Berezowitz et al., 2015). Similarly, Burt, Koch , and Contento (2017) and Huys et al. (2017) identify the lack of knowledge and practice experienced by teachers in integrating the schoolyard into the curriculum as a significant obstacle, while Corbacho-Cuello and Muñoz-Losa (2025) have shown that practical training significantly improves teachers' knowledge, competencies, and self-confidence. When these findings are considered together, it is understood that the effective use of schoolyards should be supported not only by physical arrangements but also by practical professional development programs that improve teachers' interdisciplinary planning and garden-based teaching competencies.

Suggestions to make curricula more flexible to allow for extracurricular activities, for school administrations to provide administrative support for garden-based practices, and for teachers to be given the necessary time and resources highlight the importance of institutional support for the effective integration of school gardens into teaching processes . This finding aligns with the research of Burt et al. (2018) and Burt et al. (2019), which showed that garden programs supported by school and district administrations are more successful and sustainable. Therefore, the lasting integration of school gardens into teaching processes seems possible not only

through teacher initiatives but also through holistic support mechanisms encompassing the curriculum, school administration, and educational policies.

The study highlights suggestions aimed at increasing parents' awareness of garden-based learning, particularly in high-SES schools, demonstrating the importance of school-family collaboration in addressing the issues related to parental perceptions and expectations identified in the previous theme. This finding aligns with the recommendations of Turner et al. (2016) and Vi et al. (2022) regarding regularly informing families and supporting their participation in garden-based education programs. However, while these studies address this need more in the context of low-SES schools, the fact that a similar need is highlighted particularly in high-SES schools in this research reveals a noteworthy difference. This suggests that parents in high-SES schools, whose expectations are focused on academic achievement, may develop a more critical attitude towards learning activities conducted in the schoolyard. Therefore, informational activities aimed at strengthening school-family communication can support parents in embracing the educational value of garden-based learning and in making these practices a sustainable part of the school culture.

Recommendations

Recommendations for implementation

- The Ministry of National Education's schoolyard standards could be revised to include natural area criteria.
- Curriculums can be structured to include sufficient time for teachers to plan and implement garden-based activities.
- Practical in-service training programs can be organized for teachers, including examples of interdisciplinary activities, lesson plans, and assessment practices.
- School administrations can provide teachers with the necessary administrative support in planning and implementing garden-based learning activities.
- In particular, in high-segment schools, information seminars and school-family collaboration initiatives can be planned to raise parental awareness.
- In schools with high student density, class schedules can be adjusted to include time slots and rotating usage plans suitable for outdoor learning activities.

Suggestions for future research

- Studies conducted in different regions and with larger sample sizes could better reveal the impact of socioeconomic context on the teaching processes in schoolyards.
- Future research could include the perspectives of students, parents, and school administrators to holistically examine how schoolyards are perceived by different stakeholders.
- Longitudinal and experimental studies can be conducted to examine the impact of teacher practices on students' learning experiences.

- To contribute to the development of standards for the educational use of schoolyards in Türkiye, international research comparing successful schoolyard models from different countries can be conducted.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted in six primary schools representing different socioeconomic contexts, with the participation of 18 classroom teachers. Given the qualitative multiple-case study design and the purposive sampling strategy, the findings are context-specific and are not intended to be statistically generalized to all primary schools.

Second, the study primarily relied on teachers' perceptions and naturalistic observations. The perspectives of students, parents, and school administrators were not directly examined. Consequently, the findings concerning parental expectations, student engagement, and administrative practices largely reflect teachers' interpretations.

Third, naturalistic observations were conducted for one day at each school. This limited observation period may not fully capture variations in schoolyard use across different seasons, weather conditions, curricular activities, or school schedules.

Fourth, students' academic achievement, attention, motivation, and other learning outcomes were not directly measured. Therefore, the perceived educational benefits of schoolyard-based activities should be interpreted as teachers' reported experiences rather than evidence of causal effects.

Finally, although the schools were selected to represent different socioeconomic contexts, differences in school size, student density, physical infrastructure, and institutional practices may also have influenced schoolyard use. Accordingly, the observed differences cannot be attributed exclusively to socioeconomic status.

Despite these limitations, the integration of teacher interviews and schoolyard observations provided complementary evidence and contributed to a contextualized understanding of schoolyards as alternative learning environments.

AUTHOR CONTRIBUTIONS Ü.Ş. conceptualized the study, developed the methodology, conducted the analysis, and wrote the manuscript. Ü.Ş. reviewed and revised the manuscript and prepared all figures and tables. Competing interests The authors declare no competing interests.

CONFLI CT OF INTEREST STATEMENT

I declare that I have no financial, commercial, legal or professional relationship or conflict of interest that may affectthe research.

DECLARATİONS

Ethics approval and consent to participate

All research procedures involving human participants were conducted in accordance with the ethical principles outlined in the Scientific Research and Publication Ethics Directive issued by the Council of Higher Education (YÖK), Türkiye. The study was reviewed and approved by the Pamukkale University Social Sciences and Humanities Research and Publication Ethics Committee (Approval Reference No: 68282350/2026/09; Decision No: 12; Date: 17 July 2026).

The research involved semi-structured interviews with primary school teachers and naturalistic observations conducted in primary schools. All participants were adults and were informed about the purpose and procedures of the study. Informed consent was obtained from all participants prior to data collection. Participation was voluntary, and the confidentiality and anonymity of participants were maintained throughout the research process. Necessary institutional permissions were obtained from the relevant school authorities for conducting schoolyard observations and taking photographs.

Competing interests

The author declares no competing interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

AI USAGE STATEMENT

During the preparation of this study, the author used CHATGPT artificial intelligence for bibliography formatting and translation. The author reviewed and edited the output as needed and is fully responsible for the content of the published article.

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