Eğitim ve Öğretim Araştırmaları Dergisi
Journal of Research in Education and Teaching
Ağustos 2022, Cilt 11, Sayı 3 ISSN: 2146-9199

# OPINIONS OF SCHOOL ADMINISTRATORS ON THE PHYSICAL CHARACTERISTICS OF PRIMARY SCHOOLS

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**Abstract:** The purpose of this study is to examine the opinions of school administrators on the physical characteristics of the schools where they work. The study group is 10 primary school administrators in Aydın/Turkey. Semi-structured interviews were conducted, and inductive content analysis was utilized in the analysis of data. In the study, it was concluded that most of the participants found the physical structure of the classrooms convenient for implementing the curriculum. However, such deficienciesas size, temperature, lighting, and sound system of the classrooms were emphasized by school administrators. The school gardens were found appropriate as resting areas, but the school canteens and corridors were insufficient. It was revealed that most of the schools had additional rooms that helped the education process. The participants mostly identified the ideal school building with buildings that have multi-purpose meeting and sports halls, offer full-time education, and provide a prosperous environment for various educational activities.

**Keywords:** Physical characteristics of schools, school administrators' views, primary school buildings

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## INTRODUCTION

Many factors affect the effectiveness of the educational process, such as students, teachers, curriculum, environment, and opportunities. The presence, amount, and relationship of these factors can also change the direction and size of this effect. Schools, the environment where education takes place, are one of the most important factors affecting this process. Considering the effects of school building structures on education, certain features must be present in all school buildings to minimize the negative effects of differences in physical conditions. Some standards have been set by the Ministry of National Education for primary and secondary school buildings in Turkey. It is expected that all schools will be organized under these standards (Gültekin, Aruntaş, & Gün, 2014). As stated in the Educational Buildings Minimum Design Standards Guide (2015) prepared by the Ministry of National Education, renewable energy sources should be actively used in the design of schools. Maximum use of daylight, natural ventilation, and energy savings should be achieved. The designs should also include innovative facades that vary in line with the needs of the district or school. Flexibility and adaptability to allow for future changes are key requirements in the design of a school. Lighting, ventilation, sound, and heat comfort are prerequisites for a successful education. In primary schools, there should be areas and tools that will allow students to engage in various sports activities, and canteens should be planned to be in the schoolyard for ventilation and cleaning (Ministry of National Education, 2003; Yılmaz, 2012). School gardens should be created within the framework of security measures, away from traffic, noise, and air pollution (Ministry of National Education, 2015). For an effective education to take place in schools, the physical infrastructure of the schools should be in harmony with the achievements and the learning process, and the environment should be designed appropriately (Yenice, 2013). Besides, the school buildings should satisfy the needs of students, teachers, and administrators (Karasolak, 2009). Physical, educational, and social landscaping should be done in school buildings to meet the demand of all stakeholders (Karasolak & Sarı, 2011).

The suitability of the educational environment means that the physical characteristics of the schools, staff, equipment, and tools are consistent with the content and objectives of the curriculum, and they are organized in a way that cooperates with all the elements that affect learning (Arabacı & Çıtak, 2017). Having a suitable physical arrangement in an educational environment has functions such as making students learn more easily, making students physically comfortable, and motivating them to the lesson (Işık, 2020). For this reason, examining the suitability of the environment where the education takes place will allow regulating the variables in the physical environment to adapt to changing conditions and new trends. There are similar studies conducted with teachers (Akbaba & Turhan, 2016; Dağlı & Gençdal, 2018; Karasolak & Sarı, 2011; Özenç, 2020) and students (Karasolak & Sarı, 2011; Yaman, 2010; Yılmaz, 2012) on the views on the characteristics of school buildings. When the literature is examined, there are also studies in which questionnaires were applied (Gök & Gürol, 2002; Gültekin, Aruntaş, & Gün, 2014;) and SWOT analysis was conducted (Yıldırım, 2008) regarding the opinions of school administrators on school buildings. School administrators have an important position as leaders in creating, managing, and maintaining an effective school environment (Helvacı & Aydoğan, 2011). Considering the effect of school administrators on the implementation of the curriculum and the power to influence teachers' relations with the school administration and each other, the opinions of school administrators on the effectiveness of school buildings are important (Şahan & Taşdemir, 2019). This study differs from other studies because it is conducted through in-depth interviews with school administrators. In this study, it is aimed to examine school administrators' views on the physical characteristics of primary schools. . For this purpose, answers to the following questions were sought:

- What are the participants' views on the adequacy or inadequacy of the physical characteristics of the schools they work at?
- What are the participants' definitions of "(physically) ideal school"?

## LITERATURE REVIEW

### Physical Characteristics of School Buildings

The environment is created by the combination of educational structures, imagination, and technical knowledge. It is a combination of abstract and concrete values, such as ecological, technological, social, political, moral, and aesthetic (Ministry of Education, 2015). Classroom, laboratory, workshop, meeting room, gymnasium, music room, library, canteen, and school garden are among the important physical equipment in schools (Akbaba & Turhan, 2016; Işık, 2020). In addition, the size of the school, lighting, heat, noise, and color selection are stated

as physical features that significantly affect the functioning of education (Akbaba & Turhan, 2016; Aydoğan, 2012). In school buildings, careful planning should be made for classrooms and common areas such as the garden, canteen, gym, and library (Işık, 2020). Karasolak and Sarı (2011) also suggest that there should be usage areas such as sports and conference halls, libraries, and canteens that are structured for the purposes of education in school buildings. These areas should be configured under the common use in schools that are not sufficient size. The features that should be found in school buildings (Işık, 2020) are being suitable for the student population and the developmental structure of the students, giving confidence to the students, being sheltered, clean, well-maintained, and favorable to health conditions, having a garden and closed areas for various activities, and having adequate equipment.

**Reflections of Physical Characteristics of Schools on Education**

Schools need to have a good physical structure to provide effective education (Helvacı & Aydoğan, 2011). Arranging the physical characteristics of schools in accordance with student development is important for them to have a peaceful and productive learning process (Veltri, Banning, & Davies, 2006). Achieving the educational goals of schools depends on teachers' professional knowledge and skills, as well as the capacity of schools to respond to external demands (Stosich, 2016). The characteristics of learning environments can have a direct impact on students' motivation, attention, interest, and performance (Miller, Erickson, & Yust, 2001). The physical characteristics of schools affect the quality of education (Kalfa, 2006; Karasolak, 2009), the psychological features of the individuals involved in the education process (Dağlı & Gençdal, 2018), and their healthy development (Yenice, 2013). For students to increase their success level and use their talents in the best way, educational environments that increase their motivation should be created (Terzioğlu, 2005).

A proper school environment for educational activities can help increase student success by ensuring that students attend classes regularly (Al Şensoy & Sağsöz, 2015). Baker and Bernstein (2012) also state that collaborative and student-centered learning spaces, which have been rearranged pursuant to changing needs, facilitate the learning processes of students. Creating learning environments in consonance with student characteristics positively affects students' performance (Ariani & Mirdad, 2016; Earthman & Lemasters, 2009; Schneider, 2002; Zubrzycki, 2013). In many studies, it is stated that the physical conditions of schools directly or indirectly affect student achievement and learning levels (Al Şensoy & Sağsöz, 2015; Earthman, 2004; Edwards, 2006; Lyons 2001; Tanner, 2009). Many physical characteristics of schools, from wall color to ventilation, affect not only student performance but also teachers' performances and motivations (Buckley, Schneider, & Shang, 2004; Earthman, 2004).

## METHODOLOGY

**Research Design**

This study is a qualitative study structured as a case study. Case studies are defined as studies in which a limited system is described and examined in-depth (Merriam, 2009). According to Yin (2018), the case study is a research method that is up-to-date and used to answer how and why questions in situations where the researcher's control is not over the variables. This research design, it is aimed to examine the situation in its proper environment in-depth and to describe it. The researcher does not interfere with the process, environment, and event (Yin, 2018). This study aims to examine the opinions of primary school administrators on the physical characteristics of the institutions where they work.

**The Study Group**

The study group of the research comprises school administrators of 10 primary schools in Aydın Province Efeler district. The maximum variation sampling method was used to determine the study group. Semi-structured interviews were conducted with the administrators working in primary schools in Aydın/Efeler, which have different regional characteristics and represent different socioeconomic levels (three low, four middle, and three high socioeconomic levels). The environmental characteristics of the region where the schools are located were taken into account for classifying the socioeconomic levels of the schools. The building age of the schools where the participants work varied between 10 and 56 (129 before restoration). The number of students and students per classroom is higher in high socio-economic level schools. The schools do not have common areas with different schools. The duties of the participants in the institutions, together with their code names, are presented in Table 1.

Table 1: Personal Information about the Study Group

| Code Name | Duty | Socioeconomic Level of the School |
|---|---|---|
| Ahmet | Vice Principal | High |
| Fatih | Vice Principal | High |
| Kemal | Vice Principal | High |
| Pelin | Vice Principal | Middle |
| Engin | Principal | Middle |
| Erdal | Principal | Middle |
| Osman | Vice Principal | Middle |
| Can | Vice Principal | Low |
| Hakan | Principal | Low |
| Kenan | Principal | Low |

**Data Collection Tools**

A semi-structured interview form was used in the data collection process. While preparing the interview form, first, the topics to be discussed in the research were determined through the conceptual framework. General and open-ended questions were prepared in which the participants could present their views on the physical structures of the institutions they work. The questions in the interview form include the adequacy or inadequacy of the physical features of the school buildings (classrooms, additional rooms, equipment, school corridors, garden, and canteen, etc.), the features that should be found in an ideal school building, and the features that are desired to be changed for the physical structure of the institutions. After two expert opinions who have deep experience in qualitative researchthe draft of the interview form was edited, and it was given its last form.

**Data Collection and Analysis**

Semi-structured interviews were conducted at the institutions where the participants work. The timing of the interviews was determined in line with the preferences and workload of the participants. Before the interviews, informed consent was got from participants and the participants were enlightened on the purpose of the research. The interviews lasted between 30 and 40 minutes. During the interview, the data was recorded with a tape recorder and then transcribed. In the analysis of data, qualitative inductive content analysis, which is defined as the systematic coding of data in accordance with certain themes or categories, was used (Fraenkel, Wallen, & Hyun, 2012). Before the data was analyzed, codenames were given to the participants. By reading the written data, meaningful units were determined in line with the purpose, codes were created and codes related to each other were synthesized. While determining the codes, the frequency of recurrence was noted (Creswell, 2013). After this stage, the data was organized using visuals, and the views of the participants supporting the themes and codes were included. To ensure transferability and verifiability in qualitative research, a detailed description of the findings supported by evidence and presented as describing the setting and participants, quoting participant opinions and research notes, and maximum diversity in the sample should be provided (Merriam, 2009). In this research, while creating the data collection tool, expert opinions were sought. Field notes were taken during the interviews. A researcher experienced in qualitative research was consulted during the data analysis. The data was described without adding comments, direct quotations were included, and the data collection and analysis process was explained in detail.

## RESULTS

The findings of the participants' views on the suitability of the classes to implement the curriculum are presented in Figure 1.

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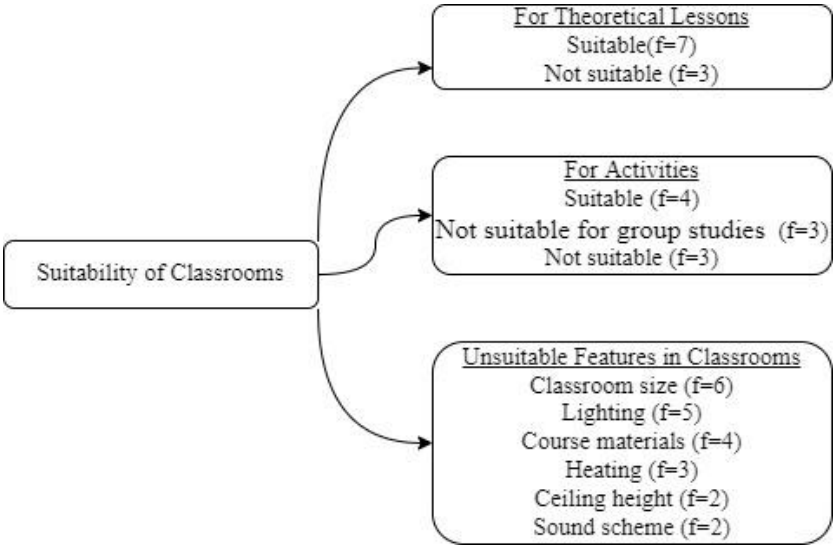


Figure 1. Participants' Views on the Suitability of the Classrooms

The results showed most of the participants found the physical structure of the classrooms convenient for implementing the curriculum. Participants who had positive opinions cited the low number of students as the reason. All the participants who had negative opinions stated that the class size was above the capacity, they had to add extra desks to the class, and this caused problems in practice. Two participants who had negative opinions underlined that they converted rooms, such as laboratories, meeting rooms, and libraries into classrooms because of the increase in the number of students. The statements of some participants were:

*"Classes are arranged as 30 students, but we also have 38 students. As soon as the number exceeds 30, we have to add extra rows, the classrooms get crowded, and the noise is high. In that case, we find it difficult to teach the lessons, but other than that, I find it appropriate."(Ahmet)*

*"It is convenient for our school since we have a small class size. Classes are 12-13 people. We have a maximum of 21 students and it is comfortable in that respect."(Kenan)*

Some participants stated the classrooms were appropriate for individual and group studies, they were suitable for individual studies but not for group studies, and they were not suitable for both study patterns. The participants who had positive opinions stated they found the classrooms appropriate because of the low number of students, while the participants who had negative opinions expressed the classrooms were insufficient due to the crowded classrooms. The examples of some statements were:

*"If teachers are going to have group work, they can organize the class and change the shape of the desks. So there is no problem." (Can)*

*"I find it insufficient. There are too many desks in the classroom. We can't use anything else so that we practice."(Fatih)*

Most of the participants stated the classrooms were small. Some participants pointed out it was too hot, too dark, or too bright because of the sun in the summer and the heating in the winter. Some participants indicated there were no deficiencies in their classrooms. Two participants expressed they had problems with acoustics because of the lack of sound systems. Some examples of the quotes were:

*"The light should hit from the left in the classroom environment, but of course, there are also classes where the light hits from the right because of the location of the school. The northern classrooms and downstairs are getting dark. We don't have a problem with sound." (Ahmet)*

*"There are also areas missing regarding the location of the building. Our windows are large, and plenty of light enters, but this varies from the location of the classroom. Classrooms are spacious. The sound system is not available in every classroom. Acoustics is the most efficient way of transmitting sound, but it is ignored." (Osman)*

*"All classrooms have computers. Technology is good, but it should be used consciously."(Pelin)*

*"We do not have any equipment in the classrooms other than the blackboard, maps, and materials prepared by the teacher and the student. We feel the lack of projector and computer." (Hakan)*

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The findings of the participants' views on the adequacy of the resting areas are presented in Figure 2.

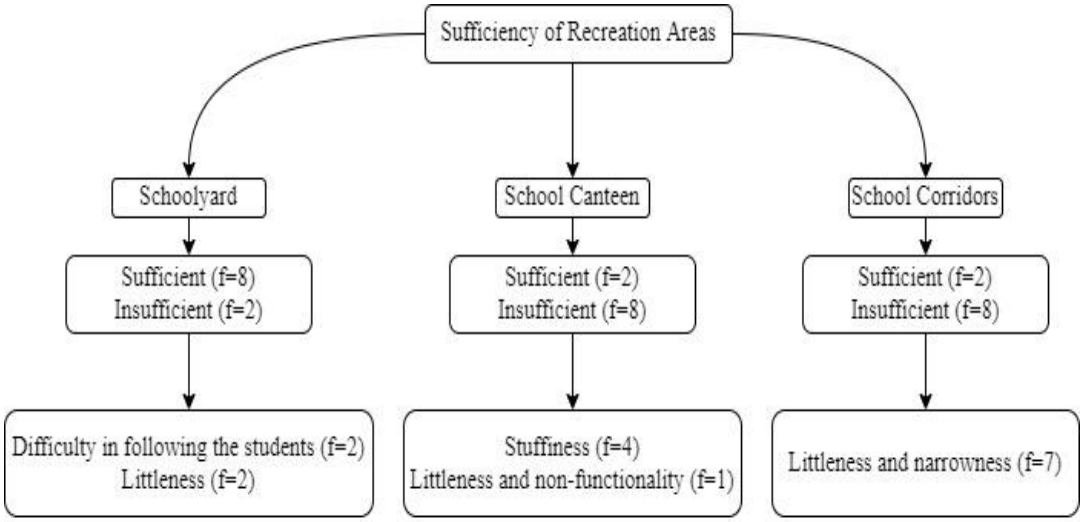


Figure 2. Participants' Views on the Adequacy of the Resting Areas

As seen in Figure 2, most of the participants considered the school garden as an appropriate resting area, and they found the school canteens and school corridors insufficient for taking a breath. Some participants stated they had difficulty in following the students because the school garden was too large and that was not wide enough. Considering the usage areas of school gardens, it was seen that they were only used for sports activities. In some schools, it was stated the garden was used in other lessons as well. Regarding the school canteens, they expressed their inadequacy because of reasons such as being stuffy, small, and dysfunctional. One participant declared that there was no canteen in their school. When the opinions of the school corridors were examined, it was seen that most of the participants thought that there was not enough space in the corridors. Some participants' statements were:

*"Our garden is wide, and we have a carpeted field. There are resting areas, but because of the 5-minute break for rest, children cannot use the area." (Pelin)*

*"We have basketball, volleyball, football, and badminton courts. With the contribution of the agriculture lesson and science teacher, we organized the garden and planted saplings." (Can)*

*"School canteens are always built inside the building on the ground floor in new buildings. It stinks, even with the ventilation. Our school's canteen was built outside, with the school's means." (Osman)*

*"Our corridors are not very practicable for activities such as chess and table tennis. We have adequately equipped boards, and we see it is effective on students." (Engin)*

The findings of the participants' views on the availability of additional classrooms to assist the lessons is presented in Figure 3.

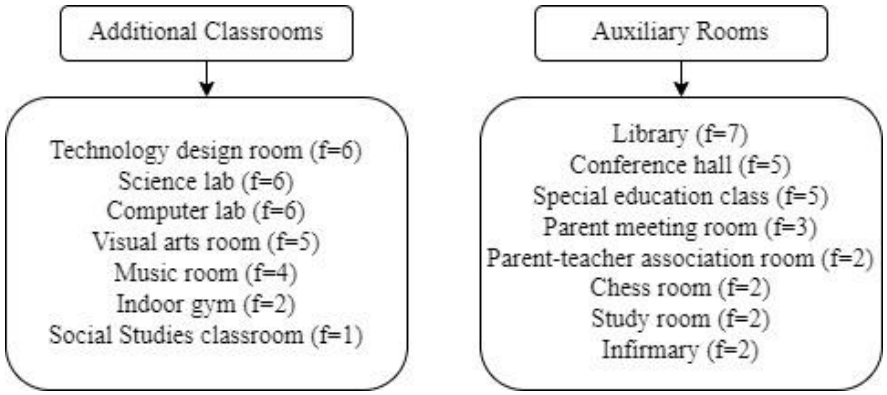

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Figure 3. Participants' Views on the Availability of Additional Rooms

As seen in Figure 3, most of the schools had additional rooms such as a library, technology design room, science laboratory, and computer laboratory. Participants working at schools that had separate subject-based classrooms for various courses considered these classrooms were adequately equipped. It was stated by two participants that the departments reserved for courses such as the science laboratory and the visual arts room were converted into classrooms because of the crowdedness of the schools. Participants at schools that did not have a sufficient number of additional classrooms expressed that this was because of a large number of students and insufficient economic conditions.

The findings of the participants' views on how the ideal school buildings should be are presented in Figure 4.

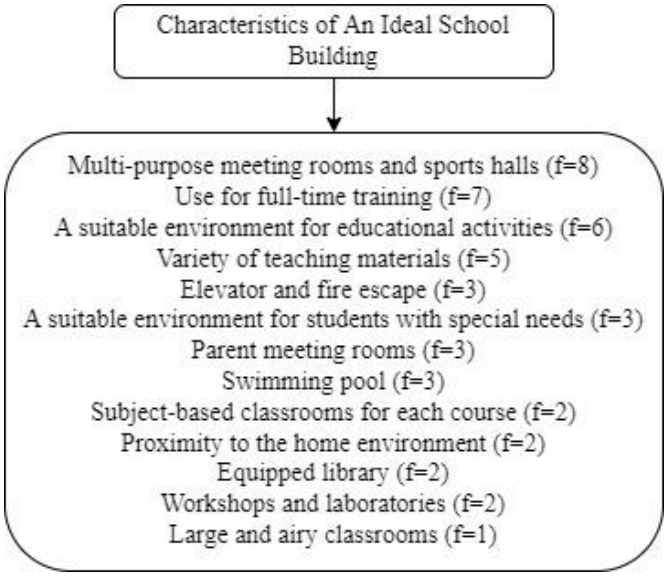


Figure 4. Participants' Views on the Characteristics of An Ideal School Building

The results showed most of the participants stated that ideal schools should have multi-purpose meeting rooms and gymnasiums that enable various educational, sporting, and social activities, provide full-time education instead of dual education, and have a practicable environment for various educational activities. Some participants' views on the characteristics of ideal school buildings included providing the materials and technological equipment to the students for the learning and teaching process, having a fire escape and an elevator, opportune features for students with special needs, parent meeting rooms, a swimming pool, a subject-based classroom system, a well-equipped library, workshops and laboratories, and being close to the home environment. Some examples of the quotes were:

*"First, it should be in such a way as to allow full-time education. There must be multiple halls; conference and meeting rooms, and infrastructure installations. Classroom ceilings should be a little high. The gym would be very good. There should be rooms where parents can meet the students alone. For example, the parent-teacher association does not have a special room." (Osman)*

*"There should be a science lab, a music room, and a computer lab. There should be an indoor gym under the building. Better have a conference room. We make parents' meetings in classrooms or the hallway. It should not be like a business center, it should show that it is a school." (Kenan)*

*"I can say that our school is ideal. Toilets for the disabled, elevator, ramp at the entrance and exit, separate subject-based classrooms, and gymnasium. These are the features that an ideal school should have." (Can)*

The findings of the participants' views on the features they want to change in the institutions they work at are presented in Figure 5.

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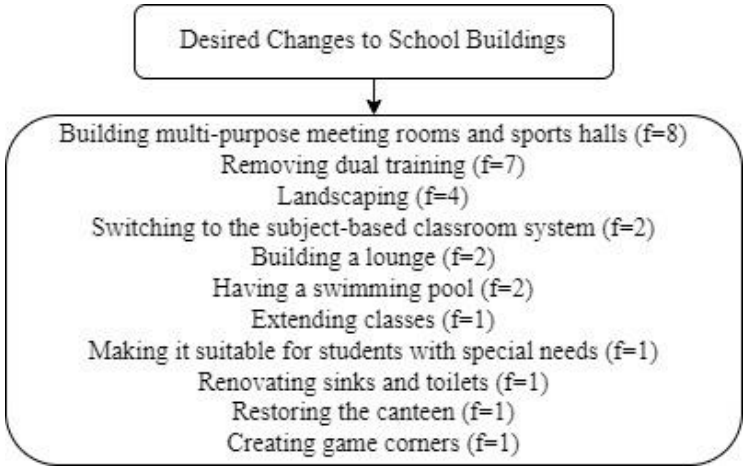


Figure 5. Participants' Desired Changes to School Buildings

As seen in Figure 5, most of the participants stated they wanted to build multi-purpose meeting rooms and sports halls and to switch to full-time education. Some participants' views included landscaping for educational activities, transition to the subject-based classroom system, building a resting room, building a swimming pool, and expanding classrooms. They indicated they wanted to make it opportune for students with special needs, renovate sinks and toilets, restore the canteen, and create play corners. Based on this finding, it can be said that the participants wanted changes that could be effective not only for the cognitive development of the students but also for their social, affective, and psychomotor development. These requests were in line with the participant's definitions of the ideal school. The quotes of some participants were:

*"I would like to build a multi-purpose gym. I would like to make play corners. I would like a school that is large enough to allow for full-time education. The breaks between lessons are very short, students cannot throw their energies away. Children can't get enough sleep, they have nutritional problems which cause learning difficulties." (Ahmet)*

*"Most of all, I would like to abolish dual education and switch to full-time education. Additional works should be possible after 3 o'clock. Teachers want to do it voluntarily, but there are no classrooms, they cannot do it."(Osman)*

## CONCLUSION AND DISCUSSION

In the study, it was concluded that most of the participants found the physical structure of the classrooms convenient for implementing the curriculum. Negative opinions are usually because of the crowded classrooms. Expressing that the classrooms are inadequate in some aspects, the participants emphasized the deficiencies, such as the size, temperature, lighting, and sound system of the classrooms. These highlighted features have the power to affect the quality of education and student achievement. Schneider (2002) acknowledges that school buildings affect learning, and physical characteristics of schools are effective for students and teachers. It is reported in various studies that physical school features such as sound system, temperature, heating, lighting, noise, acoustics, air quality, crowd, and seating arrangement influence students' performance (Earthman, 2004; Kelting & Montoya, 2011; Lackney & Jacobs, 2004; Lyons, 2001; Usman & Madudili, 2019; Yang, Becerik-Gerber, & Mino, 2013; York, Gibson, & Rankin, 2015). That the classroom receives natural light and there are two-sided windows in the classroom has the effect of facilitating the learning process and relaxation of the eyes (Tanner, 2009). Crowded classrooms cause problems such as insufficient space and equipment per student, reduced social interaction between students and teacher-student communication, and difficulty in classroom management (Blatchford, 2003; Blatchford, Bassett, & Brown, 2005; Kubanç, 2014; Yaman, 2010). Winterbottom and Wilkins (2009) concluded in their study that lighting higher than the recommended level, which can cause headaches and affect visual performance, was used in most classrooms. Gök and Gürol (2002) and Yılmaz (2012) concluded in their studies that there were more students than the capacity in primary schools, and this caused some inadequacies. Dağlı and Gençdal (2018) concluded that teachers' perceptions of the physical conditions of school buildings were partially sufficient. In Kaplan's (2014) study, it was concluded that the teachers did not find their

schools physically adequate; the buildings were not designed for students with disabilities, and they did not satisfy demands of both teachers and students.

As reported by the results of the research, most of the participants found the school garden appropriate as a resting area and described the school canteen and school corridors as insufficient. There are also different studies stating that the gardens in school buildings are insufficient to meet the needs of students (Akbaba & Turhan, 2016; Aksu & Demirel, 2011; Kelkit & Özel, 2003; Vural & Yılmaz, 2018). Students' creativity, interaction with nature, and cooperation skills become more effective in school gardens arranged to increase their interest in learning (Papadopoulou, Kazana, & Armakolas, 2020). In the study conducted by Malone and Tranter (2003), it is concluded that students' interactions are better in schools, with greener landscaping and offering a greater variety of stimuli than in other schools. Schoolyards should be accessible places where children can do physical activities, play games, and allow children to develop social relations (Pouya & Bayındır, 2021; Tandoğan, 2014). Yılmaz's (2012) research results show that school corridors are not wide enough. It is also stated in various studies that school canteens do not meet the demand (Akbaba & Turhan, 2016; Üçeş Harmanoğulları & Yapıcı, 2018).

It was also revealed that most of the schools had additional rooms that helped the education process. Participants working in schools that had separate practice classrooms for various courses considered these classrooms were adequately equipped. In some schools, additional rooms have been used as classrooms because of the large student population. It is noteworthy that the schools have a shortage of additional classrooms because of overcrowding are mostly at the upper socio-economic level. Yılmaz (2012) specified that the libraries and additional rooms were not sufficient in the schools where he conducted his research. Hotaman (2018) stated that schools were insufficient in terms of physical equipment to support students' different intelligence areas. In the study of Şahan and Taşdemir (2019), the lack of laboratories and materials was also expressed. There are also studies that express the effect of teaching lessons conforming to the branch-based classroom system in schools, facilitating the use of lesson materials and increasing learning (İbret, Bayraktar, & Kocaman, 2011; Kıryak & Altun, 2019; Özyürek, Pınarkaya, Taş, & Apaydın, 2017).

It was concluded that the participants mostly identified the ideal school building with buildings that have multi-purpose meeting and sports halls that allow various educational, sports, and social activities, offer full-time education, and provide a prosperous environment for various educational activities. The features that the participants wanted to change in their schools were shaped in line with the qualities they wanted to have in an ideal school. In Özenç's (2020) study, classroom teachers expressed the features they want schools to have as being equipped with technology, having design skill workshops and large and spacious classrooms, allocating time for socio-cultural and sports activities, and being like a home environment. In the research conducted by Aktürk-Çopur (2017), primary school students remarked they wanted features such as a gym, pool, playground, separate classrooms for each lesson, more natural areas, zoo, library, information room, smart board, science/experiment corners. In the study of Gökdaş and Ak (2019), it was determined that secondary school students wanted a school garden with more green areas, wide and clean classrooms, and technology-equipped schools. These studies show that teachers and students have a common view of school administrators in many respects regarding the features that should be found in an ideal school building. Schools should offer effective indoor and outdoor qualities, include new technologies, and connect the learning process to the outside world to increase students' motivation (Ariani & Mirdad, 2016). Necessary physical arrangements should be made in school buildings congruent with the requirements of children in need of special education and students of all age groups (Aydoğan, 2012; Karasolak & Sarı, 2011).

**Limitations and Implications**

This research is limited to the opinions of school administrators working at primary schools in Aydın Province Efeler district. It can be suggested to researchers to get the opinions of teachers and students, who are the other stakeholders of the education process in schools, on the effects of school buildings on the education process. Different data collection tools may be used in future studies, especially to refer to participatory observations. Research can be conducted on what can be done to eliminate the deficiencies of school buildings and adapt them to changing conditions and new trends. Based on the results of the research, a suggestion is to the practitioners and policymakers that the design and construction of the school buildings may be structured under the age group characteristics of the students and in line with the needs of all stakeholders. It is also recommended not to accept students above the classes and school capacity. Other suggestions include arranging the school gardens in a

favorable size to allow various activities to be carried out, using the school corridors not only as a transition area but also as an auxiliary source for the education and training process, structuring the school canteens in a way that allow students to have a healthy diet, and providing the schools with sufficient tools and equipment that is coherent with technological developments.

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Eğitim ve Öğretim Araştırmaları Dergisi

Journal of Research in Education and Teaching

Ağustos 2022, Cilt 11, Sayı 3 ISSN: 2146-9199

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|---|---|---|---|
| **Makale Geçmişi** | Geliş:11.04.2022 | Kabul:03.08.2022 | Yayın:30.08.2022 |
| **Makale Türü** | Araştırma Makalesi | | |
| **Önerilen Atıf** | Üstündağ Kocakuşak, N. (2022). Opinions Of School Administrators On The Physical Characteristics Of Primary Schools. *Journal of Research in Education and Teaching.* 11 (3), ss -19-31 | | |