Identification of student's spatial perceptions of public elementary school classrooms in cirebon during the pandemic

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Article Info

ABSTRACT

During the Covid-19 pandemic, the physical presence of classrooms shifted to virtual spaces, where it changed almost all methods of delivering learning materials. Elements of space and its supports that can usually be felt in the classroom, such as furniture configuration, wall colors, information boards, teacher's desks and chairs, and others, make the class irrelevant. However, as the situation improves, there is a gradual transition from online to offline learning methods. Previous research stated that students were not satisfied with the online learning system due to a lack of engagement. This study tries to identify and review students' perceptions when they return to the classroom, starting from their conditions, tendencies, and expectations of their classrooms so that learning process can take place well. The object of this research is an elementary school, namely SDN 03 Kepongpongan, located in Cirebon Regency. The method used is participatory design approach, where the main data is obtained through the distribution of questionnaires adapted to the characteristics of the children, interviews, discussion, and the results of documentation during the activity. From the results it was found that there was a low perception between students and their classrooms. The results of this study are students' perceptions of classrooms elements that can be used for the process of re-designing classrooms after the pandemic period.

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Introduction

Basic education is the initial stage of forming students' attitudes and character. At the basic level, a child will gain knowledge (Ardipal, 2015), abilities, and attitudes that can make him survive in society. Therefore, basic education is something that cannot be ignored but requires an adaptation process in dealing with various situations and conditions. The success of education requires support from various aspects such as a conducive environment, competent teachers, appropriate learning methods, and a good level of concentration from students to have better characters, both academically, spiritually, and emotionally. These achievements are formulated through the elementary school curriculum in the form of learning, which currently uses thematic learning methods (Nafi & Muakibatul, 2016). Thematic learning has several characteristics, such as combining several lessons into a series of problems/topics, using case examples that are relevant to the conditions of students, being flexible by providing levels of difficulty, and student-centered. Students and teachers feel that the new curriculum provides space for activity development (Ramli, 2020) through communication between

students and with their teachers. Schools play a critical role in promoting educational equity for all students, including those from various background (Allen et al., 2021).

The COVID-19 pandemic is a situation that forces changes in various aspects of life, and one of them is education. The government has launched several efforts to suppress the spread through the implementation of social distancing, physical distancing, local-scale lockdowns, work from home and school from home (Padli & Rusdi, 2020). These efforts are applied in various fields like public space, including in schools. Several studies have stated that COVID-19 is thought to have a traumatic effect on children (Ann Sealy et al., 2021). This is enough to make all school's stakeholders forced to learn and think hard so that the system that was previously running seems to be restarted from scratch with new forms and ways, through various intermediary media (Mckeown et al., 2022). Classrooms at schools originally played an important role in the learning process, both when delivering material by the teacher, doing individual work, joining together in groups, to extracurricular activities, such as class cleaning activity, eating together, playing, and others. In the learning process, students are able to listen, understand, take notes, ask questions and do exercises provided by each teacher (Fitria & Susanto, 2022). Classrooms can be conditioned according to the type of activity to be carried out, but when a pandemic occurs it is no longer possible to do so. All the educational activities can not be held at the moment.

The shift in learning activities that originally occurred when students and teachers met face-to-face in the classroom at school, turned into a remote meeting in a virtual room, this is based on the Letter of the Ministry of Education and Culture Number 4, 2020. There are several learning schemes for students formulated by the government, some examples like, (1) a rotation system, where all students are not present at the same time, but take turns according to schedule with only 50 percent of the room capacity; (2) hybrid learning methods or blended learning (Hikmawaty & Nugroho, 2022), it is a mixture combination of online and offline, so that teachers can explain at once (synchronously) for students at school and at home; (3) distance learning (Pembelajaran Jarak Jauh - PJJ), if the situation of a school or area does not allow for direct learning (Pertemuan Tatap Muka – PTM).

The implementation of PJJ which was carried out online did not run smoothly, this was due to the competence of teachers, school climate, and facilities (Purnasari & Sadewo, 2021), not to mention due to the inequality of economic factors owned by each student. Some of the schools, especially teachers, have problems participating in the PJJ period due to limitations so that learning cannot run smoothly (Kusumaningrum & Wijayanto, 2020). Teachers use group chat applications more to facilitate communication but make it difficult in the knowledge delivery process (Padli & Rusdi, 2020). School students themselves experience learning loss, it is a condition when the learning process cannot take place optimally, one of the causes is due to reduced methods and interaction time with teachers (Maulyda et al., 2021). New strategies in teaching must be considered when obstacles in the learning process arise but learning activities must be carried out (Purnasari & Sadewo, 2021). PJJ in the form of virtual classes does not make students motivated in learning, especially with technical constraints in the network, some lessons cannot be explained optimally.

In July 2021, the Government of Indonesia has allowed the resumption of limited face-to-face learning (PTM) in some areas where the spread of the virus is considered low. The transition process for school reopening is expected to take into account several aspects of consideration, including ensuring the continuity of safe, adequate, and appropriate learning activities for children (World Health Organization (WHO), 2020), minimizing the risk of disease transmission in the school environment between fellow users. , prevent the potential for clusters of spread in schools, and ensure prevention efforts are implemented at all levels in schools by forming a COVID-19 task force. PTM is carried out for schools whose education personnel have received complete vaccinations. Each school is also required to prepare a combination of limited PTM and PJJ methods.

The reopening of schools by allowing PTM activities between students and teachers will have many positive impacts both in the fields of education, health, and economic development as a whole (World Health Organization (WHO), 2020). Some of the positive impacts for students include, students can get better access to information directly, rebuild mindsets and mental discipline that had weakened during the pandemic, provide opportunities for students to complete the study process and then continue to the next level, provide opportunities for students to socialize with friends and teachers, maintain the mental health of students, and have an indirect impact on the surrounding environment. For school teachers, direct learning activities will facilitate monitoring the success of learning outcomes according to the curriculum for each student during online learning, then creating strategies to catch up. Learning models such as group work, outdoor learning, drawing objects directly, and other environment-based activities can be carried out (Nurbia, 2021).

The transition period for school reopening also affects the configuration of areas in elementary schools related to distance, capacity, and circulation. Schools are required to arrange the layout of the room by paying attention to the following aspects, such as adjusting the distance between people when sitting, standing, or

queuing at least 1.5 m, giving signs of keeping distance in various areas if needed, ensuring the availability of space openings and openings so that air circulation can run properly, regulating user circulation in both corridors and stairs, and dividing the maximum capacity by only 50 percent of the total (see pic. 1).
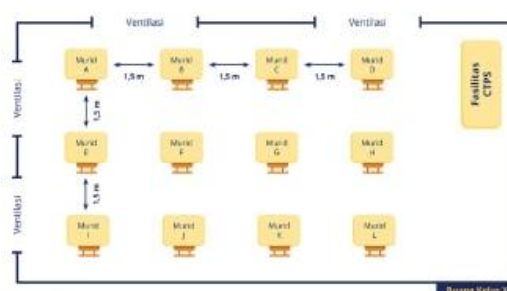

Figure 1 <Classroom Simulation During the Pandemic>
(resource: ditsmp. kemdikbud)

This kind of classroom arrangement applies to mostly all levels of education in various regions in Indonesia, including Public Elementary Schools in Cirebon Regency. Classrooms that were originally able to be used by 30-36 students can now only be used by 15-18 students who are far apart. This is considered very difficult, especially for students who incidentally are still children with characters who have high social skills. They need to interact with their friends without boundaries. A common phenomenon in the elementary school welding in rural areas is depicted dominantly as a knowledge transfer activity and not as a construction of knowledge and social skills. The teacher is burdened and burdens himself to meet solid material targets according to the curriculum with other assistance assignments (Dike & Parida, 2019).

This change is expected to have an impact on elementary school students, especially grades 3-6, who experience several forms of learning. The first form of learning occurred before the pandemic hit, where they came to school and studied normally, they were familiar with the condition of the classroom with full capacity by their friends and normal (conservative) furniture configurations. Then the pandemic hit, so they experienced a second form of learning, namely the implementation of PJJ by the government where the study room switched to a virtual room without meeting directly with students and teachers. When the pandemic began to subside, learning shifted to a third form, namely adaptation of new habits (Adaptasi Kebiasaan Baru – AKB) which changed the configuration of the space around the school, adjusted to health protocols by implementing social distancing that was increasingly far from one another. Changes in the form of learning will certainly have an impact on the overall learning acceptance process experienced by students. A new perception of space will emerge because of the changes that occur. One of the efforts to find out students' perceptions in the classroom is by assessing the condition of the surrounding environment (Marchand et al., 2014).

This study tries to identify the spatial perception of elementary school students in the transition period due to the COVID-19 pandemic, by taking one of the cases, namely SDN 03 Kepongpongan Cirebon Regency, towards their classrooms that have changed configurations. Students' perception of the classroom becomes important because it will affect the success or failure of achieving the learning objectives of each subject at each school level. The results of students' perceptions in this transition period can be used as material for consideration of classroom design in the future.

Method

This study uses a qualitative descriptive approach (Creswell, 2014), with a participatory method involving students and teachers in schools. This study describes the phenomena that occur factually and systematically. Data collection techniques were carried out using literature review, observation, interviews, distributing questionnaires, and workshops. Literature review on student characteristics, standards, and methods of assessing classroom conditions before and after the pandemic, perception of space, as well as the application of participatory design for children are the main focus.

Observations were made on a single research object, that is the State Elementary School 03 Kepongpongan in Cirebon Regency, West Java, Indonesia. The research subjects were students in grades 4-6 who had gone through PJJ activities and transitioned to limited PTM. They were asked to participate in discussion activities, filling out questionnaires, and joint workshops. Research data collection was carried out in the period September-October 2021. Student questionnaires were filled out at a time when the spread of the pandemic in

West Java was high, so that several stages had to be assisted by teachers at schools. After the data has been collected, it is continued by conducting a descriptive analysis to find the results.

The discussion instruments and questionnaires used were related to the students' ability to observe and perceive the classroom and the elements in it. Questionnaire questions use a Likert scale to facilitate data processing. The criteria for satisfaction with space in various conditions such as lighting, air temperature in the room, air circulation, acoustics, and security (Marchand et al., 2014) are one of the questions used to explore information about perception. Details of the stages and indicators used can be seen in the table below (see Table 1).

Table 1 **<Indicators and Guidelines for Classroom Perception Discussions During a Pandemic>**

Stage	Study Focus	Description	Spatial Details
1	Classroom observation	Students are provided with photos of their classrooms. This ensures that they receive the same information	Photos of the condition of classrooms grade 4, 5, and 6 at SDN 03 Kepongpongan from various angles
2	Classroom assessment	Students are asked to observe the classroom and its elements then give a quality assessment	Details of classroom elements, from furniture to learning support objects
3	Classroom Object	Students are asked to name various objects in their classrooms and then write down the objects they want to be in the classroom	Details of every object in the classroom

There are 3 main stages in collecting data with students, which is the classroom observation stage, the classroom assessment stage, and the ideation stage of the desired object in the classroom. Each stage aims to assess the current classroom from the point of view of the user student. Each question is structured in such a way as to use language that is easily understood by students. Some pictures and images are used as a guide to make it easier to fill in the answers.

Results and Discussions

Learning Activities at SDN 03 Kepongpongan

The Kepongpongan State Elementary School 03 is in Talun District, Cirebon Regency, West Java Province. Based on DAPODIK 2021 data from the Ministry of Education and Culture, this school is accredited B, with the following physical building conditions, which consist of 2 main building masses, in the middle there is a field, has 6 classrooms, a teacher's room, and a library connected by a corridor (see pict. 2). Each class is held by a homeroom teacher who doubles as a teaching teacher. Daily learning activities are carried out in the classroom, but some are also carried out in the school yard, such as sports, games, and ceremonies.

Figure 2 SDN 03 Kepongpongan location (left); School building and yard (right)>
(resource: google earth (left); author, 2021 (right))

Based on the results of observations of the school environment and interviews with the school, several problems were found that could interfere with the learning process, including:

(1) The physical condition of school buildings and classrooms that are starting to be damaged due to not being used during the pandemic. The school grounds looked arid and filled with weeds. Some parts of the walls and ceilings of the corridors and classrooms have started to peel off. The furniture in the classroom was filled with thickened dust. This condition can indirectly endanger the health and safety of users, both students and teachers.

(2) The loss of attachment between students and the classroom because learning is often not carried out in schools due to the PJJ's appeal from the government. When the limited PTM began to apply, the enthusiasm of students to come to school subsided slightly, so there needed to be a special mechanism from the school to restore the enthusiasm of students to learn.

(3) Limited access to information and technology in schools. School facilities are not very adequate, so the need for digital devices to access information is borne by the teacher and each student.

(4) The difficulty of teachers in carrying out teaching and learning activities due to the diversity of students' economic and social conditions. Diverse demographic, economic and socio-cultural conditions make it difficult for teachers to provide an even learning load.

Some of these obstacles, either directly or indirectly, will be able to create student perceptions of school. If there is no effort to deal with these problems, it is feared that it will affect the motivation of students and teachers at school. Reduced motivation will affect the level of student discipline, especially in a school environment that requires a high level of discipline. The character value of discipline is very important for humans to have so that other good character values emerge, especially at the basic education level (Wuryandani et al., 2014).

Students' Perception of Classroom

Stage 1 – Classroom Observation

At this early stage, students are asked to observe the classroom either through pictures or see directly. As a supporting material, in the student worksheets, students are given an overview of the current condition of their classrooms (see pict. 3-5). Grade 4 students are given a picture of a grade 4 room, grade 5 students are given a picture of a grade 5 room, and so on. This is done with the aim that students can have something in common with the image of their classrooms. Each class is given a photo from three different points of view so that students can get an overview of the class. The purpose of this stage is that students can observe various objects in the classroom to be used as material for the next stage.

Figure 3 <4th Grade Classroom>
(resource: author, 2021)

The grade 4 student room has green walls with 8 sets of tables and chairs. There is a cupboard in the back left corner which is in a bad condition. On the back wall there are several pictures of Indonesian independence heroes. The windows on the left and right walls are quite high but can still provide natural light distribution in the classroom.

Figure 4 <5th Grade Classroom>
(resource: author, 2021)

The class 5 student room has green walls with 7 sets of tables and chairs arranged. There is a cupboard in the back left and right corner which is in a bad condition. On the left wall there are several supporting pictures of learning materials affixed. Unused tables and chairs are left lying around in the back of the classroom. The windows on the left and right walls are quite high but can still provide natural light distribution in the classroom.

Figure 5 <6th Grade Classroom>
(resource: author, 2021)

The class 6 student room has green walls with 9 sets of tables and chairs arranged. There is a cupboard in the back left corner which is in a bad condition. On the back wall there are several pictures and tables supporting the learning material attached. Unused tables and chairs are left lying around in the back of the classroom. The windows on the left and right walls are quite high but can still provide natural light distribution in the classroom. From all the pictures of the classrooms at SDN 03 Kepongpongan, mostly the classroom are actually typical, having more or less the same shape, configuration, and color. However, each student can identify their respective classrooms through the identification of objects in the classroom, such as cupboard, class posters, tablecloths, and others. This proves that at least they still have a sense of awareness with their respective classrooms through the images presented.

Stage 2 – Classroom Assessment

In this main stage, students are asked to give their opinion about the condition of their classroom which is divided into 3 categories, which is the physical condition of the classroom, the elements of the room, and the comfortability of the classroom. The first category is the physical condition of the classroom, used to find out opinions about the size of the room, location, and color of each student's classroom. The second category, is the classroom elements, it is used to assess various elements of space, both attached and movable. While the third category, is used to assess the comfort of classrooms from various aspects.

Table 2 <Students' Perception of the Classroom>

Category	Description	Student Perception* (%)				
		VB	B	N	G	VG
Classroom physical condition	Classroom size	0	0	56,5	21,7	21,7
	Location	8,7	13	43,5	21,7	13
	Colors	13	34,8	34,8	17,4	0
	Door	0,0	56,5	30,4	8,7	4,3
	Window	4,3	30,4	26,1	26,1	8,7
	Table	4,3	34,8	26,1	8,7	26,1
Classroom elements	Chair	4,3	39,1	21,7	13,0	21,7
	Blackboard	4,3	17,4	34,8	34,8	8,7
	Shelf	43,5	17,4	34,8	0,0	0,0
	Information board	34,8	17,4	21,7	26,1	0,0
Classroom Comfortability	Lighting	17,4	26,1	39,1	8,7	8,7
	Noise level	34,8	21,7	26,1	13,0	4,3
	Temperature	4,3	39,1	30,4	17,4	8,7
	Cleanliness	4,3	26,1	30,4	26,1	13,0

*VB=Very bad, B=Bad, N=Neutral, G=Good, VG=Very good

Classroom Physical Condition

Based on students' perceptions of the physical condition of the classroom, the results tend to be positive, 56.5% of students think that the size of their classroom is still sufficient, 21.7% think that their classroom is good and 21.7% feel very good. This means that students can carry out various activities in the classroom. The arrangement of the classrooms during the pandemic gave the opinion that their classrooms felt spacious. Students also do not feel disturbed by the location of their classrooms because they are close to the field, 43.5% consider the location of the class to be no problem and 21.7% consider the location of the class to be good. During the break or after school, they can immediately run to the field to play with their friends. From the aspect of the color of the classroom, students thought that the color of their classroom was bad (34.8%) due to its peeling and uneven condition. The relationship between students and the color of the classroom as a space-forming element is strongly influenced by the psychological development of children (Julianto et al., 2019).

Classroom Elements

The results of the student questionnaire can be seen that most of the space elements in their classrooms are currently in poor condition. Students think that the classroom door is in bad condition, namely 56.5%, while the classroom window is also considered to be in poor condition, namely 30.4%. The condition of the student desks and chairs was also considered bad (34.8% and 39.1%) because some of them were no longer suitable for use, as seen in some parts that they had started to come off or have holes due to age. This condition is considered to be able to disrupt learning activities and reduce student motivation in learning in the classroom. Every cupboards and shelves in the classroom is considered no longer functional so it is given a very bad rating (43.5%). Facilities and infrastructure are important elements in order to achieve the success of the education and teaching process in the school environment. Provision of buildings that are adequate and meet standards is one of the efforts to meet the minimum standard of infrastructure required by the government (Parmo et al., 2016).

Classroom Comfortability

The results of students' opinions regarding the comfort level of the classrooms they use are as follows, students feel that the lighting in their classrooms is sufficient towards less (39.1%), due to the small number of available openings. This result is still relevant to their assessment of the condition of the window in the previous question. Classrooms are also considered to have a very poor noise level of (34.8%), noise from outside easily enters the classroom. This school is close to the toll road, so that some of the sounds of passing vehicles can be heard clearly. While the cleanliness of the class is considered sufficient (30.4%) because there is already a picket mechanism in turn to clean the class. However, some of the dirty conditions in the class require cleaning efforts from adults considering the level of difficulty.

If summarized in general, 30% of students consider the condition of their classrooms to be unfavorable, this is caused by the most visible elements of the space, like the physical condition of the building which is poorly maintained. 22% considered their classrooms to be average, then another 22% thought they were good, and very good (see pic. 6). These results open the potential for changes to be made in the classroom that can make students feel ease and comfortable in carrying out learning activities.
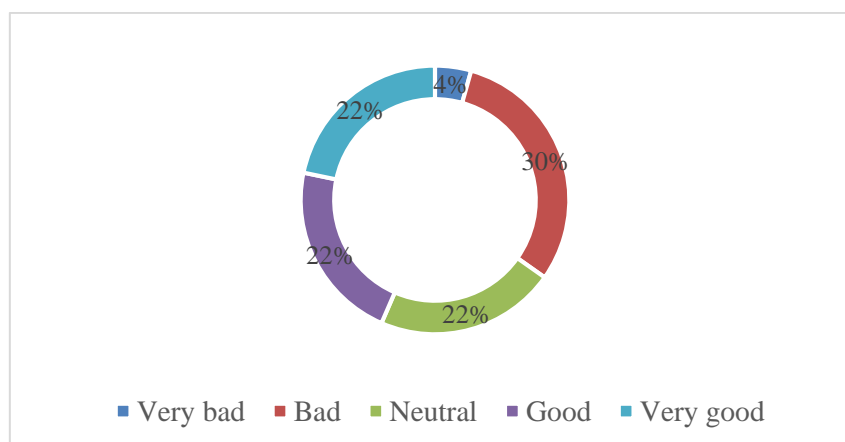

Figure 6 <Classroom Overall Perception>
(resource: author, 2022)

Stage 3 – Classroom object

At this last stage, students are asked to name the objects they need most in class. This question is actually open ended, which means that students can freely answer any object they want in class. They start answering by first identifying pre-existing objects in their current class, then adding things that don't exist and they want.

Table 3 <Objects Desired by Students in Class>

Object	Result (%)
Shelf	21,43
Fan	18,6
Lighting	17,1
Broom	12,9
Clock	11,4
Table	2,86
Ceiling	2,86
Dust cleaner	2,86
Chair	1,43
Blackboard	1,43
Information board	1,43
Painting tools	1,43
AC	1,43
Wifi	1,43
Poster	1,43

Based on the results of student answers, it was found that the objects most desired by students as much as 21.43% needed shelves and cabinets to store books and works that had been produced during learning. Students are thought to need recognition of what they have done during learning activities, one of which is by displaying their work. As many as 18.6% need a fan in class, this is considered reasonable because the air temperature in Cirebon ranges from 28°-31° C (BPS Cirebon, 2018), because it is located in the north of the island of Java and close to the beach. Then good lighting is 17.1%, and tools to clean the classroom are 12.9%. Other objects such as wall clocks, work desks and chairs, blackboards and others become objects desired by students. Most of the students write down the main objects that should already be in the classroom, so it can be said that students do not have many references about the development of classrooms in various places. Their priority is only on conditions that they currently feel are still lacking.

Conclusions

Based on the results of research conducted through discussion, observation, and distributing questionnaires, related to students' perceptions of classrooms during the PTM transition period, it was found that students' perceptions of classrooms were quite low, this is due to the COVID-19 pandemic that hit necessitating changes in the form of learning. These conditions require students to undergo PJJ through a virtual room. The bad result perception of these students can be caused by the disconnect between students and the classroom for approximately 2 years, as a result the classroom becomes something 'foreign' for them. When PJJ takes place, students are in their respective homes with various conditions. Low engagement between students and their class can have an impact on the emergence of learning loss in the learning process, even though classrooms should be able to facilitate learning activities properly. To prove whether learning loss occurs, further research must be carried out related to understanding students' knowledge of the material. Through participatory activities like this, students as users of the classroom can be involved to create classroom designs that are contextual to what students need in learning. These results open opportunity for future classroom designs that can provide positive perceptions for students so that they feel comfortable learning. For example, the characteristics of school-age children who are active and have a high curiosity can be applied to the design of the classroom.

Acknowledgments

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