Implementation of Child-Friendly School Concept in Elementary School as Early Education Environment

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Abstract. Education is one of an important role in enhancing the quality of life thus shaping sustainable communities and cities. In Indonesia, one of the education problems are related to education infrastructure. In elementary school education, there are still many schools that are not in accordance with school policies to implement child-friendly school concept. The purpose of this study was to implement the aspects of child-friendly school and relating it to the problems identified in elementary school. Aspects that need to be considered in supporting the implementation of child-friendly school concept are safety, health, convenience, comfort and security, which will later affect the building design. The research method used is a qualitative method. The results of the study were implementations of each aspect in school building design as a solution to problems identified in elementary school. The implemented aspects can be a consideration for designing school environment in supporting teaching and learning activities.

Keywords: education, sustainable, elementary school, child-friendly school aspects

1. Introduction
The goal of education is to enhance the quality of life thus it has an important role in shaping sustainable communities and cities. Getting good quality education is an essential requirement for realizing continuing education. In addition to improving the quality of life, access to education is one route that helps equip local residents with the tools needed to develop innovative solutions to educational problems.

Education is a basic right of every Indonesian citizen, where they have right to receive education according to his interests and talents regardless of social status, economy, race, ethnicity, religion and gender. The Indonesian Child Protection Commission [1] states in Article 31 paragraph 1 of the 1945 Constitution, "Every citizen has the right to receive guidance".

In reality, the world of education in Indonesia still has many obstacles. Several factors hindering education in Indonesia include limited access to education, an unequal number of teachers, poor infrastructure conditions, and economic and social factors. Arista [2] said, in reality the world of education in Indonesia views the low quality of education. One of them is primary school education, where primary school is the most basic level of education for children aged 6-12 years in Indonesia.

Child Friendly Schools (CFS) are educational institutions that can take advantage of facilities and make conscious efforts to guarantee and fulfill children's rights and protection. The concept of CFS that is applied is almost the same in every country, namely improving the quality of children's
education and fulfilling children's rights. Finally, UNICEF summarizes the CFS standards for international standards applied in schools in the design of child-friendly school spaces and facilities. Clair & Miske [3] stated that UNICEF is preparing a new CFS which is implemented in all countries in the world.

From the records of the Indonesian Child Protection Commission [1] in the 2017/2018 school year, the number of primary schools was 38.46%. In elementary schools in Jakarta, only a few implement child-friendly schools. From KPAI's records, only 15% of schools in Indonesia have implemented CFS. This is a formidable challenge for the Indonesian government in fulfilling child rights and child protection. The Ministry of Education encapsulates the concept of international CFS standards into Indonesian national standards. Its main focus is to support child-friendly schools that guarantee optimal child rights and protection.

The architectural approach used in designing the CFS model is a good design/solution to sustainability problems in schools. Architecture also plays a role in creating affordable, accessible, and inclusive educational solutions for people with limited resources for conventional buildings or limited access to existing school systems. which the user can accept as a cold, boring, even inhospitable environment. Therefore, by understanding the problems that actually occur at school from children, it is hoped that they can produce designs that are in accordance with child-friendly aspects and patterns of children's activities in the building. So the term "child", strongly refers to a situation that is comfortable for the child, not friendly to the child by adults. With this approach, according to Nurul [4], children are placed not only as objects in the design, but as subjects who determine the space the children actually need. And from the architectural approach above, the Ministry of Education applies 5 aspects of CFS which are applied in buildings, namely safety, health, comfort and convenience.

According to Gary [5], the potential described is designing a school based on basic education and child-friendly which will be applied to buildings and school environments, implementing the 5 aspects and policies of CFS determined by the Ministry of Education which are applied to an architectural approach, namely school building standards and granting children's rights by organizing child-friendly school buildings according to the needs and functions of buildings and users by providing sustainable solutions on the building. In the field of architecture, the application of child-friendly aspects in elementary schools can also solve problems that often occur in elementary schools and the form of design also affects the shape of the building, classrooms, room functions and sustainability that are needed in buildings. With the aim that this elementary school can provide good facilities for children to learn without differentiating children, especially from social status, making children feel comfortable when doing activities at school and paying attention to aspects of CFS that will be implemented in buildings and complementary facilities for space requirements, learning activities, play activities and user behavior/activities, especially children in the building.

The aim of this study was to consider and provide an overview understanding of the relationship between child-friendly aspects determined by the Ministry of Education and the field of architecture that has an impact on buildings and spaces that will support children's learning activities at the primary school level. The research method used is to use qualitative methods. A method in the form of an explanation or description that is currently happening accompanied by building design and theory as supporting materials.

2. Literature Review
2.1 Elementary School and Its Building Problems in Indonesia
School comes from the Greek skhole which means free time (free time). This word also includes the understanding in what ways free time is used. According to Clair & Miske [6] in the book Soebagio Atmodiwiro, school is a social interaction system of an entire organization consisting of personal interactions linked together in an organic relationship. Elementary school is the most basic level of formal education in Indonesia which is completed in 6 years. Elementary school is an institution with a well-organized organization and all its activities are deliberately planned which is called a curriculum. As formal educational institutions, schools that are born and develop effectively and
efficiently from and by and for the community are instruments that are obliged to provide services to the community in educating citizens. According to Orkodashvili [7] Schools are managed in a formal, hierarchical and chronological manner that aligns with the philosophy and goals of national education.

According to some experts who put forward several problem factors, there are those who see the problem as a mismatch between expectations and reality at school, and some who see the unfulfilled need for activity facilities experienced by school users. There are several problems identified in schools, especially elementary schools which often occur in Indonesia. These problems mostly consist of:

- **Physical development and health problems**, usually caused by several things, ranging from heredity to environmental factors from developmental disorders involving stress in early childhood.
- **Bullying problems**, usually caused by factors from children who often behave deviantly, then factors from the child's social environment, family parenting, and electronic media.
- **Psychological problems**, usually caused by several factors, namely parenting, Lack of attention and affection Negative / less supportive environment or association.
- **Social problems**, usually caused by a shy child, from the child himself, if not changed, the child will forever be shy
- **Learning difficulties**, usually caused by several main factors, namely children's weak memory, difficulty paying attention, lack of motivation in learning and etc.

2.2 Child-Friendly School Concept (CFS) and Its Building Problems in Indonesia

Child-friendly Schools (CFS) that have different conditions have different needs. Schools shape children's personalities which basically have been influenced by the home, namely the family and the community around the neighbourhood. According to Intan[10] CFS include a multidimensional concept of the quality of each child and the overall quality that children need to learn. CFS fulfill the needs of children comprehensively, which pay attention to safety, comfort, health and sustainability, child psychology, and welfare with the teaching methods and learning facilities and infrastructure used by schools.

![Figure 1. Child Friendly Aspects](Source:Dr. H. M. Asrorun Ni’am Sholeh, M.A. [10])
The general criteria for designing CFS are a synthesis of literature reviews and precedents of Guidelines for Child Friendly Schools & Mardrasah by DR. H.M. Asrorun Ni'am Saleh [10] and The Indonesian Child Protection Commission [1]. Aspects that must be met in determining the criteria are sourced. The two guidelines are summarized and get 5 important points in the child-friendly aspect, namely: safety, health, convenience, comfort, and security aspects (see Figure 1).

School building implemented CFS concept also have problems. The meaning of the problems in schools, namely the mismatch of facilities and the need for user activities in the building. So from the existing problems, the Ministry of Education applies 5 aspects of CFS which are applied to buildings, namely, safety, health, comfort and convenience. KPAI [1] 5 aspects that be a solution to problems to CFS problems:

- **Safety aspects**, potential problem related to CFS is case of fire and natural disasters (earthquakes)
- **Health aspects**, potential problem related to CFS is bad lighting in the building, openings in the building, availability of clean water in school building humidity in building
- **Convenience aspects**, potential problem related to CFS is street vendors selling around the school, the heat of sunlight that enters the building the sound of vehicles from the highway, noise occurs from children playing (break time) and outside building
- **Comfort aspects**, potential problem related to CFS is furniture that doesn’t match the size of building users, especially children and area/circulation in building is lacking (because elementary school children usually like to run around in the building)
- **Security aspects**, potential problem related to CFS is running around in the building / near the stairs, there are negative areas, study and play area furniture has sharp angles that can make children hurt (internally or accidentally)

3. Research Methodology
The research was conducted using qualitative methods, as well as data processing. This method was used to understand CFS concepts that play a role or influence on school buildings and teaching and learning activities. Data collection for child-friendly approaches is obtained through guidelines, survey results, books and journals that discuss aspects of CFS. There were several main factors that carried out to obtain the data collected in this study to be analyzed and become the main target in this study as well as problems that can be solved with a design that is in accordance with the aspects of CFS.

4. Result and Discussion
4.1. Identification of Elementary School Problems and CFS Problems related to CFS design aspects
Elementary School and CFS Problems related to the design aspects of the CFS which are one of the considerations in the architectural approach so that the implementation of designing schools is in accordance with the standards set by the Ministry of Education in Indonesia, namely 5 aspects of Child Friendly Schools (SRA) which are applied to buildings, namely safety, health, comfort and convenience (Table 1).

| CFS Aspects | CFS Problems | Elementary school problems |
|-------------|--------------|---------------------------|
| Safety      | Case of Fire | Natural Disasters and Cases inside buildings |
|             | Natural disasters (earthquake, flood, etc.) | |
| Health      | Bad lighting | Physical development and health problems. |
|             | Humidity     | |
|             | Availability of clean water | |
|             | Openings     | Bullying problems |
| Convenience | Street vendors selling around the school | Psychological problems. |
|             | The heat of sunlight that enters the building | Problems with learning difficulties |
|             | the sound of vehicles from the highway, | |

| Table 1. Problems faced by elementary schools and CFS related to the CFS design aspects |
Noise occurs from children playing (break time) and outside building

**Comfort**
- Potential problem related to CFS is furniture that doesn’t match the size of building users,
- Especially children and area/circulation in building is lacking (because elementary school children usually like to run around in the building)

**Security**
- Running around in the building / near the stairs,
- Area study and play area furniture has sharp angles that can make children hurt (internally accidentally)
- There are negative

Problems with learning difficulties  
Social problems

Problems with learning difficulties  
Physical development and health problems

Social problems

4.2. Implementation of Child-Friendly School Concept and the relation to Potential Problems in School Building

In the school itself has problems, such as accidents when children play, bullying, negative rooms, therefore the child-friendly aspect is one solution that can be applied in building design. What can be applied in 5 child-friendly aspects into the building are safety, success, comfort, safety, and health aspects. The overall implementation of CFS in school design can be seen in Table 2.

**Table 2.** CFS aspects, potential problems in the design of the CFS building, with proposed design solution

| Child Friendly School Aspects | Potential Problems in Buildings | Application of Design Solution |
|------------------------------|---------------------------------|--------------------------------|
| Safety Aspects               | CFS Aspect & Elementary School  |                                 |
| - Strong, Sturdy, and stable school building structures | - case of fire                  | - Emergency Stairs              |
| - The building has a functioning fire protection system | - natural disasters (earthquakes) | - Application of fire protection in building |
| - Have an adequate disaster evacuation system |                                | - Application Structure in the building |

| Health Aspects               | CFS Aspect                      |                                 |
|------------------------------|---------------------------------|--------------------------------|
| - The school building has natural ventilation and / or mechanical / artificial ventilation | - bad lighting in the building, | Implementation open spaces in building |
| - School buildings have permanent openings, louvers on doors and windows and / or permanent openings that can be opened for ventilation purposes | - openings in the building, | |
| - School buildings use natural and / or artificial lighting, including emergency lighting | - availability of clean water in school building | |
| - School buildings have openings for natural lighting, especially in classrooms | - humidity in building | |

**Elementary School**
- Physical development and health problems.
- Bullying
The school building has a source of clean water that meets health requirements and flows smoothly.

| Convenience Aspects | CFS Aspect | Building (open space) |
|---------------------|------------|----------------------|
| - The rooms in school buildings, especially classrooms, are protected from glare and reflected light. | - Street vendors selling around the school. | - The heat of sunlight that enters the building. |
| - The rooms in school buildings, especially classrooms, are protected from noise. | - The sound of vehicles from the highway. | - Noise occurs from children playing (break time) and outside building. |

**CFS Aspect**
- Potential problem related to CFS is furniture that doesn’t match the size of building users,
- Especially children and area/circulation in building is lacking (because elementary school children usually like to run around in the building).

**Elementary School**
- Psychological problems.
- Problems with learning difficulties.

**Comfort Aspects**
- Furniture, especially in classrooms, has a standard size according to the user.
- Two people can pass the width of the corridor.
- Toilet furniture in early childhood, kindergarten and elementary school uses a size that suits the user.
- The width of the corridor can be passed by two people passing by.

**Ergonomics: kids & adult**

**Elementary School**
Problems with learning difficulties.
| Security Aspects | CFS Aspect & Elementary School | Staircase area |
|------------------|-------------------------------|---------------|
| - The structure of the building does not have sharp and rough corners | - Running around in the building / near the stairs, | - Furniture in building |
| - School buildings minimize empty and dark spaces | - There are negative areas, | - Negative room in building |
| - The furniture does not have sharp corners and endanger the user | - study and play area furniture has sharp angles that can make children hurt (internally accidentally) | |

In the table above, the problems that are often encountered in schools were identified. From these problems, it is needed a design solution that is applied to elementary school buildings that are seen from 5 child-friendly aspects, that is:

**Safety aspects.** This aspect is the most important aspect because it has potential problems that often arise with CFS, there are several cases, one of which is fire and natural disasters (earthquakes). The solution to the case example (Figure 2) is the fire case factor, the use / application of fire extinguishers such as hydrant boxes, smoke sensors, and emergency stairs in public places such as classrooms, while natural disasters (earthquakes), namely from structures in buildings, where this type of foundation is used to hold buildings when a natural disaster occurs (earthquake)

![Figure 2. Safety Aspects](image)

**Health aspects,** potential problem related to CFS is bad lighting in the building, openings at the building, availability of clean water in school building humidity in building (Figure 3). Meanwhile, the problems in elementary schools are physical development and health problems and bullying problems and solution, is to provide openings in the school building, thereby reducing the amount of space that cannot be monitored and reducing, avoiding negative space, applying openings to buildings such as balconies, windows etc. which can be monitored from any side.

![Figure 3. Health Aspects](image)
- **Convenience aspects**, potential problem related to CFS is street vendors selling around the school, the heat of sunlight that enters the building the sound of vehicles from the highway, noise occurs from children playing (break time) and the problems in elementary schools are is problems with learning difficulties and solution to these two problems has the same solution, providing openings, to be able to measure the area of each class on all sides, divide the playing and learning areas, one of the classes is not age-appropriate, meaning that grade 6 can be close to grade 3 so they are mutually can mingle and look after. Besides that, learning doesn't always have to be done in the classroom, but it can be done outside the classroom, for example on the roof top, inside buildings and in sports fields (Figure 4).

- **Comfort aspects**, potential problem related to CFS (Figure 5) is furniture that does not match the size of building users, especially children and area/circulation in building is lacking (because elementary school children usually like to run around in the building) and the problems in elementary schools are is Problems with learning difficulties and solution to these two problems has the same solution, namely adjusting the standard size of user comfort in the building, providing a path / area of mobility in the building, one of the public areas, learning and playing where to focus on children when learning and not to be disturbed by sound - inside and outside the building and psychological problems.

- **Security aspects** and elementary schools, have the same potential problems related to CFS (Figure 6) is running around in the building / near the stairs, there are negative areas, study and play area furniture has sharp angles that can make children hurt (internally or accidentally) and solution to the above problems is - Running inside the building / near the stairs, the staircase area is given ceramic material and a nursing slip which functions to make the stairs have no sharp edges or edges., there is a negative area, provide openings on each side of the building and can be monitored from all sides, study and play room furniture has sharp corners that can make children hurt (internally or unintentionally), where this furniture is very important to pay attention to because every room is used as an area for children's activities while studying at school, so this furniture must be pay attention in terms of user comfort to avoid accidents when in use.

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**Figure 4.** Convenience Aspects

**Figure 5.** Comfort Aspects

**Figure 6.** Security Aspects
So from the results above, the problem of the problems at school and the child-friendly aspects itself, then the shape of the building/building design is very much influenced by the details of child-friendly aspects, problems in elementary schools and most importantly children who feel that going to school is fun and feel safe so children will go to school without being forced and feel that school is not only serious about learning but they can socialize with each other without having to be afraid with each other.

4.3. Identification of COVID-19 Problems in Elementary Schools related to the design aspects of CFS.

The COVID-19 problem this year is a very influential problem in teaching and learning activities in elementary schools. Therefore related to the CFS design aspects, the comfort, safety, and health aspects are the right aspects for the COVID-19 problem, because it can apply health protocols to existing school buildings, for example, such as providing a hand washing area before entering a school building, doing sterilization, applying physical distancing, etc.

5. Concluding Remarks

In developing the concept of a child-friendly school model that is able to accommodate children's needs not only physically, but also mental, social, and other needs, it is necessary to use a behavioral architectural approach. The architectural approach used in designing the Child Friendly School model is a good design/solution to sustainability problems in schools. Architecture also plays a role in creating affordable, accessible, and inclusive educational solutions for people with limited resources for conventional buildings or limited access to existing school systems which the user can accept as a cold, boring, even inhospitable environment. Therefore, by understanding the problems that actually occur at school from children, it is hoped that they can produce designs that are in accordance with child-friendly aspects and patterns of children's activities in the building.

Problems in primary schools have several main factors, but the most important thing is that children feel that going to school is fun and feel safe so that children will go to school without being forced and feel that school is not only serious about learning but they can socialize with each other, each other without having to be afraid or bothered by each other.

So from the results of the research above, there are problem factors in elementary schools, caused because one of them is the location, the shape of the building design, the activities that occur in the building, and etc. Building/building design is influenced by detailed child-friendly aspects and building users, especially children, also feel more comfortable doing activities while inside the school building.

The benefits of research, the results of this research can be useful for the government, the private sector, to architects who want to build schools, especially elementary schools, so that they coordinate and evaluate the implementation of the Child Friendly School Policy which is more intensive so that they understand the complexities and constraints faced in the field by policy implementers. It is hoped that the fulfillment of the rights and protection of children in school infrastructure and advice and
establish an education policy to put the needs of students as a top priority to facilitate children accessing all learning facilities.

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