



**AN INVESTIGATION INTO PRE-SCHOOL
CHILDREN'S REPRESENTATIONS OF SPACE**

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Master's Thesis

Graduate School

Izmir University of Economics

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ABSTRACT

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The aim of this research is to demonstrate creative capabilities of children and their possible advantageous effects on a design process. This study examines the inclusion of children in a design process by asking kindergarten students' wishes from a classroom through a drawing activity and their satisfaction with the classroom environment through a questionnaire. Their drawings analyzed under four creativity characteristics whereas their satisfaction levels are inspected within territoriality, privacy, and crowding aspects. Balçova Selçuk Yaşar Nursery and Kindergarten was chosen as a case study. According to results of creativity characteristics, these kindergarten children possess creative abilities which can affect a design output more beneficiary for the children if they are involved in. The questionnaire results demonstrate more positive thoughts about territoriality and crowding sides in addition to more discontented comments about privacy sides of their classroom and these answers help designers and researchers to understand what children require for more

satisfactory classroom environment. It is believed that, regarding their artistic development stage, children are able to reflect their thoughts through their creative abilities as well as their verbal descriptions. Since each and every citizen has a right to speak about the issues that affect them, children need to be listened and taken into account. In this study, children's creative abilities and statements about their classroom environment demonstrated their capability to be included in a design process. I believe that their inclusion in a design process will pave the way for children to have voice for their needs about the place where they spend most of their time through utilizing from their creativity. Designers can benefit from their ideas and also collaborate together to help children to comprehend design concepts to plan more satisfactory environments with them.

Keywords: creativity, creativity characteristics, artistic development, children participation in design process, satisfaction level of children, classroom environment.

ÖZET

OKUL ÖNCESİ ÇOCUKLARIN MEKÂN TASVİRLERİ ÜZERİNE BİR ARAŞTIRMA

Çelen, Melis

Tasarım Çalışmaları Yüksek Lisans Programı

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Bu araştırmanın amacı, çocukların yaratıcı yeteneklerini ve bir tasarım süreci üzerindeki olası avantajlı etkilerini ortaya koymaktır. Bu çalışma, anaokulu öğrencilerinin bir sınıf ortamından isteklerini çizim etkinliği aracılığıyla sorarak onların tasarım sürecine dahil edilmesini ve bir anket aracılığıyla sınıf ortamından memnuniyetlerini incelemektedir. Çizimleri dört yaratıcılık özelliği altında incelenirken, memnuniyet düzeyleri bölgesellik, mahremiyet ve kalabalık yönleriyle incelendi. Balçova Selçuk Yaşar Kreş ve Anaokulu örnek olay olarak seçilmiştir. Yaratıcılık özelliklerinin sonuçları, onların sanatsal gelişim aşamaları göz önünde bulundurularak, bu anaokulu çocuklarının bir tasarım sürecine dahil edildiklerinde tasarım çıktısını etkileyebilecek yaratıcı yeteneklere sahip olduklarını ve eğer dahil edilirlse çocuklar için daha fazla fayda sağlayacağını göstermektedir. Anket sonuçları, mahremiyet hakkında daha hoşnutsuz yorumlara ek olarak, bölgesellik ve

kalabalık taraflar hakkında daha olumlu düşünceler göstermektedir. Bu yanıtlar, tasarımcıların ve araştırmacıların çocukların daha tatmin edici sınıf ortamı için neye ihtiyaç duyduğunu anlamalarına yardımcı olur. Çocukların sözlü anlatımlarının yanı sıra yaratıcı yetenekleriyle de düşüncelerini yansıtabildikleri düşünülmektedir. Her vatandaşın kendisini etkileyen konularda söz söyleme hakkı olduğundan, çocukların dinlenmesi ve dikkate alınması gerekir. Bu çalışmada, çocukların yaratıcı yetenekleri ve sınıf ortamına ilişkin ifadeleri, bir tasarım sürecine dahil olma yeteneklerini ortaya koymuştur. Bir tasarım sürecine dahil edilmelerinin, çocukların yaratıcılıklarından yararlanarak en çok zaman geçirdikleri yerle ilgili ihtiyaçlarını dile getirmelerinin önünü açacağına inanıyorum. Tasarımcılar onların fikirlerinden faydalanabilir ve ayrıca çocukların tasarım kavramlarını anlamalarına yardımcı olmak ve onlarla daha tatmin edici ortamlar planlamak için birlikte iş birliği yapabilirler.

Anahtar Kelimeler: yaratıcılık, yaratıcılık özellikleri, sanatsal gelişim, çocukların tasarım sürecine katılımı, çocukların memnuniyet düzeyi, sınıf ortamı.

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CHAPTER 1: INTRODUCTION

In every part of the life, people confront with challenges and may have to take an action which affects not only them but also others in the society as a chain reaction. Being aware of the influence caused by the results of their actions, people need to take everyone's opinion those will be affected by before they make up their mind. Especially in the design of a surrounding, decision-making and taking an action without knowing the needs and requests of all the people those will live, use and benefit from it has many disadvantages and makes designer's endeavour complete waste of time. However, conducting the strategy in a design through including those members of a community has long-term benefits to the society and it is called participatory design. It is a process that actively involves all stakeholders, such as employees, partners, customers, citizens, and end users, in the design process to ensure that the end result meets the needs of all and is usable (Kang et al., 2014). By mentioning all the members of a community, children is considered as delicate subjects. As it is stated in Article 12 (Lansdown, 2001), children need to be actors of their own lives and to raise their voices in the situations and decisions that affect them. In the matter of design, children need to have a right to be listened to and taken into account in the design that has impact on their lives.

In this study, children's participation is discussed not in the framework of participatory approach but in the respect of children's participation and their creativity in a design process thuswise their contribution for designers. It is suggested by Hansen (2017, p. 4) that younger children have unlimited capability to see an object or an idea from novel and creative perspectives so they bring crucial contribution to the design process which

‘ ‘designers and researchers have something to learn’ ’.

With upholding the rights of the child to be heard which was acknowledged for the first time in international law (Lansdown, 2001), their point of views need to be regarded in terms of design as well. Therefore, in this study, their contributions to a design process as well as to designers and researchers are examined by taken into consideration their creativity.

1.1. Problem Definition

When it comes to children and their surroundings, primary consideration as a place where they spend most of their time can be regarded as schools. Since they devoted reasonable amount of time in their classrooms, they have enough knowledge about the advantageous or disadvantageous sides of their learning environment. Therefore, it is inevitable to consider that children has a right to have a voice in the design of their classroom environment.

Not just taking into consideration the group of individual who will benefit from the design is crucial but having them participated in the whole design process has more credibility in long term. Therefore, as children are the main actors of this study, my first research question is “How can children involve in a design process?”. Since in a design that is done through taking into account the actors that utilize the output, it provides useful and sustainable solutions to their problems. Children in this case, can contribute through expressing their ideas, worries, and wishes to a design process and provide new perspectives to the designers. Through acknowledging this idea, I asked about their contribution to the design process, so the second research question is “How do children contribute to the design process?”. Besides, it is also crucial from the perspective of designers. Through collaborating with children and comprehending their needs and wishes from their surroundings, designers are required to be capable of working with children. Therefore, the subquestion I asked is “How do children contribute to designers by participating in a design process?”.

Children has innate and unstoppable capacity to discover new things that surround them. Through exploring, children learn how to make connections between these new notions and create original ideas. Especially in terms of creativity, children have distinct abilities to come up with unusual ideas. When a design of the place, - here, classrooms- is considered, their creativity can be utilized to make a significant contribution to a design process. Therefore, I also try to seek the ways to benefit from children’s creativity. Followingly, the third research question is “How can children’s creativity contribute to a design process?”. Through participation of children in a design process, their creativity may change the way designers thinking what is

appropriate or better on behalf of children. Since they do not think as adults and have different perception regarding their surroundings, children's creativity can bring to light a lot of original and unusual ideas. Therefore, my subquestion about creativity is "How the creativity of children can change the design process of classroom environment?".

From our point of view, schools need to be places for children that enhance their learning and creative abilities and also become meeting points for social learning that supports to resolve disagreements and reinforces individuality and boosts conversation for sharing flow of ideas between students. To be able to comprehend student's needs for a classroom to be more efficient for their learning and more encouraging to boost their creativity, I will search for how to utilize from their own ideas and how to unveil their creativity through involving them in a design process.

1.2. Research Questions of the Study

R.Q.1. How can children involve in a design process?

R.Q.2. How do children contribute to the design process?

R.Q.2.1. How do children contribute to designers by participating in a design process?.

R.Q.3. How can children's creativity contribute to a design process?

R.Q.3.1. How the creativity of children can change the design process of classroom environment?".

1.3. Methodology of the Study

As it has been previously stated, the study is done to explore how can children provide benefit to a design process as well to designers. In this study, I've collaborated with kindergarten students aged from 5 and 6, namely the main agents of the study are kindergarten students.

Since students spend most of their time in schools, they have huge capacity to recognize whether or not their classroom is fitted to their needs and wishes. Thus, in this study, by the agency of collaboration with children, their imaginary classroom was

asked them to be drawn. To support my idea about children's creativity and its contribution, I've analyzed children's expressions through their drawings and discussed how can children's creative abilities provide benefits to a classroom design process and designers as well. In this research journey, I've learnt how different each age group has creative capacity, therefore, throughout drawing analysis, artistic development stages of children which is studied and explained by Lowenfeld and Brittain (1966) has been taken into account.

The second aim of the study, which is assessing student's classroom satisfaction levels can also provide designers to be informed about children's critics regarding their classroom. With an observation list that is formed through utilizing from the questionnaire that Sanoff (2001) has been done, student's contentment and dissatisfaction about their classroom has been sought for.

To sum up, at first, children's dream classroom was asked them to be drawn. To comprehend the imaginary world of children that is expressed in the drawing papers, semi-structured interviews were conducted through questions which were asking the meaning of their drawings as well as their fulfillment with their classroom environment. Since I believe children's creativity would be helpful for designers in a design process, the forms in the papers has been analyzed considering some creativity characteristics. For analyzing the creativity of children through their drawings, creativity assessment method which is based on the behaviour or performance data of children was used. This assessment method was generated by Treffinger (2002) and both the students and their drawings were assessed according to four criterias as follows; generating ideas, digging deeper into ideas, openness and courage to explore ideas, listening to one's inner voices. Besides, as has been said above, Lowenfeld and Brittain's (1966) study about children artistic development stages helped me to analyze their drawings by regarding different creative capabilities in each level of artistic development of children. In addition to drawing activity, an observation list has been conducted which is formed by utilizing from Sanoff's (2002) "Classroom Environment Ratings". I've put into words some statements outloud about their classroom, and waited for their answers as "I agree" or "I disagree".

At the beginning of the process, I've informed students about the reason why I asked them to draw their dream classroom and the background of these questions. For the further times, their answers can be utilized and their creative ideas can be implemented in the amelioration of their classroom.

1.4. Structure of the Study

The thesis is composed of six chapters.

The first chapter is the introductory section, which describes the problem definition, the research questions, the goals, the methodology and the structure of the study.

The second chapter gives insight into the participatory design as general concept and narrowed down to children participation in the classroom environment design.

The third chapter covers the effects of school environment on children's creative abilities by benefitting from the literature about transformation of educational methods and classroom arrangements throughout the years.

The fourth chapter dwells on the creativity characteristics and artistic development of children and how do they reflect their creativity.

The fifth chapter, the research methodology is stated which will find the answers to the research questions. The research methodology compromise of questionnaire, semi-structured interview, and analysis.

The sixth chapter is comprised of findings regarding the research analysis. Data analysis are supported with the comments of researcher.

The seventh chapter derives conclusion from the analysis. In this chapter, the research is summarized, and further suggessions for future research has been done.

CHAPTER 2: THE ROLE OF CHILDREN AND THEIR CREATIVITY IN PARTICIPATORY DESIGN

According to Sanoff (2007, p. 57);

“participatory design is an attitude about a force for change in the creation and management of environments for people”.

Owing to participatory design, citizens are trying to seek collective outcomes, that are defined as visioning, strategic planning and deliberate democracy and those focuses on;

“actions that shape and guide what a community is, what it does, and why it does it” (Sanoff, 2007, p. 57).

When it comes to children, they are considered as delicate subjects to have a voice in issues that affect them. In my opinion, in design wise, their potential to create unusual ideas and natural ability to discover should not be underestimated. I give so much importance on the contribution of children through participating in a design process and believe in their promising creative abilities. Acknowledging the importance of their participation, their contributions in a design process through using unlimited and authentic creative abilities are what I've been searching for. Therefore, I defend children's participation in the situations that affect them, as is in a design of their surroundings because I believe their voices are needed and can change the perspective of decision-makers. Especially, in the design of their everyday use environment, they may speak about their ideas and even make criticisms about current situation. I believe the enormous creative potential of children to make beneficiary effect on designers and design process. Therefore, this study concentrated on the contribution of children's creativity in a design process more than their participation in a design process. Nevertheless, at first, I will explain why participatory design is important for children to be able to make a strong foundation for the contribution of children through their creativity in design.

2.1. Children Participation

“Perspective-taking and perspective-sharing is a key component of participatory design, and is a key component of designs that are more sensitive to their ultimate users” (Fishman, 2013, p. 118).

In other words, utilizing from various perspectives in a design process affects the end result to be usable and desirable for all community members. Arnstein who contributed to the citizen participation issue has a theory which divides the citizen participation in different levels. Arnstein (1969) describes participation issue by describing it in eight levels and each level corresponds to the extent of citizen’s power in determining the end product. Besides, these ladders of participation become intense and meaningful when it is ascended whereas turn into pointless when descended. The most efficient levels of participation are located in the latest and highest level and named delegated power and citizen control. These levels give have-not citizens an access to have majority of decision-making seats, or full managerial power.

When the citizens are considered in terms of ability to have a voice about the issues that affect their lives, children are considered as delicate subjects. As Article 12 (Lansdown, 2001) states, children need to have a right to be listened to and taken seriously. Therefore, their point of views should be comprehended to understand their needs and expectations. According to Fielding (2004), it is dangerous for speaking about others, and of speaking for and in place of others, including unintentional disempowerment as well. Therefore, especially the children should be encouraged to speak about their own opinions without the effect of direct adult involvement.

By speaking of children, Hart (1992, p. 8) suggested a ladder of participation specifically for children and he suggested eight types of participation. As Hart (1992) states, any child should be encouraged to participate at the highest level of their ability. The important thing in participatory projects as Cele (2006) suggests is that children are not used as decorations in participatory project but they are provided with a choice about how much they want to participate.

“Projects that are initiated and led by adults can be participatory if the children who are consulted have understood the process and have their opinions treated seriously” (Hart, 1997).

That is, children’s voices should be heard and given attention to realize actual participation in the issues that are affecting them.

Adults can support children about how to reflect their opinions. According to the articles (Lansdown, 2001) of UN Convention on the Rights of the Child, adults need to learn to work more closely in collaboration with children to help them articulate their lives, to develop strategies for change and exercise their rights. As Lansdown (2005) describes, all children are able to express a view from birth. Being able to participate is in their nature, however, the continuity and development of that skill depends on the adults and their way of behaviours.

“Adults working with, or caring for children, are obligated to create a space where children can express themselves, and to take their opinions seriously” (Hansen, 2017, p. 8).

Lansdown (2005) agrees children to be encouraged to participate and adds that children who are allowed to participate will reach a higher degree of competence compared to who are not allowed.

2.2. Children’s Participation in School Design

When the situation of students in a school considered, as in other institutional systems, decisions about school facilities tend to be made by a few people who are not direct building users, often ignoring the direct involvement of teachers and students (Sanoff, 2002). Moreover, as Sather (2002) criticized the recent literature, she addresses students as those are neglected in educational research. However, studies issued by Ellis, Monaghan and McDonald (2015) emphasizes the knowledge children have about the environment where they live and learn, and how it supports shaping their lives. Therefore, children need to have a voice about their environment because they are affected by the place where they live and learn. According to Sanoff and Walden (2012), schools which are ill-structured in terms of their physical environments affect

learning of students as well as the performance of teachers. Besides, as Filippini, Giudici and Vecchi (2008) states, the environment so crucial that it is called;

“silent language surrounding the child”.

Actually, children should reflect their opinions in anything in life, especially in design. They have such kind of creative worlds that they have no borders. That is why, they are the biggest impressions for designers.

Through acknowledging the importance of the classroom environment for children, it is nonsense to disagree with their involvement in the design process. However, there are some counter point of views for children to collaborate with designers. For instance, Cele (2006) claims that, children are mostly regarded as subjects those have not mature enough in terms of biologically and socially, and do not possess the capability of adults. Therefore, childhood is considered as a period of socialisation in which children learn what is to be a fully human adult being. Druin (2002) also implies that children especially young ones were considered have problems verbalising their thoughts and feelings.

In accordance with the Druin's view, Lansdown (2001) states that, the weight that should be given to children's opinions need to demonstrate their level of understanding of the issues involved, however, this does not show that young children's views will be given less weight. Children's competence does not improve regarding to rigid developmental stages. There are different factors such as social context, the particular life experience of the child and the level of adult support which affect the capacity of a child to consider the issues influencing them. However, if an ability to question, search for answers and discover are considered as indispensable part of capabilities of designers, how can children be part of a creative process if they cannot express what is in their mind? How can a child make a creative action without knowing how to do it?

Lowenfeld and Brittain (1966) explains it by defending the unnecessary of knowledge to make a creative action. They state that there is no relation to have a background information or preparation to be involved in the creative process.

“Children learn to walk without an intellectual understanding of the motor control involved” (p. 4).

Therefore, according to Lowenfeld and Brittain, (1966) children can create regardless of the knowledge and it will help them to involve in a design process and take a creative action. Even if they believe there are different artistic developmental stages for creativity, they defend the idea that children have innate capability to create. When it comes to their learning environments, their creative ideas become even more crucial because at that time, it is the place where they develop a connection with. Therefore, to be able to comprehend how this interaction between a child and his learning environment forms and grows, we need to be aware of the effects of the school environment on children.

CHAPTER 3: THE ROLE OF SCHOOL ON CHILDREN'S LEARNING AND CREATIVITY CAPACITIES

As said above, I believe that children participation plays a crucial role in the design process, especially in the built environment that children do use. As Woolner et. al (2005) states, school buildings were seen in the past as the centre on educators and student involvement became out of topic. However, there is a growing interest about involving school pupils in the process for the school building design (Clark et. Al 2003, DfES 2002). As stated in the UNICEF (2004), children's participation means supporting children's active engagement in issues that affect them; taking into account their point of views in a design process. While bearing this information in mind, schools can be considered that affect the children in many ways. As Ghaziani (2008) noted, children are considering the school environment not only for learning but also for socializing, relaxation and also for enjoying. Additionally, the design of school environments affects the activities and outcomes of teaching and learning. Moreover, for instructors, the design of learning environment has influence on their way of interacting with the students. Therefore, while a school building makes a positive contribution to the academic wellbeing of students, and promote social interaction, a sense of community and inclusiveness, it also needs to boost learning activity with the help of instructors. The Commission for Architecture and the Built Environment stated:

“...we know that good design provides a host of benefits. The best designed schools encourage children to learn.” (DCMS, 2000, p.1).

Therefore, the voice of the children is so much important that they spend most of their time in school environment and have enough knowledge for their environment to be reorganized and gentrified by the designers. Additionally, as Can and Inalhan (2017) state, through getting information from children about their understanding of a place would guide designers to improve planning and design of these places. Thus, it can be said that, children participation through the school design process is two fold; it has benefits both for the designers and the children.

3.1. Indoor and Outdoor Design of a School and its Effects on Learning

When the education occurred in the school is considered, it is known that learning is not limited only with the classroom but the whole school environment. Children need to be active outside of their classrooms to learn and discover more about their environment. It is said by Lowenfeld and Brittain (1966) that a child's interaction with his environment contributes to their mental growth as well as their creative abilities. Moreover, it is necessary for them to experience what is happening in their surroundings because children have huge capacity of learning new knowledge through exploring which means they are curious in nature. That is, school environment should support young people's innate interest about their environment. As Sanoff (2002) suggests, learning is not confined into formal curriculum because there are many other sources which paves the way for learning and it is called incidental learning. This idea described as incidental learning means learning from various sources like physical environment of the school. From the perspective of function, a school can be evaluated regarding to how efficient and flexible the spaces are organized and how those spaces can be adapted to different types of users and usages. That is, since there are various kinds of user and usage types, both inside and outside environment of the school should be evaluated according to various criterias (Sanoff, 2002).

School building can be considered as a place where exploring and discovery take place for accessing knowledge. These activities that take place within schools have both educational and social sides which signifies the school space not as sole teaching spaces that aim to follow curriculum, but also as a place where students spend their course of time. In addition to educational and social importance of the school environment, the schools need to have different type of places both inside and outside of it because those spaces may serve as a meeting areas of small groups of children. To attract the attention of children, those places should have physical characteristics that boost feeling of belonging and of ownership (Sanoff, 2002).

As I've mentioned above, children have enough knowledge about how their learning environment has an influence on their life. Accordingly, there is a growing awareness about how a learning environment can affect the process of learning and

teaching of people (Sanoff and Walden, 2012) and there are some research outputs by Henry Sanoff about how school environment affects the school pupils in multiple ways. According to Sanoff and Walden (2012), schools which are ill-structured in terms of their physical environments affect learning of students as well as the performance of teachers. However, it is not to point out only the physical structure of the schools but the teaching methods of the instructors which affect the students' success. As Weinstein (1979) approves, good teaching can exist in poorly built schools, just as poor teaching can be found in well-built schools and it is accepted that the buildings can both promote the learning of pupils as well as hinder it. However, Sanoff and Walden (2002, p. 280) defends the physical structure in terms of the way for success by saying,

“well-planned school buildings can promote the development of successful, motivational learning methods that contribute to a love of learning”.

I believe that school environment and the way children are educated have considerable influence on children's capabilities. Especially, creative abilities should be considered as the qualifications that have to be nourished and revealed. Since I believe creativity can be improved with interaction of child and his environment, schools are needed to be places where it allows children to explore through their senses and encourage to reflect their ideas through a healthy connection formed between child and his surrounding.

Acknowledging the effects of school environment on children, designers' roadmap that they planned at the beginning of a project can be researched because there are different considerations they take into account to design satisfactory environments. The foremost important point is to emphasize with the people who will actually use the designed space. Conducting user interviews to comprehend fully what kind of personas will benefit from the designed place is a necessity for designers to realize and satisfied their ideas by the users. When it comes to school environment, as Sanoff (2002) states, teachers, administrators, students', and parents are the users of the school building and they would be the best choices to evaluate physical environment of the school. So as to be successful in meeting the needs of learners, in

addition to school administrative decision-makers, parents, business and community leaders, teachers and students should be encouraged to participate during the planning and design of a school (Jefferey, 2000). The evaluation of the physical environment of the school can help for understanding the problems and needs of children and this can be handled by questioning users of the classrooms. The questions may be searching for a knowledge about how students and teachers perceive and use their classroom environment. As educational philosopher John Dewey (Sanoff, 2001) states, learning environment should be humane and attentive to each children's needs. As another educator, Howard Gardner (Sanoff, 2001) mentions, meaning of learning has transformed from accumulation of knowledge to ability to construct knowledge in meaningful ways for a specific purpose or for a solution to a problem. So that, if the physical environment of a classroom shaped thoughtfully by considering individual teacher and student needs, it will enhance the learning process (Sanoff, 2001).

However, aren't there another criterias to think about rather than only considering the physical limitations such as how the interior space should be like to improve socialization of children, or how the garden has to be in order to boost physical activities of children?

Human beings have huge ambition to learn new things, and especially young children have a prodigious urge to learn new information. However, as children start to go to school, they lose their greed (Robinson and Aronica, 2016). So, what is the reason for children to lose their interest for gaining new knowledge? Can only improving physicality of school building helps student to attract their attention to the classes? Robinson (Robinson and Aronica, 2016, p.12) claims that;

“keeping it alive is the key to transforming education”,

but are the designers be able to achieve this or even make some improvements through design to support this transformation?

As Sir Ken Robinson declares about how the educational systems were based on the industrial revolution age and how it should be adaptated to the current period of time, school environment also needed to be adaptated to the current alterations of population because it can have a crucial influence on each student (McAllister and

Sloan, 2017) and can be considered as a main location for their informative social interactions and learning experiences. Throughout the history of time, adjustments happened regarding school structure and these changes altered the perspectives towards children's development and attitudes for both educational methods and types of educational facilities. That is, school environment that evolved throughout the history had crucial importance in terms of the way childrens are educated. Since I believe how a child create a connection with his classroom environment is important indicator in the way they contribute to a design process, thus, how classroom design and educational strategies had evolved throughout years are worth to be researched.

3.2. Classroom Environment and Educational Methods in Years

The alterations in the educational setting throughout the history had effects on students' and even teachers' motivation, interaction and success. Besides, these arrangements also influenced the activity held during the class. The traditional instructional setting was mainly grounded upon lecturing and question-answer types of activities in the classroom so that the student interaction was seen as interruption to the order and not appreciated by traditionalists. The place of the teacher's desk impose where the focus of students should be. The arrangement of student desks push them to work alone but not in groups around clustered tables. This type of layout provide focusing attention on the teacher solely and inhibiting students from other form of communication (Sanoff, 2002) which assumed that the students could pay more attention to their teacher. On the other hand, in modern instructional approach, student interactions are highly valued (Chan, 1994). Moreover, Marx, Fuhrer and Hartig (1999, p. 249) supports the idea of;

“the physical characteristics of a classroom setting can influence the behaviour of its users”.

There is a hypothesis about this influence by Steinzor (1950) and mentioned by Gump (1978) as students those are seated around tables in a classroom can build face to face contact more without any difficulty than those seated in rows-and-columns. Therefore, students would less be impacted by the eye-contact control of their teacher

which could probably affect their participation to the class and interaction with their classroom pupils. Furthermore, as Weinstein (1985) claims, if students allowed to choose where to sit, their seating preference gives us information about their motivation and personality. Totusek and Staton-Spicer (1982) claims that, students those prefer front or central seatings have more creative abilities, and have more aggressive and ambitious traits. It is also asserted that these types of students have more aspiration to do things (Becker et al., 1973; Walberg, 1969) and have higher self-esteem (Hillmann et al., 1991; Pedersen, 1994; Srivastava et al., 1992). Additionally, Hillmann et. al. (1991) consider these students more attentive.

The standardization of education system had some reactions from Europe as well as from America in the name of:

‘progressive movement’ (Sanoff and Walden, 2012, p.277),

and the main principle of this movement was child-centered education in opposition to teacher-centered approach which was led by standard course content formed by formal lectures. Since I realized that children in strict teacher centered education system limit children’s innate discovering and creativity abilities, transforming education into student centered provide them to enlarge their horizon and encourage them to be curious. Therefore, progressive movement and its one of the pioneer Maria Montessori in Italy (Sanoff and Walden, 2012) supported the idea of unveiling children’s innate exploring and creative capabilities and believed that children can learn on their own.

Maria Montessori’s ideas were about seeking a way for children to realize their capacity through learning by discovering with various methods. Dr. Maria Montessori (1870-1952) was asked in 1907 for organizing a school for the young children in a new slum housing development and this situation made her to transfer her attention from work with mentally retarded children to work with children of the Roman slums (Burnett, 1962). She opened the first children homes in 1907, named casa dei bambini (Sanoff and Walden, 2012). In these schools, children those ages range from three to seven;

“worked with Montessori equipments and guided by Montessori methods”
(Burnett, 1962, p. 72).

Her methodology was based on an environment that is prepared and a sequential order of learning activities and she achieved it by using carefully selected materials, pieces of equipment, and didactic apparatus were basic elements of the environment (Burnett, 1962). How the children learn when they got into school is that first Maria Montessori showed the proper use of apparatus and then let children to discover their learning. The main responsibility of the directress was demonstrating procedures and

“keeping records of each child’s activities” (Burnett, 1972, p. 72).

When Montessori methods are considered, they seem so different from current teaching-learning practice because her method was introducing children to learn by themselves with given proper materials (Burnett, 1972). Teachers' role was also changed through less interrupting the learning process of children. Therefore, this led her educational philosophy to be self-guided and child-centered because she believed that every child has innate ability to explore and learn by themselves.

3.3. Relations Between Educational Activity with the Design of Learning Environment

As it is seen, many educators from that period were believing that education programs should be arranged according to child, but not that the child should fit the program. With these pedagogic findings, spatial layout characteristics of the school architecture has changed. For instance, classrooms were having a connection with the communal areas (Sanoff and Walden, 2012). However, industrialized era (1945-1960) made huge effect on the newly generated approach to the classroom design. Since the mass production conquered the idea of producing according to specific needs, prototype school buildings confined to strict institutional and economic standards (Sanoff and Walden, 2012). Therefore, as Taylor (1975) states, industrialized era paved the way for school buildings to be constructed by taking factory approach so that the buildings were built fast and economic and their appropriateness to the educational requirements were no more taking into consideration.

After the middle of 20th century, in 1959 J. Lloyd Trump had a crucial initiative towards the improving the situation of secondary education and school environments with a plan. His idea was depicting a non-standardized classroom that does not limit 25 students into a classroom to meet each weekday. By this way, student and teacher could create more intimate relationship and it would lead teachers to be regarded as consultant rather than a taskmaster. As Sir Ken Robinson (Robinson and Aronica, 2016, p. 99) declares,

“The best teachers are not only instructors. They are mentors and guides who can raise the confidence of their students, help them find a sense of direction, and empower them to believe in themselves”.

Therefore, the idea of Trump from years ago is still valid, needed and seeking for in our current educational system. Besides, he accepted the idea of distinct learning abilities of students so that he offered a plan that supports the specialized studies. His plan also promoted the need for spatial flexibility because different learning styles would necessitate students to be taught in variety of spaces (Sanoff and Walden, 2012).

In the 1960s and 1970s, new developments related with the analysis of children’s developmental needs were introduced in the education system. As Barth (1972) claims, these new improvements offered changes in the structure of the classrooms and school building as a whole. That is, after the standardized closed-plan schools, the second half of the twentieth century became the time for open-plan schools to spread widely in the US, UK and Canada through the growing interest in student-centred learning mainly in preschool and primary education (Gislason, 2015).

According to Franklin (2015) the rejection of the concept of enclosed classroom was initiated by the architects Mary and David Medd from England and they offered the semi-opened interconnected spaces with various character. Actually, since the Second World War, the design of schools has transformed from;

“additive configuration of flexible classrooms towards a dissimilar places” which children can benefit for different kinds of purposes based on the field of study they are learning (Montes and Uribe, 2018, p.11). Therefore, schools are designed to be formed by classrooms to create a large unity of places and students were visiting

each class according to their specific discipline of knowledge so these architects ‘Mary and David Medd’ (Montes and Uribe 2018, p. 14) were giving crucial importance to the schools to be designed based on a pupil-centred approach and they were closely collaborated with the designer and the educational authority as well.

Medd’s designed a primary school called Finmere School in Oxfordshire and their design was pioneer in primary school design in 1960s (Dudek, 2000). However, the reputation of open-plan schools lessened through 1980s and the failure for open-plan concepts were deriving from the teacher’s lack of training and lack of assistance to continue practicing on the usage of layout (Brogden, 2007) and then many of the schools designed as open-plan or semi-open plan were transformed into the traditional classroom in the following course of time (Franklin, 2015).

There are still continuous imbalance between the educational philosophies and practices which implementing student-centered education model while dominating and controlling over student’s use of different spaces and activities (Cushman, 1999).

3.3.1. The role of interaction between student and teacher on educational activity

Apart from physical arrangement of classroom, there is also otherside of the coin when the success and motivation of students are taken into consideration.

”In the educational context, the teacher-student relationship is one of the most outstanding academic interactions at the core of the teaching-learning process” (Tapia-Fonllem et al., 2020, p. 3).

This interaction is so crucial that it plays the most important role to meet the needs of educational requirements (Bertoglia 2008, Tapia-Fonllem et al., 2020).

To achieve a successful interaction with the students, teachers should be aware of each student’s distinct abilities which require an influential communication between student and teacher. Furthermore, for Gage et al. (2018) students’ success is directly affected by the teacher’s classroom management. Since teachers interact with the students throughout their educational life, their behaviours affect students in either positive or negative way. That is, students’ emotional and social learning is structured

in a way that their teachers behaving them. Therefore, it can be said that, if the communication and interaction between the teacher and student is affective, then the classroom environment becomes positive as well (Roorda et al., 2011; Poulou, 2014).

Kutsyuruba et al. (2015) had conducted a study which supports the importance of relationship between the student and teacher by mentioning it in academic level. He studied the dimensions of the school climate and divided it into three main categories as physical, academic and social. In physical level, the environmental quality of schools and its relation with the educational performance and behaviour of students were considered. In the academic level, personal skills and characteristics of teachers that affects the development of their students were considered. In the social level, the nature of relationship between the members of school community was considered. That is, these categories were regarded as the main components of a school environment to be safe or positive (Kutsyuruba et al. 2015). The academic level demonstrates how crucial the behaviours of teachers affect the developments of students.

3.3.2. Educational Activity as Living Organism

Robinson (Robinson and Aronica, 2016) associates education system with the living system in terms of various ways. Complexity is one of them. Since living organisms comprised of separate system and they are both related and depended on each other for the health of the organism as a whole. For instance, as he (Robinson and Aronica, 2016) explains if the plant has diseased roots, it cannot flourish and cannot have healthy flowers or fruits which means if the roots are in trouble, then the whole plant becomes in danger. When the animals are taken as an example, their organs need to function properly. Robinson correlates living system with education system in terms of adaptation and evolution.

“Living systems have dynamic and synergistic relationship with their physical environment” (Robinson and Aronica, 2016, p. 65)

Therefore, if the surroundings change inappropriately, an organism may affected in a bad way, or it can adjust itself according to changes and evolve into something else.

As Robinson and Aronica (2016) declare with complexity, adaptation and evolution, education systems are complex in various ways. There are different kinds of groups such as students, parents, educators, employers, professional and commercial organizations, publishers, politicians, and so on. Also, all of these interact with each other reciprocally.

“They all have their own special interests, which may overlap or conflict and affect each other with varying degrees of influence. Employers and politicians may be parents. Parents may be educators or students themselves” (Robinson and Aronica, 2016, p. 65).

Besides, education systems have great diversity with and between each other. For instance, there are different types such as faith-based, independent, and selective schools which are specialize in specific disciplines. These complexities and diversities make every school a living community of people with;

“unique relationships, biographies, and sensibilities” (Robinson and Aronica, 2016, p. 65).

Moreover, each school has its own spirit that comes from particular rituals and routines,

“its own cast of personalities, its own myths, stories, in-jokes, and codes of behaviour, and its many subcultures of friends and factions” (Robinson and Aronica, 2016, p. 65).

This living community of people can affect the entire community by its energy. If it is an active school, it can cherish the entire community by becoming a source of hope and creative energy. That is why, weak schools may devastate the optimism of all the students and families who depend on it by declining their opportunities for development and progress.

As it has been said by Robinson and Aronica (2016), the culture of schools is also affected by the national and state laws, by economic circumstances, and by conditions and traditions in the dominant culture. Therefore, as it is a living system

with adaptive and complex characteristics, education system has a tendency to cultivate new features in response to changing circumstances. That is,

“the education system is so complex and diverse that it can be changed and that it does change” (Robinson and Aronica, 2016, p. 65).

Mentioning about education as living system which has characteristics such as adaptability to the changes and complexity as a system in itself, we can talk about what is or was the educational success mainly about. It is known that education is dominated by the idea of academic ability. Moreover, for many people, word “academic” is a synonym for “intelligent” and “academic success” is synonym for “educational achievement” (Robinson and Aronica, 2016). In the conventional academic curriculum, the main emphasis is on academic work than the practice. As it has been said, academic studies are unquestionably crucial and should be part of each of every student’s educational life. However, it is not enough for the education that all students demand. There are much more important areas which human intelligence capable of such as arts, sports, technology, business, engineering. Rather than imposing only academic work on students, other fields of works should be given equal importance in general education to at least lay the foundations for their development. Therefore, the curriculum of schools should uncover the distinct abilities of students rather than imposing on academic knowledge which generally reducing the innate curiosity and urge to discover more and more.

3.4. Distinct Abilities of Children

As a matter of fact, it is depicted that children’s distinctive ability to discover and comprehend what is around them lead us to think children as natural learners. However, Robinson and Aronica (2016) asks, if the children are natural learners, why do so many of them conflict and struggle at the school and disinterested by the whole process? System has defects and it causes children to be pervaded from the main function of the school.

Conventional education system is the reason why students cannot reveal their actual -natural- learning abilities. Conventional high school classroom is depicted by Robinson (Robinson and Aronica, 2016, p. 74) as;

“students sit at desks, facing the front, while the teacher instructs, explains, and sets assignments”.

The learning is comprised mainly of verbal or mathematical which allows students only write, calculate, or discuss with the teacher. All students have the same time restrictions to grasp the same amount of knowledge and this supposed to indicate their general ability if they fall behind or keep up with the class. Therefore, it can be said that, traditional educational system compels children to be failed because it is not compatible with each of children those have varying kinds of abilities to learn.

Robinson (Robinson and Aronica, 2016) also believe that education should be personalized like in it is done in the apps on our smart phones, clothes to wear and our pages on Facebook. He explains the personalization in education as follows;

- Recognizing that intelligence is diverse and multifaceted
- Enabling students to pursue their particular interests and strengths
- Adapting the schedule to the different rates at which students learn
- Assessing students in ways that support their personal progress and achievement

We all have a wide range of natural aptitudes, and we all have them differently. Personalization means teachers taking account of these differences in how they teach different students. It also means allowing for flexibility within the curriculum so that in addition to what all students need to learn in common, there are opportunities for them to pursue their individual interests and strengths as well. Personalization helps teachers to acknowledge that all students have wide range of natural aptitudes so they take into account of these differences in their teaching methods. These dissimilarities allow instructors to be adaptable with the curriculum so that they can make additions to what all students need to learn in common. They can seek students' individual enthusiasm and strengths and adapt the curriculum accordingly.

As Sanoff (2001) states, certain needs of students should be fulfilled to experience healthy learning environment. Each of the students have different nature which require school environment to be diverse and this can be achieved if students can find a place in their school that is appropriate for their interests to reveal. In a responsive school, there is an atmosphere that different learning activities occur in and out of the classroom and teachers used different type of teaching methods such as small group work, lectures, learning by doing, individualized assignments, and learning centers (Sanoff, 2001). That is, the learning environment makes sense in various ways for each student and these differences should be taken into account while designing those places.

Through thinking the way as children has distinctive abilities to learn subjects, or different kinds of abilities which separates them from other pupils, their learning abilities can be supported with right implementation of teaching methods. Robinson and Aronica (2016) believe that any talent can be improved through practice but the same amount of practice will affect two people in different levels. It is explained by saying each person has different capabilities and teaching everyone the same way is inefficient. These differences can enrich the learning environment when the whole class with unique abilities is considered.

As Robinson and Aronica (2016) mentions, we all have by virtue of being human. Besides, it is not only contained in arts but all areas of human life such as science, mathematics, technology, cuisine, teaching and so on. Since it's an issue of human capacity, our creative powers can be improved through increasing mastery of skills, knowledge, and ideas. As Grandstaff (2012, p.28) explains, when children have an ability to draw and have freedom to create what they want, they become able to discover and 'make creative decisions' on their own if they have reliable guidance and a safe environment. Teacher, in this phase of teaching, has huge responsibility to help students to realize or express their abilities and creativities.

“Cultivating creativity is one of the most interesting challenges for any teacher”
(Robinson and Aronica, 2016, p. 106).

It necessitates comprehending the actual dynamics of creative work. Lowenfeld and Brittain (1966) also discussed three characteristics that provide instructors an ability to support children to unveil their creativity; 1) his own creativeness, 2) his ability to empathize with others, 3) being aware of the needs of his students. According to them, an instructor should be capable of understanding children's needs and accept their distinct abilities. Moreover, they need to be alive to unstable needs of children and coordinate the class accordingly. So as to say, with a reliable and sensitive guidance, children can feel motivated and urged to express their creativity. It is known that the ambition to discover and passion for work brings out the creativity itself. If students are motivated to learn and discover, their innate creativity emerges accordingly. This process can be observed;

“in great teaching in every discipline from football to chemistry” (Robinson and Aronica, 2016, p. 106).

CHAPTER 4: CREATIVITY OF CHILDREN AND ITS ASSESSMENT

So as to bring out the creativity of children, their learning environment has huge effect on it. As a matter of fact, when it comes to learning environment, it is known that it should provide for students an atmosphere that evokes their enthusiasm to discover and learn with acceleration. As Demirbas and Demirkan (2000) claims, any understanding of education and learning includes the term creativity, and thus, the learning environment should carry the necessary components to support it. Jerry Mintz who is one of supporter of democratic process in schools and the founder of the Alternative Education Resource Organization believes that outstanding learning can take place when students have an ambition to learn, and reciprocally the school provides environment for students to discover (Robinson and Aronica, 2016).

As it is mentioned by Sanoff and Walden (2012), classrooms were representing a common teaching method which has effects by industrialism age. However, teaching methods has evolved whereas the learning environment carries the old heritage still.

“The designed of the classroom has remained static” (Sanoff and Walden, 2012, p. 282)

so that the present teaching methods and learning styles encourage a new form of learning environment which includes different kind of activity spaces and group-activities. Moreover, in terms of creative production of children, schools and teachers have crucial role to encourage students to become creative producers (Treffinger, 2002). Grandstaff (2012, p. 27) also supports that, artistic creation and understanding of a child can be promoted through a;

“student-centered environment, discussions, self-exploratory learning with some guidance, and critical thinking activities”.

Learning environments has inevitable importance on children’s capabilities so that we as designers need to know how a classroom makes sense for its students and allow them to express their feelings and ideas to design a better classroom environment with them. According to Alerby (2000, p.206), to be able to have;

‘an understanding on the subject of the environment, the thinking is made apparent with the aid of creative activity in the production of drawings, combined with subsequent oral comments’’ (Alerby, 2000).

Since I believe that children have different point of views without any limitations, they can definitely help designers to have distinct kind of knowledge about their learning environment through a creative activity. They perceive the world through associating their unique observations with their individual understanding (Günindi, 2012). As Lowenfeld and Brittain (1966) elaborates, with the process of drawing, painting, or constructing, a child assembles distinct elements from his environment to create a new form and in this new form, we can find a part of himself. What he selects, and how he interprets these elements give us clue about how he feels, and how he perceives.

4.1. Creativity Definitions

Speaking of creativity, Treffinger (2002) mentions that, there is no sole explanation for creativity because it is complicated in nature. In general, we consider people who can bring about abundance of, various and extraordinary ideas together as creative because they can produce ideas through thinking of piles of possibilities, having ability to look from different perspectives or coming up with the novel ideas (Treffinger, 2002). Creativity from art perspective, Lowenfeld and Brittain (1966) explain it as a process that happens during the interaction between the person and his environment. They also declare that, advertisements on magazine or television, and even education, namely outside world, hinder children’s innate and free creative expressions and by saying that they supports the idea of every person has a creative drive in his nature. To be able to understand creativity holistically, it would be beneficial to mention some explanations about this matter from different perspectives. After that, this issue will be discussed from the perspectives of children.

The first description is from Teresa M. Amabile who thinks creativity includes a cooperation of three components which are domain-relevant skills, creativity-relevant skills, and task motivation. According to her (Treffinger, 2002), domain-

relevant skills contain understanding about the domain, technical ability, and special domain-related capability whereas creativity-relevant skills contain;

“working styles, thinking styles, and personality traits” (Treffinger, 2002, p.5).

Lastly, task motivation aspect includes the ambition to do something;

“for its own sake, or based on the interest in the activity by a particular person at a particular point in time” (Treffinger, 2002, p. 5).

The second description about creativity is done by Erich Fromm who defines creativity as the capacity to identify and to act in response and he argues that creative person requires to have an ability to be amazed, concentrate, consider oneself as the pioneer of ideas and actions (Treffinger, 2002, p. 6). According to Fromm, creative person needs to have an urge to be born every day (Fromm, 1959, p. 53). As a third person, Treffinger mentions Howard Gardner who argues that creative person generally deals with the problems and tries to solve them or;

“defines new questions in a domain in a way that is initially considered novel but ultimately becomes accepted in a particular cultural setting” (Gardner 1993, p.35).

As fourth person who describes creativity, William J. J. Gordon uses the term of connection-making and express it as combining different and unrelated elements together and called it as synectics. According to this approach, people can enhance their ability to make creative relation in case that they comprehend and intentionally use metaphorical thinking (Treffinger, 2002) and with the help of this way of synectics approach people can discover new solutions to the problems by searching for;

“direct, personal and symbolic analogies” (Treffinger, 2002, p. 6).

Joe Khatena who is the co-developer of many creativity assessment instruments describes creativity as;

“... the power of the imagination to break away from perceptual set so as to restructure or structure anew ideas, thoughts, and feelings into novel and associative bonds” (Khatena and Torrance, 1973, p.28).

Abraham H. Maslow's approach for creativity is about self-actualization in human behaviour. According to Maslow, many people have a tendency to not learn about themselves because they are afraid. However, creative people do not have any fear to self-actualize themselves (Treffinger, 2002). As Maslow (Treffinger, 2002) states, these people can be defined as courageous, autonomous, spontaneous, and confident. Sarnoff A. Mednick explains it by saying ideas associated in individual's mind in unconventional way to develop novel notions (Treffinger, 2002). His idea of creativity which is described as associating remote ideas in an original and useful way resembles the ideas of Ken Robinson about creativity. As we analyzed above, Robinson was defining creativity as having unconventional ideas that have a meaning and power (Robinson and Aronica, 2016).

4.2. Creativity of Children and its Reflections in a Design Process

Cross (2001) mentions creative design as a problematic issue because of its uncertain existence or occurrence during the design process. He responds this knowledge by indicating that creativity can emerge in every design project, not only in obvious forms but also as a solution to a design problem (Dorst and Cross, 2001). Cross (1990) also recognizes design ability as developed mostly in skilled designers, but possessed also in some degree by everyone. As he (2010) mentions, designing is a natural human ability that animals and machines unable to do it. He considers people as good at design in their nature.

When it comes to designers in terms of creativity, Sanders and Stappers (2014) states that, designers are taught to be creative in their school life. Therefore, they know how to use their creativity to bring about new ideas or to turn ordinary ideas into something fascinating. However, participatory design paves the way for designers to be the facilitator or translator of notions rather than the creator.

“It was no longer about being the expert and coming up with the ideas, but instead about using creativity to find new ways to help everyday people share their ideas and experiences, and then using design thinking to translate those stories into frameworks that inspire new design directions” (Sanders and Stappers, 2014, p.13).

That is, designers are able to use their background to lead people to be either aware of their creativity or help them to discover it through working with them in the design process.

Everyone can be considered as creative but the failure is that they are not aware of it.

“They believe that only certain people such as artists, musicians or designers are capable of being truly creative” (Sanders and Stappers, 2014, p.15).

But, what about children? As it has been supported throughout literature review, children have innate ability to create without limitations. Therefore, it is important for a designer to be aware of the creative capability of the children those participated in a design process because through comprehending their unique perception, we can bear witness children’s sensory experiences with their environment. Thus, in addition to creativity definitions, we need to know how a creative ability of a child demonstrates itself in a creative process. That is, we need to know basic elements of creativity.

According to Lowenfeld and Brittain (1966, p.7), there are eight aspect of creativity that rooted from arts and science. The first one is *sensitivity* and it is explained as being sensitive to;

“problems, to attitudes and feelings of other people, and to the experience of living”.

Children that have high degree of sensitivity are considered as being aware of a situation, or anything unusual. The second aspect of creativity is *fluency* which means producing too many ideas in a short amount of time which provide a child to think promptly (Lowenfeld and Brittain, 1966). Having flency ability is also exemplified as a preschooler draws numerous scribbles. The third factor is *flexibility* which gives a child an ability to adapt to a new situation quickly or to change his mind expeditiously. The fourth aspect of creativity is *originality* which gives a person an ability to think in unusual way and to produce novel ideas. According to Lowenfeld and Brittain (1966), having original ideas is not supported and accepted in our school systems because of instructors those are generally searching for correct answers. However, as Lowenfeld

and Brittain (1966) defends, in art, being original; having unusual perspective and responding in unexpected way are needed. The last aspect of creativity and creative process is *the capacity to redefine or reorganize* (Lowenfeld and Brittain, 1966). This ability allow a child to shift the meaning of objects and reconstruct their meanings and using in new and different direction. He supports this ability through an example of transforming paper bags into puppets, thus, giving new function to the paper bags.

There are more aspects for creativity characteristics in literature review. In Treffinger's model, these characteristics are divided into four general sections and all sections include subsegments which gives more detailed creativity properties. The main headings are:

“generating ideas, digging deeper into ideas, openness and courage to explore ideas, and listening to one's inner voice” (p. 11).

The generating ideas category includes the cognitive characteristics commonly referred to as;

‘divergent thinking or creative thinking abilities and metaphorical thinking’ (Treffinger, 2002, p. 11).

Second consideration for characteristics of creativity for Treffinger (2002) is digging deeper into ideas which referred as convergent thinking or critical thinking. In this category, people use methods such as;

“analyzing, synthesizing, reorganizing or redefining, evaluating, seeing relationships, desiring to resolve ambiguity or bringing order to disorder, and preferring complexity or understanding complexity” (Treffinger, 2002, p. 13).

Therefore, this category supports the idea that analyzing and focusing ideas are needed for creative productive thinking (Treffinger, 2002). People who considered owned this characteristics think;

“beyond the obvious to perceive gaps, paradoxes, needs, or missing elements” (Treffinger, 2002, p. 14).

Another category that formed personal creativity characteristics is the openness and courage to explore ideas which is related with having;

“problem sensitivity, aesthetic sensitivity, curiosity, sense of humor, playfulness, fantasy and imagination, adaptability, intuition, willingness to grow, unwillingness to accept authoritarian assertions without critical examination, and integration of dichotomies or opposites” (Treffinger, 2002, p. 15).

That is, creative people can be considered as curious and open to novel experiences and ideas in their nature. In addition to this, as Torrance (1971) argues, the most essential characteristics of a creative person is courage. Followingly, Treffinger (2002, p. 16) says that people those have courage and open-minded are;

“asking many, varied, and unusual questions and they are challenging their own assumptions and those of others” too.

In addition to this, these people also are not afraid to declare their own beliefs and notions.

The last category for personal creativity characteristics is listening to one’s inner voice. Treffinger (2002) argues that, this characteristics related with self awareness and motivational tendencies. That is, people who own these attributes do not give up in hard times;

“take responsibility for action, and actively seeking opportunities for applying their creative abilities” (Treffinger, 2002, p. 18).

Besides, as Treffinger claims, these people commonly lose sight of time and place when they are dealing with a project. Treffinger used these characteristics to identify creative potential among K-12 students as well as to find classroom practice to nurture creativity for students so that this categories can be beneficial for my research to examine student’s creativity in their classroom.

4.2.1. Children's Creativity Assessment

According to Mel Rhodes, creativity cannot be limited to or explained as a one component but as a multi-faceted conception that consists of four factors. These elements comprise of;

'person (personality characteristics or traits of creative people); process (elements of motivation, perception, learning, thinking, and communicating); product (ideas translated into tangible forms); and press (the relationship between human beings and their environment)' (Treffinger, 2002, p. 7).

Similarly, Treffinger explains the creativity in four concepts interwoven each other. He (2002) believes that many research on creativity includes adults instead of children and followingly supports the idea of creativity can be developed and nurtured among students in the classroom setting. He also admits that schools and teachers have huge importance in terms of making a differences in all of these phases to support students to become creative producers. Therefore, he (1988, 1999) argues that there is need for not only understanding creative potentials but also to boost and improve creative productive thinking in classrooms and proposed the COCO model.

He introduced four important components of creativity productivity as Characteristics, Operations, Context, and Outcomes. These components resemble someway or another with the model introduced by Rhodes. In Treffinger's model characteristics involve personal attributes as Rhodes discusses in his person in four P's as;

'traits, attitudes, and behaviours of the creative individual' (Treffinger, 2002, p. 20).

In the operation phase, Treffinger discusses the strategies and methods individuals apply to produce and examine ideas, to find solution to the problems, make decisions and control their thinking. In the second P of Rhodes' model there is process which involves the mental process of how a person applies which methods and tools to find a creative solution. In the context phase of Treffinger's model, it includes the culture, the environment, the circumstantial dynamics such as communication and

collaboration as well as the physical environment where the task is operated. In a similar way, in the press phase of Rhodes four P's model, it indicates the context and the condition where creative activity occurs (Treffinger and Center, 2002). Lastly, Treffinger introduces outcomes phase which means the products and ideas that formed as a consequences of people's creation. Followingly, Rhodes define it as product which is introduced as the result of creative thinking.

In the model created by Treffinger, creativity of children can be assessed through obtaining behaviour and performance data because according to Treffinger (2002), observing people's actual behaviour to analyze their creativity is important. For characteristics of creativity, Treffinger indicates several points to consider while observing the tasks of children. These characteristics are as follows;

Generating Ideas:

- Fluency
- Flexibility
- Originality
- Elaboration
- Metaphorical Thinking

Digging Deeper into Ideas:

- Analyzing
- Synthesizing
- Reorganizing or redefining
- Seeing relationships
- Preferring complexity or understanding complexity

Openness and Courage to Explore Ideas:

- Curiosity
- Sense of humor
- Imagination
- Willingness to take risk
- Tolerance for ambiguity

Listening to One's Inner Voice:

- Self-confidence
- Concentration & Energy
- Self-direction
- Perseverance

In this research, I take these four main creativity characteristics into consideration while observing children's performance. As I've mentioned above, Treffinger (2002) also introduced Operation, Context, and Outcome parts of the COCO model in addition to Characteristics. These other three components can be used to propose appropriate learning ways after assessing children's current creativity level via creativity characteristics.

Treffinger's (2002, p. 66) suggestion is coming into conclusion with four performance levels as;

‘not evident yet’, ‘emerging’, ‘expressing’, ‘excelling’

through evaluating children's behaviours in a creative process. After this assessment, appropriate response can be determined to reveal or enrich creativity level of children. As Treffinger (2002, p.66) mentions, if the creativity level is namely not evident yet, forming necessary foundations for creative learning is a response to this level. If the creativity level is emerging, establishing and improving tools and creativity skills is the response to this level. If the creativity level is expressing, implementing instruments and competences to ‘realistic problems and challenges’ is the response to enrich the creativity level. If it is in the last level, excelling, it is proposed to analyze and employ creativity instruments to a different types of problems and challenges, in a group or by oneself which demonstrates ‘self-initiated and self-directed creativity’ at the end (Treffinger, 2002, p.66). He (2002) also adds proper context for four level of creativity to emerge and improve. In COCO model these contexts are as follows; for the first level (not evident yet), a safe and open environment; for the second level (emerging), an environment that provides occasions to product development under the guidance of instructor; for the third level (expressing), an environment which supports comprehending varied tools and their appropriate applications; and for the last level

(excelling), an environment where student act freely, supports students to personalize the usage of tools.

4.3. Artistic Development in Children

Participating children in a creativity assessment study, their artistic development needs to be taken into account because they express their creativity in a way different than adults, thus, their actions should be analyzed according to their specific artistic development considerations. Since this study is about supporting children to involve in a design process and believing their creativity would contribute to designers in a design process, an environment which they have interaction and connection to has been chosen which is a classroom. A classroom means a lot to children. They develop an understanding about their surroundings, construct relationships and they unveil and nourish certain creative abilities in the classroom. Regarding these effects, children, those are the main agents of their classroom, construct and shape a lot of meaning about their learning environment. Their experiences with the outer world, is needed by designers to understand their needs and wishes. Through drawing which considered as a natural play activity for children (Ivanda, 2014), their inner world come to light, namely, blossoms. As Van Manen (1990) describes, an object of art can be seen as a text which has its own language. Therefore, childhood artworks can be seen as;

“metaphorical representations of sensory experience of the world” (Ivanda, p.60)

As it is mentioned above by Treffinger, there are different levels for creativity performance. Lowenfeld and Brittain (1966) describes this difference by saying that it can be a sole drawing of a line through following the directions of the instructor, to the complicated composition. However, the creative ability of a child is partly associated with the interaction of child with the environment. As it is discussed in the effects of classroom environment section, creative abilities of a child can be nurtured with a safe environment and reliable guidance in the classroom. Therefore, how a child construct relationship with his environment has huge importance in his creative ability. Needless to say, the mental growth, in this process, has foundations for ascending the

relationship of a child with his environment. As Malchiodi (2005) states, in a drawing activity, the child expresses his observations through harmonizing their thoughts and emotions on the subject matter. However, how the child reflects his artistic ability in a creative process depends on the capability of the child in terms of discovering his environment and filtering his thoughts and senses which finally have roots on how much his artistic ability developed. Therefore, if we have knowledge about the artistic development stage of the child, we can assess his creativity with creativity assessment tools accordingly.

4.3.1. Artistic Development Stages of a Child

As Lowenfeld and Brittain (1966) mentions, the reason why a child's expressions are different than an adults is that they think in a different way. Therefore he explained these expressional differences through examining the age and drawing characteristics of the children to understand their artistic developmental stages. According to Feldman (1985), the first three stages are accepted as universal because every child around the world will experience the same steps disregarding their living or environmental conditions.

The first stage is named "The Scribbling Stage" and is seen in children from two to four years. It is the stage where the child first attempt to draw symbols. According to Grandstaff (2012), this stage is regarded as the first opportunity the child has to draw and use art tools. As Lowenfeld and Brittain (1966) explains, the first scribbles are seen as random marks on the paper. However, there is no attempt to draw any image in that stage. After some time, the child may find a relation between movement of his hand and the marks on the paper and this realization is considered crucial because the child is becoming aware of how he controls the visual by himself. Through repeated movements, children develop their particular motor movements, too. At this stage, Lowenfeld and Brittain (1966) states that, there is no creative intention but just moving a crayon through certain parts of the paper. However, the child in this stage starts to discover color and forms which gives a clue about their personality. According to one research that is done by Alschuler and Hattwick, in the paintings of 150 children in nursery school age, some behaviour characteristics are

discovered. The study has done to prove the expression of emotional experiences and emotions of children in the paintings. They (Lowenfeld and Brittain, 1966) found that, children those painted in warm colors demonstrated free emotional behaviour whereas children those preferred blue nas more controlled behaviours.

The second stage is called ‘‘Preschematic Stage’’ and is seen in children from four to seven years. As Grandstaff (2012) explains, in this stage, children start to draw people and objects from their environment. From Lowenfeld and Brittain’s words, it is the first stage where children starts to draw and create forms by conscious (1966). Preschematic stage is accepted as the first time that children create a connection with their visual worlds that their random scribbles now come into being real functional visualisations. As Gardner (1980) states, the artistic development from scribbles to controlled lines considered as universal. In this stage, the child recognizes the most crucial parts of his external world and starts to draw people and find relation between head and feet through drawing lines and circles. Then, he enriches his head-feet representation by adding arms, eyes and other features of a body.

The differences in the sizes of objects are decided by the value judgements of the child. His relationship with the environment is reflected through sizes of the objects that he selected to draw and how he choose to place them in the paper. Lowenfeld and Brittain (1966, p.120) declares that;

‘the way things are represented is an indication of the type of experiences the child has had with them’.

Therefore, this stage is considered as the starting point for perceptual growth. That is, the child’s perception with the image of himself and the things around him will evolve as soon as he realizes the characteristics of his environment.

In preschematic stage, children starts to recognize his environment and he reflects it through their own mental translations. The drawings seem to have no order so that the objects will appear all over the paper. This shows that the child does not see himself standing on the ground with the other objects. As Lowenfeld and Brittain (1966, p.119) mentions;

‘space is conceived of as revolving around the child’.

At this age, they do not construct a knowledge between form and colors, so they use color for its own sake. Additionally, the child likes to talk about this drawings and explain it with adults.

The third stage is called “Schematic Stage” and the biggest development for the child is the realization in the order of space relationships. That is, the child become aware of the place of objects and their spatial relations between them. They become aware of “base line” and name it as ground. While he draws by considering the base line, he shows the objects on the ground share the common space relationship.

In this stage, we observe exaggerating important parts, neglecting unimportant parts, or changing symbols for emotionally important parts in the child’s drawings. However, as Lowenfeld and Brittain (1966, p.143) states, children do not do it by conscious but they reflect;

‘size relationships which are real to them’.

Besides to that, the child depicts the inside and outside of an enclosure at the same time (Lowenfeld and Brittain, 1966). This happens when the child considers the interior part of the enclosure has more importance than the outer part of it. Moreover, the child can also draw plan and elevation at the same time to demonstrate which part they give priority.

In this stage, the differences in schematic representations in the drawings are recognizable. That is, the differences in the concepts demonstrates how unique environmental interaction each child have and this provide us clue about how they created a bond with their environment. If a child is more aware of his surroundings, he probably have rich schema and reflect this variety in this drawings.

I believe that children have innate creative capabilities because they have no borders that limit them to think in unusual way. They can reflect their thoughts about a subject through a creative activity, which is drawing in this thesis, and we need to be aware that their creative ideas they express and forms they draw come out from the interaction with their self and their environment. These drawings tell us much more

about lines or circles, but how they understand their surroundings. Their pure, unique classroom schemas in their minds can help designers to comprehend children's needs and also their creative abilities to express ideas provide original contribution to the classroom design.



CHAPTER 5: METHODOLOGY

This chapter of the study presents the methodology that is used in this research to demonstrate how the research proceeded.

The intention of the study, firstly is to examine children's creative abilities and discovering their classroom schemas through a drawing activity and secondly, having knowledge about their satisfaction levels from classroom through asking them questions. Their creative abilities assessed through considering creativity characteristics formed by Treffinger (2002), and as well as their artistic development stage formed by Lowenfeld and Brittain (1966). Second of all, their classroom satisfaction levels assessed through a framework that I've utilized from "Classroom Environment Ratings" that is generated by Sanoff (2001).

The creativity part of the study is important because in participatory design approach, children's creative abilities such as producing novel ideas or metaphorical thinking can provide benefit to a design process. Besides, utilizing from a drawing activity is also valuable because as Arnheim (1969) argues visual arts convey thoughts. The second phase of the study is also important because comprehending children's ideas about classroom environment is crucial for designers to find out more satisfactory design solutions.

Since the study needs qualitative and quantitative data through participating with children, it has done in the classroom environment of students. As a case study, Selçuk Yaşar Nursery and Kindergarten Education Center in Balçova is chosen to conduct this research. The reason to select this education center is that it was not too crowded, thus, allowed us to conduct research with two student groups from different classes and also benefitted us to spare more time with each children.

The findings and the results of the conducted research are presented and discussed in this chapter.

5.1. Case Study

Balçova Selçuk Yaşar Nursery and Kindergarten Education Center is located in Izmir. It is a part of Izelman preschools with other 13 preschools that are affiliated with Izmir Metropolitan Municipality. The aim of these institutions are to generalize the preschool education in all districts in Izmir, helping problems of working mothers to take care of their child, and extending the contributions of local governments in the field of social services. In these preschools of Izmir Metropolitan Municipality, there are students between 24-66 months and 7-10 years old (Izelman, 2010).

The study that took place in Balçova Selçuk Yaşar Nursery and Kindergarten Education Center is a detached building and provides service between 7.00 am to 6.00 pm. There are five instructors in the teaching position, two staffs for taking care of the organizational works in the building, and one manager. In this education center, there are four classes for children in 24-36 months, 4,5 and 6 ages.



Figure 1: Exterior view of Balçova Selçuk Yaşar Nursery and Kindergarten Education Center. (Source: SuperRehber, 2022)



Figure 2. Interior view of 6-age classroom of Selçuk Yaşar Nursery and Kindergarten Education Center (from teacher's desk). (Source: Izelman, 2010).



Figure 3. Interior view of 6-age classroom interior of Selçuk Yaşar Nursery and Kindergarten Education Center (Source: Izelman, 2010).

Classrooms were included personal cabinets of each student. Each classroom that we visited had 15 students so there was enough amount of chairs for the whole class. On the walls of the class, there was activity products such as drawings and 2D figures from colored papers that are made by students. In the 6-year-old classroom, tables were put together for students to sit around it whereas in the 5-year-old classroom they were separated for each 5 students to work together.



Figure 4. Interior view of 5-year-old classroom interior of Selçuk Yaşar Nursery and Kindergarten Education Center (Source: Author, April, 2022).

There were teacher's desks located in one side of the classroom, however, teachers mostly did not manage the class by sitting there while there was an activity.

5.2. Participants

The study was conducted with a sample group formed by 5-year-old and 6-year-old, 30 kindergarten students. Two of them were in the state of special student. The gender difference of the study was 12/30 female and 18/30 male. The reason for choosing this age range was that 5-year-olds and 6-year-olds have developed motor and communication skills. As Lowenfeld and Brittain (1966) states, this age group demonstrates preschematic artistic development. Piaget (Grandstaff, 2012) also assumes that, in this stage children improve their drawings from random scribbles to circular human forms which means their creative abilities can be more beneficial and relatable to classroom design. Therefore, 5-year-old and 6-year-old students can provide quality empirical data to this study.

5.3. Instruments

The research has been done on one weekday with two classrooms. An observation list that consists of 17 questions was prepared for two classrooms. The

content of the observation list has foundations for measuring the satisfaction of students about their classrooms. Thus, the questions include concepts such as privacy, territoriality and crowding. In addition to the questions in observation list, at the same time a drawing about their dream classroom was asked them to draw. For assessing classroom satisfaction levels, I've utilized from the questionnaire that is generated by Sanoff (2001) in the name of "Classroom Environment Ratings". Besides that, for analyzing creativity, I've used creativity characteristics formed by Treffinger (2002) by taking into consideration children's artistic development stages that is studied by Lowenfeld and Brittain (1966).

In this study, video and sound recording were required to analyze the answers of students. After obtaining necessary permissions from school management, two classrooms were visited one by one. The content of the study was explained to the head teacher as well.



Figure 5. Thumbnail of the conducted questionnaire



Figure 6: Thumbnail of the drawing made by a student from research group

At the beginning of the conversation with students, general questions such as their name and age were asked. Then, the reason for these specific questions to be asked about their classrooms was explained. The questions led participants to answer them with yes or no. While starting with the questions, we asked them that they could begin to draw their dream classroom and during their drawing activity, I've encouraged them to talk about their drawings. As Schratz and Steiner-Loffer (1998) approve, image-based research is useful to reveal inner world of school from the student's point of view. It helps designers and researchers to make sense children's classroom schemas through their drawings. Besides, applying draw-and-tell technique,


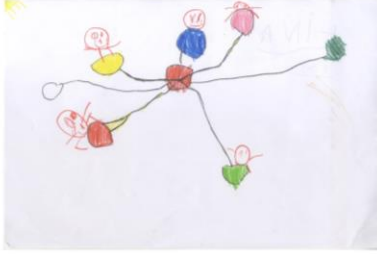
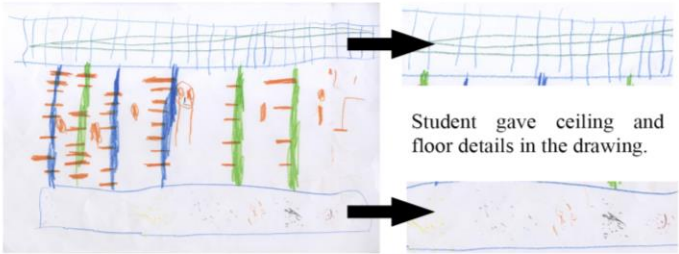
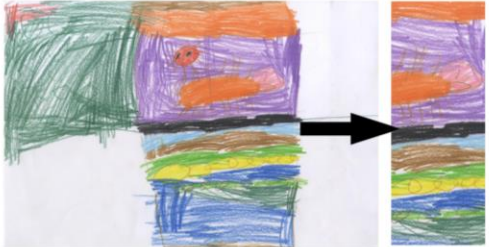
we can become familiar with their classroom environment perception (Shepardson, 2005).

The observation list that I've used during the research was to provide both quantitative and qualitative data about satisfaction levels of students for their classroom. The questions include how sufficient the space in the classroom for student to move around, whether or not the student have private space for his/her personal belongings or to stand alone, their sitting place arrangement and their contentment about it, organization of their classroom and its size, and the activities which held in their classroom.

5.4. Data Analysis

While asking the 17 questions of observation lists that I've utilized from the study of Sanoff (2002), voice of the students has been recorded and in the analysis part, verbal descriptions of students has been decoded. Besides, the drawings of students has been analyzed according to four creativity criterias of Treffinger (2002). Additionally, Lowenfeld and Brittain's (1966) characteristics for aesthetic development stages helped me to analyze the forms and concepts of participants' drawings. Analysis of drawings and verbal descriptions can be found below.

Table 1. Sample Table for Generating Ideas (prepared by author)


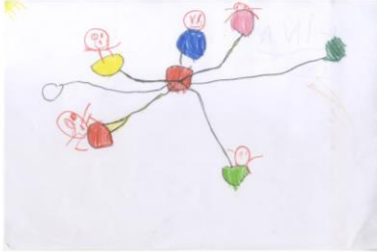
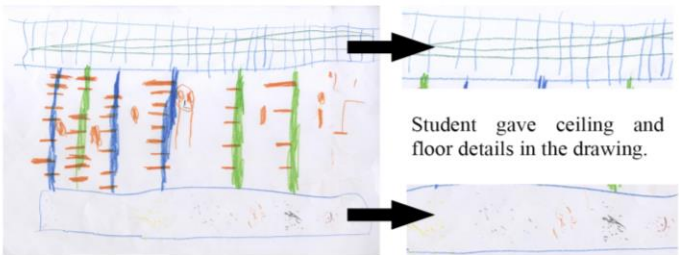
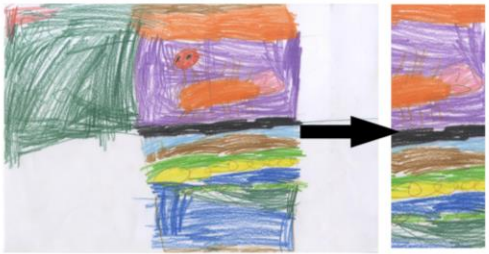
<p>Fluency¹</p>	<p>Burası <i>deniz</i>, burası <i>dağ</i>, burası <i>ağaç</i>, burası <i>kuş</i>, burası <i>ev</i>, burası <i>araba</i>, burası da <i>güneş</i>. Here is <i>see</i>, here is <i>mountain</i>, here is <i>tree</i>, here is <i>bird</i>, here is <i>house</i>, here is <i>car</i>, here is <i>sun</i>.</p>	<p>P10</p>
<p>Flexibility²</p>	<p>“...Kar yağıyor sonra evin altına giriyor. Karlar eriyince de evin pencereleri büyüyor”.</p>  <p>“...It snows, then go under the house. When the snow melts, windows of the house becomes bigger”.</p>	<p>P30</p>
<p>Originality³</p>	 <p>“Sıralarımız, lunaparktaki dönen sandalyedeki gibi. Öğretmenimiz ortada, bizim sandalyelerimiz de dönüyor etrafında”.</p> <p>“Our chairs are like the ones that are in amusement park. Our teacher is sitting at the center and our chairs are turning around it”.</p>	<p>P14</p>
<p>Elaboration⁴</p>	 <p>Student gave ceiling and floor details in the drawing.</p>	<p>P06</p>
<p>Metaphorical Thinking⁵</p>	 <p>Student drew aquarium in multi-layered order with various colors.</p>	<p>P04</p>

*1: Capacity to produce abundance of ideas

*2: Being able to analyze ideas or experiences in unanticipated ways

*3: Ability to generate new and unusual ideas

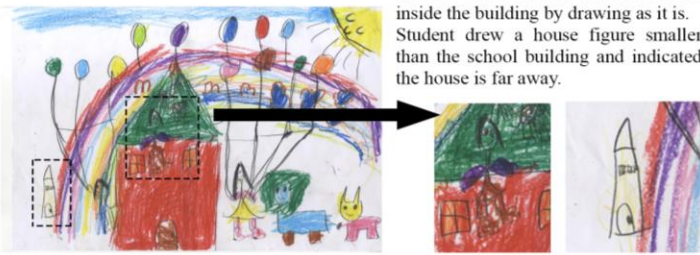


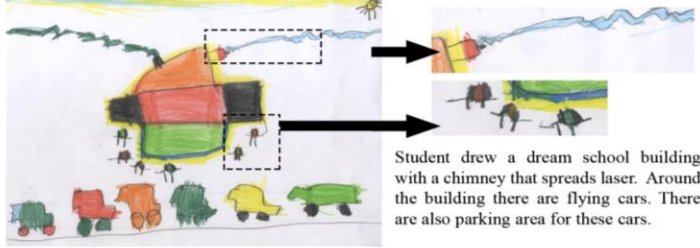
Table 1. Sample Table for Generating Ideas (continued) (prepared by author)

<p>Fluency¹</p>	<p>Burası <i>deniz</i>, burası <i>dağ</i>, burası <i>ağaç</i>, burası <i>kuş</i>, burası <i>ev</i>, burası <i>araba</i>, burası da <i>güneş</i>. Here is <i>see</i>, here is <i>mountain</i>, here is <i>tree</i>, here is <i>bird</i>, here is <i>house</i>, here is <i>car</i>, here is <i>sun</i>.</p>	<p>P10</p>
<p>Flexibility²</p>	<p>“...Kar yağıyor sonra evin altına giriyor. Karlar eriyince de evin pencereleri büyüyor”.</p> <p>“...It snows, then go under the house. When the snow melts, windows of the house becomes bigger”.</p> 	<p>P30</p>
<p>Originality³</p>	 <p>“Sıralarımız, lunaparktaki dönen sandalyedeki gibi. Öğretmenimiz ortada, bizim sandalyelerimiz de dönüyor etrafında”.</p> <p>“Our chairs are like the ones that are in amusement park. Our teacher is sitting at the center and our chairs are turning around it”.</p>	<p>P14</p>
<p>Elaboration⁴</p>	 <p>Student gave ceiling and floor details in the drawing.</p>	<p>P06</p>
<p>Metaphorical Thinking⁵</p>	 <p>Student drew aquarium in multi-layered order with various colors.</p>	<p>P04</p>

*4: Ability to make ideas more richer, interesting

*5: Making the strange familiar or the familiar strange

Table 2. Sample Table for Digging Deeper Into Ideas (prepared by author)

<p>Analyzing & Synthesizing⁶</p>	 <p>Student indicated the teacher located inside the building by drawing as it is. Student drew a house figure smaller than the school building and indicated the house is far away.</p>	<p>P24</p>
<p>Reorganizing & Redefining⁷</p>	 <p>Student drew a chimney and indicated the lines coming out of chimney are not smoke but pipes.</p>	<p>P03</p>
<p>Seeing Relationships⁸</p>	 <p>Student drew a dream school building with a small rectangular shape beside it by indicating the small one is their current school building.</p> <p><i>"Çok büyük bu okul, bizim okulumuz yanında küçücük kaldı".</i></p> <p><i>"This building is so big comparing to our school building".</i></p>	<p>P29</p>
<p>Preferring Complexity⁹</p>	 <p>Student drew a dream school building with a chimney that spreads laser. Around the building there are flying cars. There are also parking area for these cars.</p> <p><i>"Çatıdaki roket havalanmaya hazırlanıyor. Bacadan da lazerler çıkıyor".</i></p> <p><i>"The rocket is preparing to blast off. There are laser lights coming out of chimney".</i></p>	<p>P12</p>

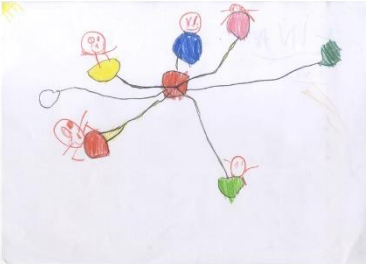


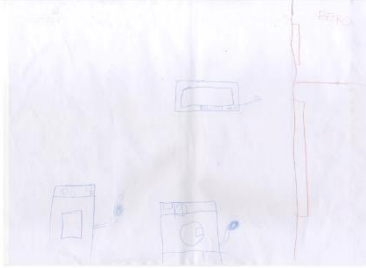

*6: Refining, developing, and strengthening intriguing possibilities

*7: Looking beyond the obvious to perceive gaps in paradoxes, needs, or missing elements

*8: Considering or imagining similarities between things

*9: Finding order in disorder

Table 3. Sample Table for Openness and Courage (prepared by author)

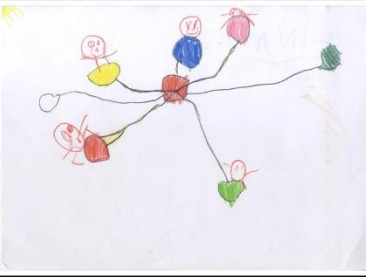


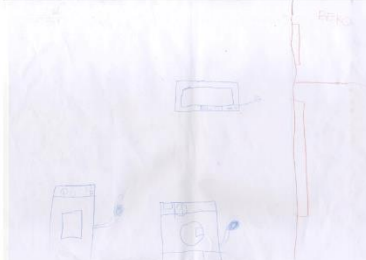

<p>Curiosity¹⁰</p>		<p>Student drew an unusual seating arrangement in her dream classroom through associating it with toys in amusement parks.</p>	<p>P14</p>
<p>Sense of Humor¹¹</p>		<p>Student drew a zoo on the left and aquarium on the right side. Also added so called <i>portal</i> from computer games.</p>	<p>P16</p>
<p>Imagination¹²</p>		<p>Student drew the class as an aquarium where a dog tries to catch a shark.</p>	<p>P05</p>
<p>Willingness to Take Risks¹³</p>		<p>Student preferred to draw the kitchen in his house. He did not prefer to go beyond the limits.</p>	<p>P28</p>
<p>Tolerance for Ambiguity¹⁴</p>		<p>Student drew interior of their house with table and cupboard. There is no tolerance for ambiguity because of lacking of unexpected ideas in the drawing.</p>	<p>P09</p>

*10: Being open to new experiences and ideas

*11: Being playful that may be regarded as silly by other people

*12: Asking many, varied, and unusual questions


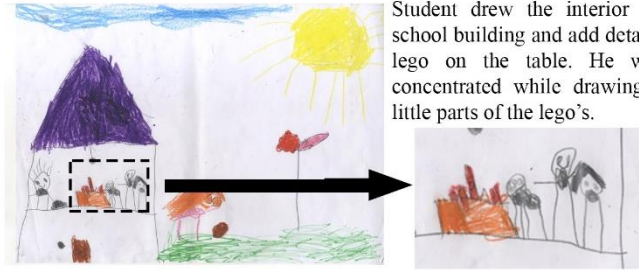


Table 3. Sample Table for Openness and Courage (continued) (prepared by author)

<p>Curiosity¹⁰</p>		<p>Student drew an unusual seating arrangement in her dream classroom through associating it with toys in amusement parks.</p>	<p>P14</p>
<p>Sense of Humor¹¹</p>		<p>Student drew a zoo on the left and aquarium on the right side. Also added so called <i>portal</i> from computer games.</p>	<p>P16</p>
<p>Imagination¹²</p>		<p>Student drew the class as an aquarium where a dog tries to catch a shark.</p>	<p>P05</p>
<p>Willingness to Take Risks¹³</p>		<p>Student preferred to draw the kitchen in his house. He did not prefer to go beyond the limits.</p>	<p>P28</p>
<p>Tolerance for Ambiguity¹⁴</p>		<p>Student drew interior of their house with table and cupboard. There is no tolerance for ambiguity because of lacking of unexpected ideas in the drawing.</p>	<p>P09</p>

*13: Having courage to explore more and pursuing aims without giving up

*14: Not afraid of the unknown

Table 4. Sample Table for Listening to Inner Voice (prepared by author)

<p>Self Confidence¹⁵</p>		<p>Student was hesitant to start and continue his drawing. Mostly distracted and influenced by his peers and did not show confidence during the drawing activity.</p>	<p>P08</p>
<p>Concentration and Energy¹⁶</p>		<p>Student drew the interior of the school building and added details like a table. He was so concentrated while drawing these little parts of the table.</p>	<p>P23</p>
<p>Self Direction¹⁷</p>		<p>Student started the drawing by indicating an idea and continued with that. Did not prefer to talk about it too much, but the student led the drawing act by himself. Just asked necessary questions like "should we add color on it?" / "renk eklemeli miyiz?"</p>	<p>P25</p>
<p>Perseverance¹⁸</p>		<p>Student was determined to fill the paper with color. Also, student was confident with the idea and did not get affected by the other students' comments.</p>	<p>P13</p>

*15: Being not afraid to express someone's own beliefs and opinions

*16: Working hard and concentrating on a subject or problem of interest

*17: Trusting one's own judgment and working hard towards the goal

*18: Not being discouraged or affected when confronting with difficulties

CHAPTER 6: RESULTS & DISCUSSION

In this chapter, the data that is analyzed will be discussed and concluded. The data results which are associated with literature review are supported with the comments of researcher.

Taking into consideration the specific artistic development of these kindergarten students aged between 5-6-years-old, I examined their interaction with the classroom environment through analyzing their drawings with creativity characteristics suggested by Treffinger (2002).

The most beginning part of children's participation to the design process can be achieved through reflecting opinions that stems from their interaction with classroom. Even if they are not trained as designers, their illustrations are the main agents for the researchers and designers to understand how does a kindergarten student observe and make connection with the environment and how does he use his creative abilities to manifest the schemas in his mind. That is, from their interesting and unusual way to express their "dream classroom" ideas, I will be discussing how do children respond it with using their various creative abilities. In addition to their visual depictions, verbal expressions and observations will also be effective to ameliorate their classroom.

6.1. Findings Regarding Creativity Characteristics of Students from their Behaviour or Performance Data

Table 5. Analysis Table for Generating Ideas (prepared by author)

Age	Generating Ideas	Fluency	Flexibility	Originality	Elaboration	Metaphorical Thinking
5	P01	1	x	x	x	x
5	P02	5	✓	✓	✓	✓
5	P03	4	x	x	x	✓
5	P04	2	✓	✓	✓	✓
5	P05	3	✓	✓	✓	✓
5	P06	4	✓	✓	✓	✓
5	P07	3	✓	✓	✓	x
5	P08	3	✓	✓	x	✓
5	P09	6	x	x	✓	x
5	P10	7	✓	✓	✓	x
5	P11	1	x	x	x	x
5	P12	6	✓	✓	✓	✓
5	P13	3	x	x	x	x
5	P14	2	✓	✓	✓	✓
5	P15	2	✓	✓	x	x
6	P16	6	✓	✓	✓	✓
6	P17	5	x	✓	x	x
6	P18	4	✓	✓	✓	✓
6	P19	9	✓	✓	✓	✓
6	P20	7	✓	✓	✓	✓
6	P21	3	✓	✓	✓	✓
6	P22	6	✓	✓	✓	✓
6	P23	5	✓	✓	✓	✓
6	P24	6	✓	✓	✓	✓
6	P25	3	x	x	x	✓
6	P26	1	✓	✓	✓	✓
6	P27	2	x	x	x	x
6	P28	1	x	✓	✓	✓
6	P29	5	✓	✓	✓	✓
6	P30	2	✓	✓	✓	✓

Finding 1: In this research, we counted the type of visualization (sun, house, animal, human, grass etc.) that students drew and indicated the total amounts accordingly. It was found that, 87% (26) students drew more than one type of visualization and the percentages are as follows; 2 types 17%, 3 types 20%, 4 types 11%, 5 types 13%, 6 types 17%, 7 types 7%, 9 types 3%. As discussed in the R.Q.3, children’s creativity through drawing different types of visualisations, demonstrates how rich most of the children have classroom schemas in their minds. According to our observation, students generally preferred to draw a building and various kinds of animals inside and outside of it. These distinctive elements demonstrate how frequently they can produce different imaginative thoughts. For the type of forms, Piaget (1956) states that, children in this stage of artistic development prefer to draw subjects such as buildings, animals, and plants. Thus, this literature finding supports the types I’ve observed in this case study. Besides, as Lowenfeld and Brittain (1966) explains, in the

preschematic stage of artistic development, the child starts to realize the relation between the forms that they draw and his experience with his surroundings. Therefore, in their drawings the interpretation of what these children knows and sees are observed. In other words, a child draws subjects which has a meaning to them and this helps designers to be able to understand a child's capability to make sense his surroundings and to examine how rich or meager classroom schemas a child has in his mind. As long as fluency level of students increases, they can cultivate more diverse ideas which is beneficial for participatory design process. As Starko (1995) mentions with the Guilford's Structure of Intellect (SOI) model, fluency refers to thinking of variety of ideas. That is, the quantity of the ideas a person has determines the probability of an idea to be a precious one. In addition, as Treffinger (2002) suggests, fluency of idea generation may increase the level of opportunity for quality ideas. Therefore, through their involvement in a design process students can boost and stimulate their innate ability to produce more extraordinary ideas.

Finding 2: It was found as a result of the variables from the table of 'Generating Ideas', 70% (21) of student's drawings reflect flexibility. As it has been discussed in 'Finding 1', R.Q.2 and R.Q.3 are related with this finding. Children's flexibility in ideas can provide distinct possibilities to the design process. According to Treffinger (2002), flexibility in creativity characteristics means being open to explore ideas or experiences from various perspectives and as a result being aware of the unanticipated possibilities. That is, this characteristic allows a person to be able to perceive a situation from different point of view and produce various kinds of responses accordingly (Starko, 1995). Therefore, result of the drawings shows us children can produce variety of possibilities for their dream classroom and their involvement in the design process demonstrates considerable benefits to designer as well as to the process itself.

From the perspective of Lowenfeld and Brittain (1966) flexibility as creativity characteristics also allows a child to harmonize with the challenges. Children can challenge a changing situation and benefit from it through using their flexible thinking. According to Lowenfeld and Brittain (1966), if a child prefers to draw a form repeatedly in the same way, he demonstrates his lack of ability to accommodate

himself with new circumstances and it is related with the meaning of this expression to the child. If the instructor helps this child to cultivate this stereotyped thing into more meaningful concept, he can develop his thinking in more flexible way.

This finding is also related with R.Q.1 and R.Q.3 As Fishman (2013) mentions, the key components of participatory design are perspective-taking and perspective-sharing so children's distinct ideas proved us how their mind works creatively to generate a classroom environment which answers their wishes and needs. Thus, we as designers need to take their valuable perceptions into consideration in the design process.

Finding 3: It was found as a result of variables from the table of ‘‘Generating Ideas’’, 77% (23) of student's drawings reflect originality. That is to say, majority of the students produced novel ideas that are distinct from one another. As discussed in R.Q.2 and R.Q.3, designers can utilize from original ideas of these students. Since children have intuitive capability to imagine without any limits, their ideas do not be affected by any rationality. Therefore, as we were observing students while they were drawing, we inspected lots of original ideas. Starko (1995, p. 6) refers originality to be;

‘‘the characteristics most associated with creativity’’.

Being creative requires an idea or product to be new. Additionally, as I've indicated in the literature review about creativity, Sarnoff A. Mednick suggests that in creative people's mind, ideas are associated in unexpected but original ways to construct novel ideas (Treffinger, 2002). This result shows us the capacity of children to generate original ideas. Moreover, these original ideas will help us as designers and researchers to comprehend their needs and wishes and generate more satisfactory environments accordingly.

As Lowenfeld and Brittain (1966, p. 112) relates originality with self-confidence and adds, if a child has low self-confidence, they tend to imitate other child's works in an art activity. However, if a child owns his art work and even give a name to the forms he drew, it shows they've got originality in their creative work.

Finding 4: It was found as a result of variables from the table of ‘‘Generating Ideas’’, 70% (21) of student’s drawings reflect elaboration. As discussed in R.Q.2 and R.Q.3 children can provide their actual needs and wishes if they elaborate their ideas sufficient enough. Through this way, designers/researchers may become acquainted with the thoughts children have in their mind and offer beneficial solutions accordingly. Treffinger (2002) explains elaboration as an ability to apply details to enrich ideas which provide richer and more appealing outcomes. Besides, Lowenfeld and Brittain (1966) explains elaboration act by giving example from children in preschematic stage of artistic development. Drawing human body with head and feet representation considered as a first steps of relationship between child and external world. Adding more lines to elaborate drawings with arms or other parts of body demonstrates the total growth of children. In our research group, the majority of the students prefer to elaborate their drawings. This result shows to what extend children develop an understanding of visuals surround them and how do they interpret these visuals through drawings in details.

It is also recognizable from the drawings that each child has different capability to elaborate their drawings. For instance, in the drawing of P27, there are forms of a building and a human with very few details. In between of these forms, there are scribbles mostly drawn by random lines. This example gives a designer less information about the ‘‘dream classroom’’ concept of the child when it compared to a drawing with details that P02 did. In figure 9, the child preferred to draw a building and three human forms. In addition to that, P02 elaborated the drawing with using plant and sun forms and experimented to use various colors. In these two drawings, we can come to conclusion about how differently these two participants have sensitivity to their environment.



Figure 7. ‘‘Dream classroom’’ case-study drawing by P27. (Picture taken by author on April, 2022).



Figure 8. ‘‘Dream classroom’’ case-study drawing by P02. (Picture taken by author on April, 2022).

Moreover, children’s involvement in a design process can support students to improve their learning abilities. The physical environment affects the learning abilities of children and Filippini, Giudici and Vecchi (2008) calls the environment as silent language surrounding the child. Therefore, children should take part in the design process of their environment because their detailed drawings would give clue and

make designers aware of the problems of children have about their classroom. Through analyzing their drawings, we can respond to their demands for their classroom environment which will influence their learning abilities.

Finding 5: It was found as a result of variables from the table of ‘‘Generating Ideas’’, 70% (21) of student’s drawings reflect metaphorical thinking. As discussed in R.Q.2 and R.Q.3 designers and researchers can utilize from this ability of children in a design process. Especially at the beginning of the design process, it is advantageous for designers to have variety of ideas at hand. According to Starko (1995), using metaphors and also analogies are the most effective tools to assemble variety of ideas to create a new perspective. As Treffinger (2002) states, metaphorical thinking paves the way for making the strange familiar or making the familiar strange. Starko (1995, p. 152) explains the process by saying;

‘‘to make the strange familiar, you combine something familiar with a new problem or situation to solve the problem or come to an understanding. To make the familiar strange, you also combine something new or strange with something familiar, this time to gain new insights into or perspectives on the already familiar idea’’.

Thus, it is beneficial for designers and researchers to obtain unique perspectives children have and collect those ideas to use the most suitable one for their needs.

Table 6. Analysis Table for Digging Deeper Into Ideas (prepared by author)

Age	Digging Deeper Into Ideas	Analyzing & Synthesizing	Reorganizing & Redefining	Seeing Relationships	Preferring Complexity
5	P01	x	x	x	x
5	P02	✓	✓	✓	✓
5	P03	x	✓	x	x
5	P04	✓	✓	✓	✓
5	P05	✓	✓	✓	✓
5	P06	✓	✓	✓	✓
5	P07	✓	✓	x	✓
5	P08	x	✓	x	✓
5	P09	✓	✓	✓	x
5	P10	✓	✓	✓	✓
5	P11	x	x	✓	x
5	P12	✓	✓	✓	✓
5	P13	x	✓	✓	x
5	P14	✓	✓	✓	✓
5	P15	x	x	✓	x
6	P16	✓	✓	✓	✓
6	P17	✓	x	✓	x
6	P18	✓	✓	✓	✓
6	P19	✓	✓	✓	✓
6	P20	✓	✓	✓	✓
6	P21	✓	✓	✓	x
6	P22	✓	✓	✓	✓
6	P23	✓	x	✓	✓
6	P24	✓	✓	✓	✓
6	P25	x	x	✓	x
6	P26	✓	✓	✓	✓
6	P27	x	x	✓	x
6	P28	x	x	✓	x
6	P29	✓	✓	✓	✓
6	P30	✓	✓	✓	✓

Finding 6: It is found as a result of variables from the table of ‘‘Digging Deeper Into Ideas’’, 70% (21) of student’s drawings reflect analyzing & synthesizing. As Treffinger, Isaksen, and Dorval (2000) states, analyzing and synthesizing ability allows individuals to assess possibilities delicately; then evaluating and deciding on the most valid one. This tool provides that person to choose the most astonishing thoughts to work on and to develop those ideas which pave the way for original outcomes as a result. As Malchiodi (2005) describes, during the drawing activity, a child uses his emotions, thoughts and observations about an issue and synthesize these to reflect his interpretation with colors and forms. This results shows us, the majority of the children in this classroom have analyzing & synthesizing ability. Since students spend most of their time in schools, they considered as experts those get interact with their environment and have enough amount of observations. Therefore, this variable supports this statement of students having the ability to analyze, evaluate and synthesize ideas to generate the best option for their classroom environment.

Finding 7: It is found as a result of variables from the table of ‘Digging Deeper Into Ideas’, 73% (22) of student’s drawings reflect reorganizing & redefining. As discussed in R.Q.2 and R.Q.3 designers can collaborate with children because they have an ability to analyze, evaluate, and synthesize ideas to generate best option for their classroom. Thus, this finding demonstrates us that these students can reorganize and redefine the classroom idea. Lowenfeld and Brittain (1966) describes this ability starting from scribbling stages of a child. He says, children realize how reorganizing circular and longitudinal motions transform into a meaningful symbols in preschematic stage. According to him, reorganizing and redefining ability is needed for creative thinking because it allows a child to play with forms and elements in flexible manner. It is also beneficial in terms of tackle with a problem without being rigid with the solutions. Sternberg (2000) suggests, reorganizing and redefining a problem allows individuals to see a problem from a different perspective comparing to other people. Therefore, these students have different capacity to perceive their environment and will absolutely contribute to the design process of their classroom design because distinct perspectives are needed to equally meet the needs of children.

Finding 8: It is found as a result of variables from the table of ‘Digging Deeper Into Ideas’, 87% (26) of student’s drawings reflect seeing relationships. As discussed in R.Q.2 and R.Q.3, children can benefit to designers and design process through this creative ability. Although it has been said that children do not have same social and verbal abilities of adults, this does not mean;

‘their ways of experiencing place and reasoning about their experiences are less vivid and meaningful than those of adults. It only means they are communicating differently’ (Cele, 200, p. 96).

Therefore, this result proves us that students are able to comprehend similarities and differences between physical and non-physical things, however, they express those in a different way. In terms of spatial relationships, a child in preschematic stage does not put the forms in the drawing in an order. As Lowenfeld and Brittain (1966) suggests, he perceives the space as if it is revolving him. That is why, objects may be demonstrated above, below or juxtaposed in his drawing. Further he claims that, the

ground (baseline) is realized in schematic stage of the child which is between 7 to 9 years. However, in this case study, I examined some of the drawings have baseline and every object was standing on the ground according to an order in the paper.

Finding 9: It is found as a result of variables from the table of ‘Digging Deeper Into Ideas’, 63% (19) of student’s drawings reflect preferring complexity. As discussed in R.Q.2 and R.Q.3, this ability of children can contribute to design process and benefit to designers as well. However, even though creative abilities are considered innate, environment and instructor need to have supportive effects to unveil suppressed abilities of children. For instance, according to research of Barron (1968, 1966), creative people mostly find order in chaos. These individuals prefer visual complex visual images rather than simple ones. According to him, disorder is in favor of creative people because in this way they would have a chance to bring order to the disorder in their own way. However, as Lowenfeld and Brittain (1966) state, for more complex expressions, there is a need for improving complex thinking capacity and it can be achieved by an instructor who is careful and sensitive with the students. Additionally, since I believe that classroom environment has also effects on preferring complexity, I found according to our observation, there was not enough material in the classroom for students to enrich their complex thinking capacity. In this part, as it is discussed in literature review findings, Maria Montessori’s methodology has basis on arranged environment where she deliberately choose materials, pieces of equipment which are basic elements of the environment (Burnett, 1962). She believed that by demonstrating appropriate use of these equipments and letting children to discover, children can demonstrate their innate capability of learning and creating.

During this case study, I’ve asked about the activities children are doing in the classroom, and they responded with general answers such as playing with toys. They did not express any satisfaction or excitement about these activities. Therefore, I believe that preparing classroom environment for children to evoke their curiosity may increase their creative ability to prefer complexity in their artworks, too. I’ve also observed some of the children could not finish their drawings because the teacher asked them to start playing with toys. Since every activity has time limits children may feel restrained from discovering more. If their classroom environment would allow

them to draw without limits through discovering colors, lines, and shapes, the output could reveal more complex expressions.

Table 7. Analysis Table for Openness and Courage (prepared by author)

Age	Openness and Courage	Curiosity	Sense of Humor	Imagination	Willingness to Take Risk	Tolerance for Ambiguity
5	P01	x	x	x	x	x
5	P02	✓	✓	✓	✓	✓
5	P03	x	✓	✓	x	x
5	P04	✓	✓	✓	✓	✓
5	P05	✓	✓	✓	✓	✓
5	P06	✓	✓	✓	✓	✓
5	P07	✓	✓	✓	✓	✓
5	P08	x	x	x	✓	✓
5	P09	✓	✓	✓	x	x
5	P10	✓	✓	✓	✓	✓
5	P11	x	x	x	x	x
5	P12	✓	✓	✓	✓	✓
5	P13	✓	✓	✓	✓	✓
5	P14	✓	✓	✓	✓	✓
5	P15	x	✓	✓	x	x
6	P16	✓	✓	✓	✓	✓
6	P17	✓	✓	✓	✓	✓
6	P18	✓	✓	✓	✓	✓
6	P19	✓	✓	✓	✓	✓
6	P20	✓	✓	✓	✓	✓
6	P21	✓	✓	✓	✓	✓
6	P22	✓	✓	✓	✓	✓
6	P23	✓	x	✓	x	x
6	P24	✓	✓	✓	✓	✓
6	P25	✓	x	x	x	x
6	P26	✓	✓	✓	✓	✓
6	P27	x	x	x	x	x
6	P28	x	x	x	x	x
6	P29	✓	✓	✓	✓	✓
6	P30	✓	✓	✓	✓	✓

Finding 10: It is found as a result of variables from the table of ‘‘Openness and Courage’’, 77% (23) of student’s drawings reflect curiosity. As discussed in R.Q.2 and R.Q.3 children’s curiosity helps designers and researchers to collaborate each other. While we were doing our research, some of them asked many questions about the survey I am conducting, and what I am doing there. In their drawings also they drew things that are expressed with the help of their curios thoughts. This creativity tool allows individuals to have an ambition to explore and play with ideas (Johnson, 2015). Therefore, creative people are curious in nature. They want to have a knowledge about variety of things so that they try to discover;

‘how things work, how people think, what is out there, and how it got there (Starko, 1995, p. 97).

Moreover, as Lowenfeld and Brittain (1966) declare, an art program in schools should support and reward children those express curiosity in their expressions. Also, as Robinson (2016) states, young children have a prodigious urge to learn new information so the results shows us that these children would have absolute contribution to a classroom design with their distinct ambition to discover new horizons. That is, designers and researchers can utilize from children's curiosity in a design process because children can bring about different sides of a problem through their curious thinking ability and this pave the way for us to look from their perspectives.

Finding 11: It is found as a result of variables from the table of "Openness and Courage", 77% (23) of student's drawings reflect sense of humor. As discussed in R.Q.2 and R.Q.3 children can use this strategy during a design process. People who are considered creative have sense of humor. With 77% ratio, majority of children expressed their ability to have sense of humor through drawing shapes and lines in a playful manner. Since sense of humor is elusive in nature, it can be hard to identify by others. As Treffinger (2002) states, this characteristic can be perceived by other people as silly. The reason for this can be explained also through external factors. According to Grandstaff (2012), there is a considerable effect of visual culture in children's drawings. It is inevitable to say that children expose to mass media and they can reflect those elements in their drawings as well because children tend to draw what they observe and seem worthy.

This playfulness allows individuals to approach a subject with curiosity by asking new and interesting questions (Starko, 1995). Therefore, having sense of humor provides these students to have unusual ideas and allow them to express in interesting way. Since children those have unstoppable urge to ask many varied questions, they perceive problems from different point of view. Therefore, they reflect this characteristic through playful ideas in their drawings. As designers and researchers, we can utilize from these playful understanding of children in participatory design process to achieve unprecedented design outputs.

Finding 12: It is found as a result of variables from the table of ‘‘Openness and Courage’’, 80% (24) of student’s drawings reflect imagination. As discussed in R.Q.2 and R.Q.3, designers can collaborate with children through utilizing from their imagination. As Schratz and Steiner-Löffler (1998) states, image-based research helps children for extracting and reflecting their inner world through their imagination. Even though children are considered as having low familiarity with design concepts, they can provide useful and creative ideas in the design process. Lowenfeld and Brittain (1966) mentions the importance of art in the education system to support children for developing their creative growth which includes flexibility, originality, fluency and imaginative thinking. Since they believe that especially a child in preschematic stage tries to understand the interaction between himself and his environment, thus, art contributes to ‘‘various growth patterns’’ to be flourished (p. 135).

These people do not have limits to think out of the box so they imagine without any consideration of probability of these ideas (Johnson, 2015). They do not fear having different and unique ideas. As Csikszentmihalyi (PsychologyToday, 1996) mentions, great art and great science has roots in imagination that is different from the real world so that the rest of the society might see these ideas a fantasies without any probability to occur. However, imagining what is beyond the current reality is the whole point to create a new reality in art and science (PsychologyToday, 1996). This result shows us that students could reflect their unique ideas through their drawings. Since they have low-level of education and low familiar with design concepts, their imagination ability can help designers and researchers along the designing process. They can support designers through coming with extraordinary ideas while at the same time proving researchers how far they can expand their imagination in the design process.

Finding 13: It is found as a result of variables from the table of ‘‘Openness and Courage’’, 70% (21) of student’s drawings reflect willingness to take risk. As discussed in the R.Q.2 and R.Q.3, this creative ability can contribute to designer as well as to the design process. According to our classroom observations, there is no room left for children to learn how to take risks. Lowenfeld and Brittain (1966) relate this ability with public education system. According to him, this educational structure

do not teach ability to question, to search for answers, to discover forms, to reorganize and to reevaluate their ideas. This situation may prevent a child from discovering and cause children to be passive actors waiting directions from the teacher. According to Sternberg's (2000) perspective, current educational system leads students to take no chances so that they do not learn how to take sensible risks while writing papers or giving answer to the questions. Classroom instructors are one of the reason for these students to fear from answering questions in a weird way, or acting without following the rules in the classroom. As I've observed, one of the instructor was interfering with the student when he started to cry in the classroom. While talking with this student, others also became affected negatively and some of them started to have an argument with their friends. This incident may help us to foresee if a student wants to answer a question in unordinary way. However, creative people are willing to take risks to succeed at the end even if they fail the other times. As the economist George Stigler states, the most common frequent failure of able people is lack of boldness.

‘‘They will play safe games. In innovation, you have to play a less safe game, if it’s going to be interesting. It’s not predictable that it’ll go well’’ (PsychologyToday, 1996).

Additionally, as Robinson and Aronica (2016) mention, conventional academic curriculum mainly emphasized on academic work. However, there are much more fields (such as arts, sports and technology) that should be given equal importance in general education because children within general education lose their innate curiosity and ambition to explore. This result shows us these students may need to be encouraged in the further years to take sensible risks in their creativity.

Finding 14: It is found as a result of variables from the table of ‘‘Openness and Courage’’, 70% (21) of student’s drawings reflect tolerance for ambiguity. This result shows 30% (9) of students do not prefer being tolareted for unknown which shows a correlation with the creativity characteristic of willingness to take risk. As we discussed in the finding 13, we can relate this finding with R.Q.2 and R.Q.3 because having this creativity characteristic will broaden the horizon of designers and contribute to the design process as well. If the activities held in the classroom or

instructor’s behaviours would encourage them to think without boundaries, they could imagine and express their ideas without fear from ambiguity. As Lowenfeld and Brittain (1966) supports, children need to be encouraged to keep going further from their current capacities. Although children have innate urge to discover unknown, they also needed to be assisted to reveal ambiguities without fear.

Creative people generally become aware of the problems before others so that they’re not afraid of ambiguity. Moreover, pursuing the idea without knowing where it might lead is crucial for them (Treffinger, 2002). As Sternberg (2000) admits, even if our efforts do not work as we expected throughout the creative process, we need to tolerate ambiguity continuously until we reach our goal. The classroom environment could include apparatus that would allow them to experience things and keep after the outcomes. Instructors can also encourage these students to follow their ideas until they see the outcomes.

Table 8. Analysis Table for Listening to One’s Inner Voice (prepared by author)

Age	Listening to Inner Voice	Self Confidence	Concentration & Energy	Self-Direction	Perseverance
5	P01	x	x	✓	✓
5	P02	x	✓	✓	✓
5	P03	x	x	✓	x
5	P04	✓	✓	✓	✓
5	P05	✓	✓	✓	✓
5	P06	✓	✓	✓	✓
5	P07	✓	✓	✓	✓
5	P08	✓	✓	✓	✓
5	P09	x	✓	✓	✓
5	P10	✓	✓	✓	✓
5	P11	x	x	x	x
5	P12	✓	✓	✓	✓
5	P13	✓	✓	✓	✓
5	P14	✓	✓	✓	✓
5	P15	x	✓	✓	x
6	P16	✓	✓	✓	✓
6	P17	✓	✓	✓	✓
6	P18	✓	✓	✓	✓
6	P19	✓	✓	✓	✓
6	P20	✓	✓	✓	✓
6	P21	✓	✓	✓	✓
6	P22	✓	✓	✓	✓
6	P23	✓	✓	✓	✓
6	P24	✓	✓	✓	✓
6	P25	x	✓	✓	✓
6	P26	✓	✓	✓	✓
6	P27	x	x	✓	x
6	P28	x	✓	✓	✓
6	P29	✓	✓	✓	✓
6	P30	✓	✓	✓	✓

Finding 15: It is found as a result of variables from the table of ‘Listening to Inner Voice’, 70% (21) of student’s drawings reflect self-confidence. As discussed in R.Q.2 and R.Q.3., benefitting children’s self-confidence may contribute to designers as well as to the design process because this method can allow students to speak about their ideas and problems in confident manner. As Treffinger (2002) states, creative people are not afraid to express their own beliefs and thoughts because they have self-confidence to stand behind their ideas. Individuals who have this characteristic, do not fear being different from others and do not see any obstacle to express their unusual ideas. However, Lowenfeld and Brittain (1966) suggests that, wrong art education may cause a child to lose self confidence. For instance, a child may endorsed to do a task which is not compatible with his development. In this case, majority of the students reflect their own ideas into the drawings freely without being affected from others. With draw-and-tell technique, their perceptions about dream classroom environment is studied. There was no judgement or interference that may discourage them to express themselves.

Hart (1992) mentions different levels of participation of children. True participation which occurs in the sixth (adult-initiated, shared decisions with children), seventh (child-initiated and directed) and eighth (child-initiated and shared decisions with adults) levels, children have a voice, being consulted, even initiates processes which affects their lives. Their rights can be preserved by being involved in discussion environments with adults. However, it requires them to have more courage to defend their ideas. Even if they are unusual, they should not be afraid of expressing themselves. Therefore, being included in a design process of their classroom can boost their self-confidence. As I’ve observed from the student’s behaviours and statements, some of them expressed their opinions about classroom without fear whereas some of them spoke tentatively. However, if we can encourage them to be involved more and speak about their rights, wishes, and needs, those who feel shy and uncommunicative would feel more confident and help designers in the design process.

Finding 16: It is found as a result of variables from the table of ‘Listening to Inner Voice’, 87% (26) of student’s drawings reflect concentration & energy. As discussed in R.Q.1, through concentrating to the task, these children can express their

ideas about their dream classroom so that they can involve in a design process with transferring their classroom schemas to the designer. According to my observation, that classroom has no distractive elements that spoil children's concentration. In order to obtain high-level of creativity, individuals need to concentrate on a task to cultivate creative ideas. Therefore, these people have motivation and concentration to achieve what is on their mind (Starko, 1995). It is also explained by Lowenfeld and Brittain (1966, p.125) as;

‘the more involved the child becomes in the art activity, the more he identifies with what he is doing, the more he is actively using his senses, the more the project is really his own, the more meaningful it becomes for him’.

However, when the two classrooms are compared, there was notable difference and it also appears in the drawings. In the first classroom, students were sitting in a desks juxtaposed side by side and they were creating so much noise that probably affected some of students' concentration negatively although some of them did not distracted whereas the second classroom was in silence, students were sitting in groups separated from each other.

Finding 17: As a result of variables from the table of ‘Listening to Inner Voice’, 97% (29) of student's drawings reflect self-direction. Individuals who believe in their intuitions tend to produce according to their own considerations. These people count on their own standard of evaluation (Johnson, 2015, p. 14). Thus, this results demonstrate the majority of the students did not affected by their peers while they were drawing. Although in some of the drawings there were similar kind of forms, most of the students complete the drawing activity on their own without interfering one another. According to Lowenfeld and Brittain (1966), this characteristic appears in most of the kindergarten children because in this stage, children have more;

‘egocentric attitude rather than cooperative attitude’ (p. 146).

They prefer to do things on their own without listening others. However, as the child develops his schema, he begins to interact with his environment more and see himself as part of it. Therefore, having self-direction in preschematic stage of children those

have egocentric attitudes is probable when it is compared to primary school children those have more developed schemas and start to comprehend his environment.

Finding 18: It is found as a result of variables from the table of ‘‘Listening to Inner Voice’’, 87% (26) of student’s drawings reflect perseverance. As we discussed in R.Q.2 and R.Q.3, children’s perseverance characteristic help them to express themselves fearlessly and their urge to reflect ideas can provide beneficial material for design process as well as designers. Therefore, designers can become acquainted with the problems, needs, and wishes of children. As Starko (1995) indicates, having perseverance provides individuals to have ambition to continue their tasks even if they face of obstacles. These creative individuals are committed to their paths and persisted on their aim to happen. This result shows us, students have an ability to pursue their ideas and beliefs to state what contains their dream classroom.

However, Lowenfeld and Brittain (1966) has a probable reason for a child to have no perseverance during their creative actions. According to them, if a child feels insufficient to complete a task that is much harder than his capabilities, they may develop feeling of inadequacy. For instance, a child in a scribbling stage will not be successful in drawing a form that a child can draw in the schematic stage. Therefore, a child’s artistic development stage should be taken into account before giving them a task because it may be the reason for not finishing or continuing his art activity.

6.2. Findings Regarding Student’s Satisfaction from their Classroom Environment

Table 9 below presents statements regarding concepts such as privacy, territoriality and crowding students have when they are in the classroom. I’ve formed the questionnaire from one of the work that Sanoff (2001) has done in the name of ‘‘Classroom Environment Ratings’’. The assessment is formed as checklist with agreed/disagreed/hesitated answers that demonstrates the student’s positive or negative opinions about their classroom environment.

During asking the questions, some students elaborated their answers by giving examples and sharing their experiences which turned the research process to in-depth

interview rather than solely question-answer procedure. Some of their answers will be mentioned below with quotations.

Table 9. Questionnaire about classroom environment (prepared by author)

SINIF ORTAMI DEĞERLENDİRMESİ / CLASSROOM ENVIRONMENT ASSESSMENT

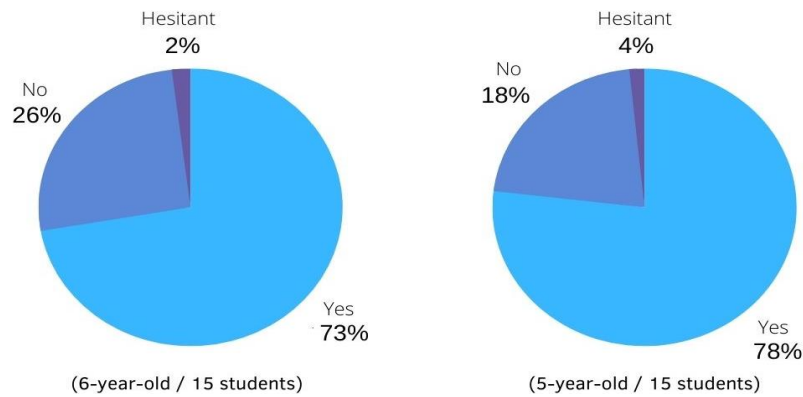
Lütfen aşağıdakilere ifadelerle katılıyorsanız (E); katılmıyorsanız (H); kararsızsanız (K) seçeneğini işaretleyin.
Please mark (A) if you are agreed; (D) if you are disagreed; (H) if you are hesitated with the statement.

	E/A	H/D	K/H
1) Sınıfta hareket edebileceğim alan var..... I have space for movement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Sınıfta istersem kendi başıma kalabileceğim alanlar var..... I have a space I can be by myself if I want to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Sınıfta kendime ait dolabım var..... I have a space of my own where I can keep my stuff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Sınıf yeterince sessiz..... My classroom is silent enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Nereye oturmak istediğimi kendim seçebilirim..... I can sit wherever I want to in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Oturduğumda sınıfta her şeyi görebiliyorum..... While I am sitting I can see the whole class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Günün çoğunu oturarak geçiriyorum..... I spend most of my time sitting in the classroom generally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Sıraları hareket ettirebiliyoruz..... We can move the desks and chairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Sınıfta bana ait bir alan varmış gibi hissediyorum..... I feel like I have place that belong to me in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Sınıfım düzenlidir..... My classroom is tidy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Sınıfım büyüktür..... My classroom is spacious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Sınıfım küçüktür..... My classroom is small	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Sınıfımı çok güzel buluyorum..... I find my classroom nice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) Sıraların yerini değiştirirken fikrimi sorarlar..... They ask my opinion about seating arrangement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) Sınıfımızın nasıl düzenleneceği konusunda fikir veririm..... I give opinion about seating arrangement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Sınıfımda yapılacak birçok aktivite var..... There are lots of activities to do in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) Yaptığımız resimleri – etkinlikleri sergileyeceğim kısımlar var..... There are places for our activities, artworks to display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTLAR:
NOTES:

Finding 19: The table 10 below shows total answers as agreed, disagreed and hesitant. According to this result, 73% of 6-year-old students agreed to the questions that we asked about their classroom environment whereas 78% of 5-year-old students agreed.

Table 10. Questionnaire results of 30 students



Finding 20: It is found for the 1st question related with crowding (I have space for movement in my classroom), 87% (26) of the students agreed whereas 10% (3) of the students disagreed. As we discussed in R.Q.1 children's reflection with their statements has a role on the design of their environment. However, not knowing the meaning of concepts is the challenge for designers and researchers in collaborating in decision-making process. On the contrary to their responses, according to my observation, students were sitting so close to each other that even their elbows were colliding. Moreover, A4 papers that we gave students to draw were overlapping, and crayons got mixed. During our observation one of the student was complaining about this crowding feeling.

Ghanziani (2008) mentions the school environment not only as a place for learning, but also for socializing, relaxation and enjoying. However, if students do not feel comfortable to move around in their classroom, it may affect their satisfaction about that place in reverse. As Can and Inalhan (2017) supports the idea of understanding children's knowledge, values, experience and use of place, thus, knowing how students feel regarding crowding characteristics of their classroom, we as designers and researchers will be eligible to plan and design those spaces accordingly.



Figure 9. Children during drawing their dream classroom (Picture taken by author on April, 2022).

Finding 21: It is found for the 6th question related with crowding (While I am sitting I can see the whole class), 90% (27) of the students agreed whereas 7% (2) students nor agreed nor disagreed and 3% (1) of the student disagreed. One of the participant also mentioned this subject as:

P02:

‘If I sit here (by pointing the wall) I see the wall, however, if I sit on the otherside, I see the other part of the class’.

Another participant also elaborated the answer similar to P02 by saying;

P09:

‘where my stool is facing, I see that side of the class’.

Finding 22: It is found for the 10th question related with crowding (My classroom is tidy), 76% (23) of the students agreed whereas 17% (5) of the students disagreed, and 7% (2) of the students nor agreed nor disagreed. One of the participant made a comment about this issue by saying:

P02:

‘‘The class is tidy if we do not pour the lego pieces on the floor’’.

Yet another participant mentioned the tidiness of the classroom by mentioning:

P24:

‘‘Class becomes messy when the cleaning lady comes’’.

As discussed in R.Q.1, their involvement in a design process allows children to improve their social and communicative abilities because they possess an opportunity to verbalize their thoughts. Additionally, since students spend most of their time in school, they can be regarded as experts about the problems of their classroom. They have a chance to observe their surroundings with their friends, discovering and interacting. Therefore, their point of views should be asked and comprehended because they are the ones those can see the things we cannot see. Besides, their comments shows us how differently children perceive incidents and this finding is related with R.Q.2 Different observation about a subject allows designers to come up with democratic solution to a problem. That is, in a participatory project perspectives of students would bring distinct contributions to it. As it is indicated in the comments of students, one of them regard the classroom as tidy in different occasions. Majority of the students did not even put an interpretation about the tidies of the classroom.

Finding 23: It is found for the 2nd question related with privacy (I have a space I can be by myself if I want to), 67% (20) of the students disagreed whereas 30% (9) of the students agreed and 3% (1) of the student nor agreed or disagreed. For the 3rd question related with privacy (I have a space of my own where I can keep my stuff), 100% of the students agreed. When I’ve asked their conception about privacy, it was not the same as we get. They understood it as possessing a place to sit, however, according to adults’ interpretation of privacy, it is having a place to stay on their own. As I’ve observed, there was no place for students to go and be on their own in the class time. They were dictated to sit on the chairs while the instructor is giving a lesson or asking them to do an assignment.

In my opinion students need to have privacy in their classroom because an absence of privacy may affect their sense of safety.

One of the participant mentioned this issue by indicating:

P23: *“I have no space where I can be by myself”*.

However, participant’s friends claimed that P23 sometimes hide behind the column in the classroom even during the class time. This comment shows us the student’s demand to stay alone, however, regarded as inappropriate by his friends. If there would be multiple places for students to sit and listen to their teacher or doing their assignments, it would be beneficial for them to feel sense of privacy. Otherwise, they are obliged to sit on the same chairs in a constrained situation.

Finding 24: It is found for the 5th question related with territoriality (I can sit wherever I want to in my classroom), 93% (28) of the students agreed whereas 7% (2) of the students disagreed. My observation also supports the idea of students choose where to sit by themselves. It shows us they have freedom and ability to prefer a place to sit over one another and it is important for these children in a participatory design process. Moreover, Weinstein (1985) claims that if students are allowed to choose their seating positions in the classroom, their preferences are hugely related with their participation, motivation, and personality variables. Totusek and Staton-Spicer (1982) states that students with creative, assertive, aggressive and competitive features opt for frontal or central seats and they are considered as more attentive and externally oriented (Pedersen, 1994). Since student’s preferences demonstrates us a lot about their personality, they need to have an ability to choose their own seating places. Additionally, if they become eligible to choose where to sit, they will be participating in the decision-making in their seating arrangement as well.

One of the participant elaborated this subject by stating:

P02:

“I am sitting wherever my friends are sitting. If somebody is being naughty, they sit in another part of the class”.

These kinds of statements also demonstrates how they affected by their friends for choosing and deciding on something and how they constitute a relationship with their surroundings in the process of time. It is important for children to establish these connections because schools are the places they devote their time and such a strong attachment shows how their ideas of their classroom are valuable and crucial for designers and researchers.

Finding 25: As a subsidiary information related with seating place arrangements, there are 14th and 15th questions. It is found for the 14th question related with territoriality (They ask my opinion about seating arrangement in my classroom), 77% (23) of the students agreed whereas 23% of (7) the students disagreed. As a component, 15th question related with territoriality (I give opinion about seating arrangement in my classroom), 73% (22) of the students agreed whereas 23% (7) of the students disagreed and 3% (1) student nor agreed nor disagreed. As discussed in R.Q.1, children can be included into collaboration in design process by asking their opinions about seating arrangements. However, as I've observed, seating arrangement of students do not allow them to work in comfortable way. As I've discussed it above, the surface of their desks were not sufficient for 15 students to sit side by side. The amount of desks should be increased to provide students more space to do their tasks.

Finding 26: As I've stated in the literature review, the layout of a class demonstrates the way of educational activity. For instance, the arrangement of student desks decide on the way of students working either alone or in groups. If desks are arranged in a rows and columns, this necessitates students' focus on solely teacher and restrain students from any other kind of interaction.

Figure 10 demonstrates that in Balçova Selçuk Yaşar Nursery and Kindergarten Education Center, student's desks are arranged in U-shape which help them to interact with their friends more when it is compared with a single row desk arrangement. As Gump (1987) also supports, students that sit around the tables have an ability to contact face to face without any difficulty.



Figure 10. The seating arrangement of Balçova Selçuk Yaşar Nursery and Kindergarten Education Center (Source: Izelman, 2010.)

Finding 27: It is found for the 9th question related with territoriality (I feel like I have place that belong to me in my classroom), 90% (27) of the students agreed whereas 10% (3) of the students disagreed. This result demonstrates the majority of the students developed sense of ownership to their classroom. According to Volz and Damiano-Lantz (1993), sense of ownership affects student’s learning engagement as well as their achievements and they support this statement with student artworks exhibited in the interior spaces of the school building. Therefore, we can relate developing sense of ownership with student’s activities in their classroom and support this claim with 16th and 17th questions.

Finding 28: For the 16th question (There are lots of activities to do in my classroom), 83% (25) of the students agreed whereas 13% (4) of the students disagreed and 3% (1) of the student nor agreed or disagreed. This result demonstrates majority of the students satisfied with the amount of activities they participated in the classroom. One of the participant elaborated this subject by mentioning:

P24:

‘‘We play with toys, our teacher reads us books and we listen to her’’.

Yet another participant added a comment by indicating:

P09:

‘We do activities that our teacher tells us’.

As discussed in the R.Q.1, through children’s involvement in a design process, children can have a voice to determine activities that urge their curiosity and wishes, therefore, their creative and social abilities can be developed. In the activities that they agreed upon, they may find more satisfaction through exploring and creating new things. If a student does not want to draw, they need to be given another chance to extract their creativity.

Sanoff and Walden (2012) criticize the effects of common teaching methods on the activities held in classroom. According to them, learning environment should provide space for students to do group-activities. Especially in terms of creative production of students, school environment should be supportive for students. However, as I’ve observed, their classroom has not enough material for children to improve or unveil their creativity. For instance, there was not enough crayons for each student and they had to share each other’s.

Since children have innate ability to discover and learn things, their classroom should be a place to encourage their distinct capability to explore. If these students involve in activities more and more, we can promote them to strengthen their urge to discover more.

Finding 29: For the 17th question related with territoriality (There are places for our activities, artworks to display), 80% (24) of the students agreed whereas 20% (6) of the students disagreed. According to my observations and student’s answers, they hung their activities on the interior walls of the classroom. However, if they want to keep it in their cupboard in the class or take it to their home, they can do it that way, too.

CHAPTER 7: CONCLUSION

This chapter comprises the conclusion part of the thesis. It also includes the future research recommendations for the researchers and designers and the limitations that is confronted throughout data collection.

This study is conducted to investigate how children's creativity can contribute to a design of their classroom environment and provide benefit to the designers along the way. Since I give so much importance on the children's creative abilities that are not constrained yet, I believe their expressions through drawings can help designers to comprehend these young people's inner worlds. Their creative capacity which is affected from interaction with their classroom can be developed through understanding what is their needs and what they value, thus, their involvement in a classroom design process is inevitable to agree upon. Therefore, to support my hypothesis, I've analyzed children's creativity through utilizing from creativity characteristics and I've found that children in this study can be beneficial in the design of their classroom environment if they involved in a design project.

According to results of four aspects of creativity characteristics that is formed by Treffinger (2002) and through regarding children's artistic development stage that is generated by Lowenfeld and Brittain (1966), I've found children produced variety of possibilities for their dream classroom and majority of them have an urge to explore ideas from various perspectives, followingly, they've created original ideas with giving details. However, the differences occurred in some ratios demonstrated the probable effect of learning environment on children as well as artistic developmental differences of each child. Thus, I believe that, even though children reflected their ideas supported by their innate creativity, their learning environment need to enrich their creative thinking capacity. Through encouraging them to discover more, their classroom needs to be a foundation for children where evokes their curiosity to produce novel ideas and express themselves without any hesitation.

In addition to this drawing activity, a questionnaire that I've utilized from a study named "Classroom Environment Ratings" that was created by Sanoff (2001) and includes questions about children's classroom environment was conducted to

explore student's satisfaction levels in terms of privacy, territoriality, and crowding aspects. While they were drawing, they answered the questions by agreeing, disagreeing, or nor agreeing nor disagreeing. According to findings of the questionnaire, students' answers demonstrate their contentment in territoriality and crowding properties of the classroom whereas lower level of satisfaction in privacy aspect.

The foreseen problem that I've encountered was that children were bored or embarrassed while I was asking them questions. It was a challenge for me to find balance between not turning question-answer process into a dull moment for children and getting beneficial and sufficient answers from them. Since they become distracted easily, I've tried to ask questions fast enough to extract answers from them. Second of all, the design process with children could be integrated to the research and there could be longer video recordings. Since I had time restrictions, it did not allow me to record the video of students and involve them into a design process of their classroom. Furthermore, the case study was planned to be implemented without the presence of the instructor of the class which may allow students to not feel any pressure and be more relaxed, but it was not allowed.

The study sample group was limited to thirty people which constituted from two classrooms. Since I had low number of sample group in the research, I did not focus on the role of gender and age. For the further research projects, bigger sample groups with age differences can be chosen. This may provide more distinctive and interesting findings. Another limitation was that students were sitting too close to each other and their drawings and answers to the questions affected from each other inevitably. If it would possible to conduct the questionnaire and drawing activity one-by-one, the findings could be different. The study was conducted in a public school. If it is not pandemic period, the research could be conducted in both private and public schools. In the further research, private schools also can be selected to compare the results with the public one. I believe that student's satisfaction level would be higher in private schools. Therefore, further research may unveil the differences children perceive in their classroom environment.

The results of creativity assessments and the questionnaire demonstrated that designers and researchers need children's ideas before beginning to plan a place for them. As I've found in this research group, children reflected their needs and wishes from a classroom. Without knowing what their thoughts are, we cannot design a satisfactory environment for them where they spend most of their time. Besides, children need to have a voice from the beginning throughout the design process because not only their creative abilities but also learning and social abilities are affected by their classroom environment. Thus, through benefitting their creative productions and also verbal descriptions, their involvement in a design process would help designers and researchers to comprehend what children have in their minds and to take their perceptions into consideration throughout the whole designing process.

The significance of this study is to demonstrate children can express their ambitious thoughts about their classroom through their creative productions as well as verbal expressions. Their innate ability to explore and interact with their environment and the classroom schemas in their minds can be reflected through their creative actions in a drawing activity. Thus, comprehending children's actual needs and wishes would be beneficial for designers and researchers to design more satisfactory learning environments with them. Since children as every citizen has a right to speak about issues that affects them and express their opinions, classroom environments are one of the crucial places where their voice is needed to be heard. Moreover, their involvement in a design process would benefit both designers / researchers and children reciprocally in the design process; children could express their ideas and also designers / researchers could help children to comprehend actual meaning of some concepts related with interior design of a classroom.

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APPENDICES

Appendix A: Questionnaire

SINIF ORTAMI DEĞERLENDİRMESİ / CLASSROOM ENVIRONMENT ASSESMENT

Lütfen aşağıdakilere ifadelere katılıyorsanız (E); katılmıyorsanız (H); kararsızsanız (K) seçeneğini işaretleyin.

Please mark (A) if you are agreed; (D) if you are disagreed; (H) if you are hesitated with the statement.

	E/A	H/D	K/H
1) Sınıfta hareket edebileceğim alan var..... I have space for movement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Sınıfta istersem kendi başıma kalabileceğim alanlar var..... I have a space I can be by myself if I want to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Sınıfta kendime ait dolabım var..... I have a space of my own where I can keep my stuff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Sınıf yeterince sessiz..... My classroom is silent enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Nereye oturmak istediğimi kendim seçebilirim..... I can sit wherever I want to in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Oturduğumda sınıfta her şeyi görebiliyorum..... While I am sitting I can see the whole class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Günün çoğunu oturarak geçiriyorum..... I spend most of my time sitting in the classroom generally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Sıraları hareket ettirebiliyoruz..... We can move the desks and chairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Sınıfta bana ait bir alan varmış gibi hissediyorum..... I feel like I have place that belong to me in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Sınıfim düzenlidir..... My classroom is tidy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Sınıfim büyüktür..... My classroom is spacious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Sınıfim küçüktür..... My classroom is small	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Sınıfımı çok güzel buluyorum..... I find my classroom nice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) Sıraların yerini değiştirirken fikrimi sorarlar..... They ask my opinion about seating arrangement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) Sınıfımızın nasıl düzenleneceği konusunda fikir veririm..... I give opinion about seating arrangement in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Sınıfımda yapılacak birçok aktivite var..... There are lots of activities to do in my classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) Yaptığım resimleri – etkinlikleri sergileyebileceğim kısımlar var..... There are places for our activities, artworks to display	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTLAR:

NOTES:

Appendix B: Drawings of Research Group Students

P:01



P:02



P:03



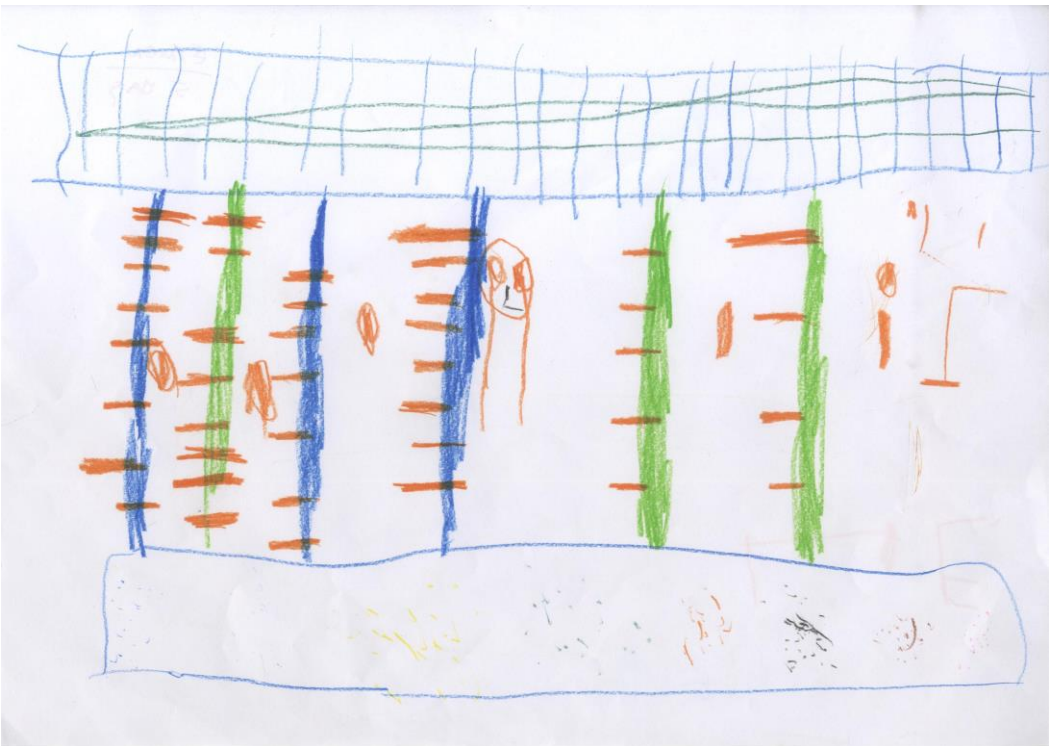
P:04



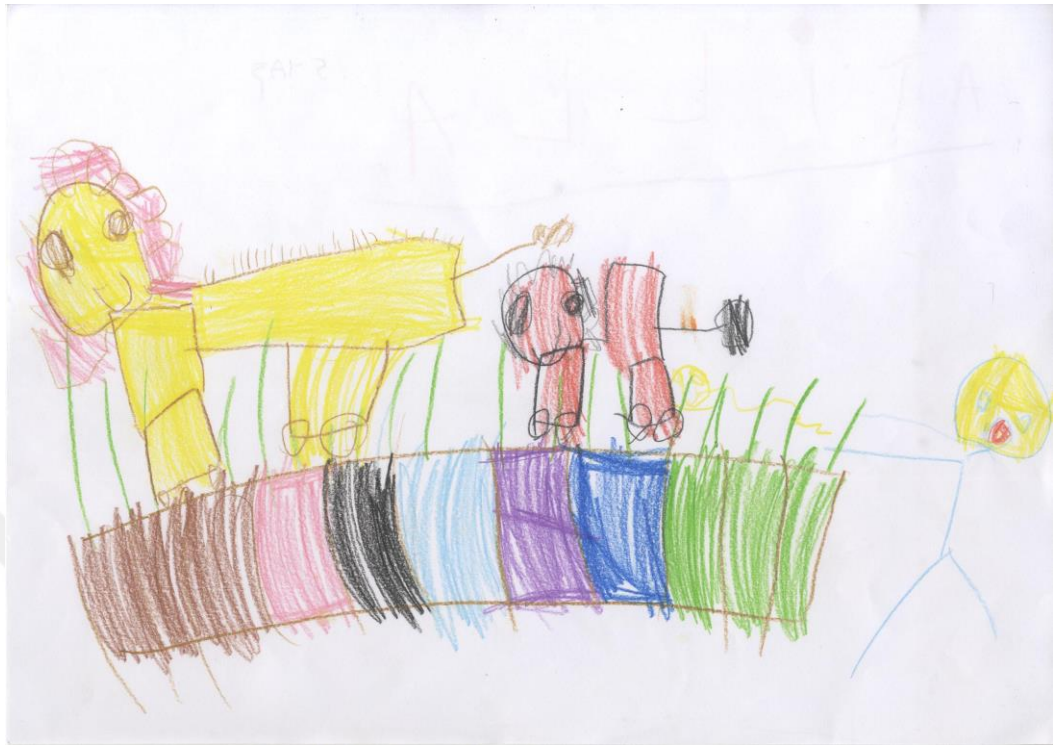
P:05:



P:06



P07:



P08:



P09:



P10:



P11:



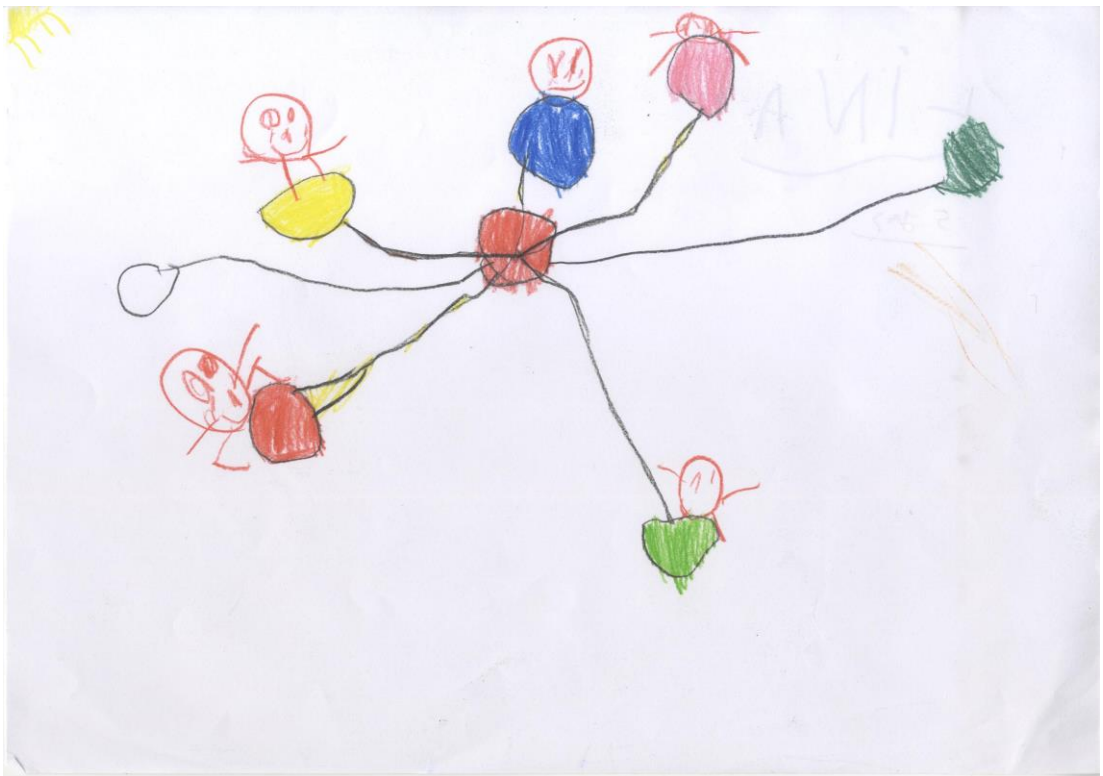
P12:



P13:



P14:



P15:



P16:



P17:



P18:



P19:



P20:



P21:



P22:



P23:



P24:



P25:



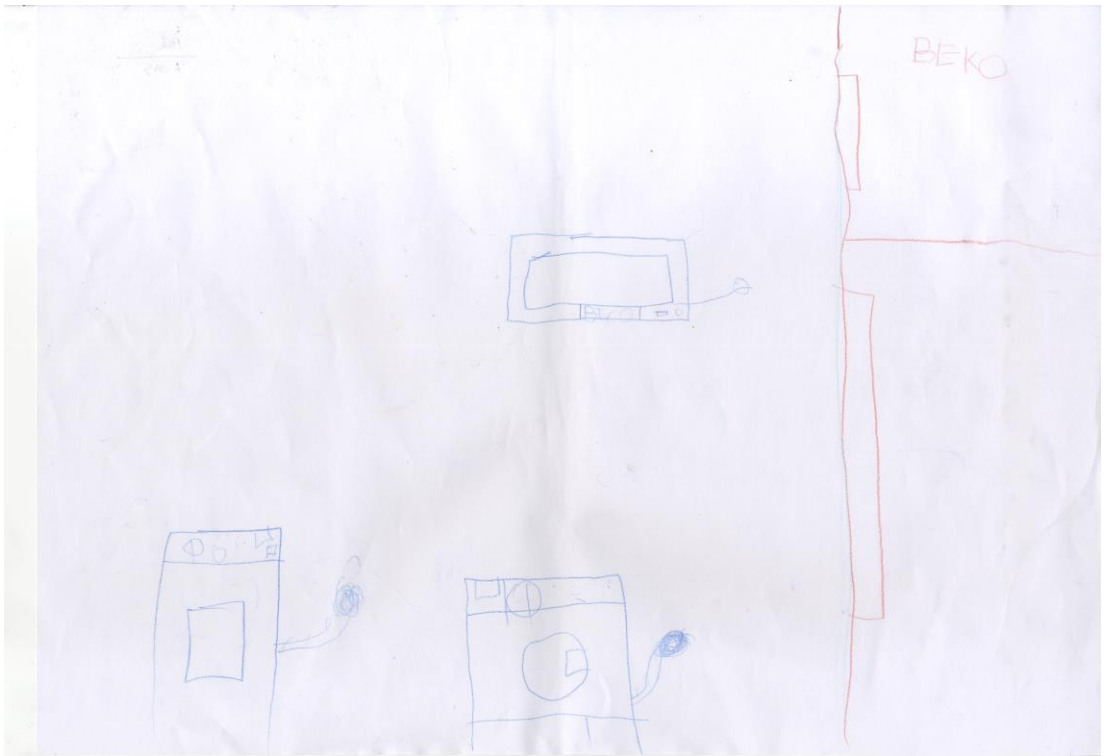
P26:



P27:



P28:



P29:



P30:

