HOW TO DESIGN AN INTERACTIVE CLASSROOM WITH CHILDREN TO BOOST THEIR EPISTEMIC CURIOSITY

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HOW TO DESIGN AN INTERACTIVE CLASSROOM WITH CHILDREN TO BOOST THEIR EPISTEMIC CURIOSITY

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DECLARATION OF ORIGINALITY

I, Esra Özkara, certify that

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ABSTRACT

How to Design an Interactive Classroom with Children to Boost Their Epistemic Curiosity

The aim of this study is to provide an interactive classroom environment for children to support their epistemic curiosity. In the study, curiosity-based questioning behaviors of children were examined based on the classroom conversations. The study was conducted in an early childhood classroom in Istanbul. The participants of the study are 10 children aged 5-6 years. For the study, the curiosity corner was set up in the classroom and children's conversations were recorded during mealtimes (breakfast, lunch, and snack) for five months. For data analysis, qualitative conversation analysis method was used. Teacher-child conversations were transcribed verbatim. The conversations were coded based on linguistic type (statement and wh-, yes/no questions), causality (causal-not causal), topics (biology, convention, food/nutrition, motivation/ behavior, physical mechanism), teacher-child communicative interactions (initiation, elaboration/explanation, clarification). Findings show that, children asked mosly yes/no questions and they were more interested in biological phenomena, followed by nature, social convention, food motivation, and physical mechanisms. Only about 24% of children questions were "why" and "how" type of causal questions. The child communicative interaction in the classroom increased during the study. While children's questions and initiations increased in April, later it was balanced. The teacher mostly elaborated on the children's questions and asked clarification questions rather than engaging in initiations. The results demonstrate the importance of desining a preschool classroom to support inquiry-based learning.

ÖZET

Çocukların Epistemik Merakını Güçlendirmek İçin İnteraktif Bir Sınıf Ortamı Nasıl Tasarlanır

Araştırma, çocuklarda yeni bilgi edinmeye yönelik merak konusunu ele almakla birlikte çocukların yeni bir bilgiye ulaşma girişimlerini incelemektedir. Araştırmada, bir erken çocukluk eğitim ortamında sınıf içi sohbetler temel alınarak çocuklarda meraka dayalı soru sorma davranışları incelenmiştir. Çalışma İstanbul'da bir erken çocukluk eğitimi kurumunda 5-6 yaş grubundaki 10 çocukla yürütülmüştür. Çalışma için sınıfta merak köşesi oluşturulmuş ve çocukların kahvaltı/yemek sohbetleri 5 ay boyunca kayıt altına alınmıştır. Öğretmen-çocuk konuşmaları birebir yazıya dökülmüştür. Veri analizi için nitel konuşma analizi yöntemi kullanılmıştır. Öğretmen/çocuk konuşmaları dilsel tip (nasıl, neden, nasıl, evet/hayır, ne, kim, ne zaman, nerede gibi soru ve durum cümleleri), nedensellik (nedensellik var/yok), konu (biyoloji, sosyal/kültürel eğilim, yiyecek/beslenme, motivasyon/davranış, fiziksel mekanizma), öğretmen/çocuk iletişimsel etkileşim (başlatma, detaylandırma, açıklama) şeklinde kodlanmıştır. Bulgular, çocukların çoğunlukla evet/hayır soruları sorduklarını ve biyolojik olgularla daha çok ilgilendiklerini göstermektedir. Çocukların sorularının sadece yaklaşık %24'ü "neden" ve "nasıl" tipi nedensel sorular oluşturmuştur. Çocukların sınıftaki iletişimsel etkileşimi çalışma sırasında artmıştır. Çocukların soruları ve bir konu hakkında konuşmayı başlatma eğilimleri Nisan ayında artarken sonraki aylarda ise bu durum dengelenmiştir. Öğretmen, konuşmayı başlatma eğiliminden çok, çocukların sorularını detaylandırmış ve açıklama soruları sormuştur. Sonuçlar, sorgulamaya dayalı öğrenmeyi desteklemek için bir okul öncesi sınıfı tasarlamanın önemini göstermektedir.

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CHAPTER 1
INTRODUCTION

1.1 A personal narrative: My journey to children's curiosity

I was a curious child, and it was my natural instinct to ask questions and learn new things all the time. When I saw and heard something new, I would ask many questions to my parents or to my teachers about these new experiences. My father has always been a curious adult. When I was a child, he used to tell me the new information he learned. Also, he has always encouraged me to learn something different. My father plays an important role in my development as a curious child and adult. As an adult, I am still a curious person.

Before I started my teaching journey, I always continued to learn, research, and discover new things. Curiosity has made me an open-minded, knowledgeable, and intellectual student. I learned lots of information about early childhood education. I read many articles about the field that guided my teaching practices. During my internship, I started to practice my academic knowledge in the field, and my interests in the field began to be shaped. When I participated in an early childhood classroom as an intern, I realized that communicating with children and listening to them are the core components of creating a child-centered learning environment in the early childhood setting. I recognized the importance of children's curiosity and interests. Communicating with children about their interests and including children's curiosity in daily plans and classroom routines is a must for increasing children's participation in the classroom. It is also important for children to become a part of the classroom community. In the process of my internship, I planned classroom activities based on the children's curiosity and interests, and my teaching philosophy started to take shape during my internship.

When I started my teaching journey, I was amazed by the sheer volume of questions children ask about their environment, objects, and issues. They were asking questions that were interesting and unexpected. They were coming with different questions every day to the classroom. They were very eager and enthusiastic to share the new information they found from their research with their friends and me.

My classroom environment was very welcoming to questions and curious moments. However, my way to this topic of thesis was mostly affected by one of my students. He was three years old at that time, and every morning, he came to the classroom with a new wonder and wanted to talk with me about it. His curiosity and excitement passed on to other children as well, and they began to ask questions too. Curiosity became an important part of my classroom's agenda. I listened to children's questions and incorporated those questions into our curriculum.

Incorporating children's questions into the curriculum attracted children's interest and enabled their participation significantly. Children were coming with new questions every day, and we were addressing their questions during our discussions taking place at circle times or lunch times. They were sharing their novel ideas or suggesting answers to the questions. As time passed, they began to bring books, toys, magazines, and objects related to the questions we explored in the classroom. We began to watch videos and read books about their topics of interest in the classroom together.

I realized that I learn lots of things from children and their questions. Their questions influenced my classroom practices as a teacher. Until then, I had been aware of involving children's questions in the curriculum. Right now, I know that teaching is not possible unless it involves learning from children. Children learn best when it starts with their questions and initiations. Also, children were active

participants in their learning and were an important part of the classroom community. When I considered my previous teaching experiences and the role of curiosity in children's learning, development, and participation in the early childhood classroom, I decided to conduct a curiosity-based research in the classroom. Another reason why I conducted this study in my classroom is to increase children's participation in the classroom community. Because of the pandemic period, at the beginning of the semester, I had a new classroom, and new children attended the class. Through my observation in the new classroom, I noticed children's participation and communicative interactions were low. In order to encourage peer and teacher interaction and to increase children's participation in their learning and classroom community, I decided to conduct the present study to design an interactive classroom based on the children's curiosity.

Children's rights are categorized into three categories such as provision, protection, and participation rights (Franklin, 1995). It is important to point out that children should participate in decision-making processes for the issues that affect them and it is vital to provide experiences for their participation (Sturges,2015). Children are experts in their own lives and their perspectives about education and practices add on to the effectiveness of these practices once their interests, needs, and voices are considered (Clark & Moss,2001). Starting from younger ages, children spend significant amounts of time in early childhood settings, and they experience becoming a member of a community other than their family environment for the first time; therefore it is significant for them to express their ideas and opinions about the world surrounding them (Cremin & Slatter, 2004). In literature, it is emphasized that children should be considered as individuals, and their ideas and opinions should be taken into account in their own learning process (Hancock & Mansfield, 2002).

Young children spend many hours investigating and asking questions about their environment. They are curious beings right from birth, and there have been extensive research and theories that attempt to describe, explain, and predict why children are curious (Bradbard & Endsley, 1978). Curiosity is significant for the development of young children as it is a major driving force for their learning, reasoning, and problem-solving skills, and teachers should facilitate curiosity by making arrangements in the school environment (Bradbard & Endsley, 1978).

1.2 Purpose of the study

The study aims to investigate the strategies that can be implemented in curiosity-driven interactive classrooms to support children's epistemic curiosity and classroom participation. Children's curiosity is generally referred as the major source for their learning and participation, and with the present study, I intend to find creative ways to increase children's curiosity so that their participation in the classroom will be enhanced. For the study, I aim to analyze children's conversations, particularly the ones that occur during mealtimes and children's attempts to access new information. The roles of interactive strategies, including question-asking, children's interest areas, and peer/teacher communicative interactions, on children's curiosity are examined. The study values children's participation in their learning and it aims to reflect on the role of involving children's curiosity in the classroom routine and curriculum development. Hence, the overall aim of the present study is to increase children's participation in their learning and classroom community.

1.3 Significance of the study

Children's interests and curiosity are the core of child-centered education and using children's curiosity to enable a child-centered curriculum has been extensively discussed in literature. The present study focuses on children's questions to enable curiosity-driven child participation in early childhood classrooms in the field. Children have lots of questions about different topics in their minds and can fire these questions off when they find opportunities. The study focuses on how children use questions to gather information and which types of questions they ask to reach information.

This study is important for early childhood education research. The research will contribute to the research on children's curiosity in Turkey. Especially, the study will contribute to the research on preschool children's curiosity in early childhood settings. The study is an action research study focusing on the problem or the need in the classroom. The action research enables the teacher to improve the learning process by revising and changing classroom practices. It also contributes to the early childhood education field by providing ways to design curiosity-based classroom environments and practices. The present study is significant in presenting the role of supportive peer/teacher communicative interactions on children's epistemic curiosity. The study is important to realize the role of a rich communication environment in eliciting children's curiosity in early childhood classrooms. This study is important in providing opportunities to elicit children's voices and to ask questions that allow children to be more active in their learning and constructing knowledge.

The guiding questions for the study are as follows:

- What are children curious about?

- What would children like to learn in early childhood settings?
- What would children like to know in early childhood settings?
- What are children's initiations to access information about their curiosity?
- What solutions do children offer to access the information?
- What types of questions do children ask?
- In what ways do teachers recognize and engage with children's questions about their curiosities?
- What is the role of peer/teacher communicative interactions on children's curiosity?
- How do teachers choose whose and which questions will be engaged with for building a curiosity-driven curriculum during spontaneous teaching and learning interactions?

CHAPTER 2

LITERATURE REVIEW

2.1 Defining curiosity

Curiosity is known as a motive that affects human behavior in both positive and negative ways at all stages of the life cycle, and it is recognized as the most significant impulse for children's development and education (Loewenstein, 1994). Curiosity is identified as investigating and seeking new information and a desire to satisfy the mind with new information that needs a pursuit motivational system (Kashdan, Rose & Fincham, 2004). Curiosity is defined in terms of positive affectivity and gaining knowledge when one's curiosity has been aroused and is considered as rewarding and highly pleasurable (Litman, 2005).

Several characterizations describe curiosity in terms of attention or orientation towards the object of one's curiosity. According to Berlyne (1954), one type of curiosity is perceptual curiosity, which is thought to be aroused by novelty and reduced by exploration. Another was epistemic curiosity, which Berlyne (1954) defined as a desire for knowledge. A third is a specific curiosity, which includes a desire for specific knowledge or information. An important contribution of Berlyne to the formulation of a definition of curiosity was his inclusion of both state and trait aspects, which remained a part of several subsequent investigations and measures of curiosity. As mentioned above, many of the earliest theories viewed curiosity as a drive.

2.2 Curiosity in theories/theoretical frameworks

Curiosity is widely valued as desirable, and is commonly attributed to children's orientation toward the world (Jirout & Klahr, 2017). Curiosity emerges in the early years of childhood. Children spend long periods of time investigating and asking questions about events, behaviors, and objects, and teachers can foster, enhance, and use curiosity to motivate children to learn in early settings (Bradbard & Endsley, 1978).

In general, theories attempt to describe, explain, and predict why children are curious. Bradbard and Endsley (1978) present several theoretical perspectives on curiosity. Trait theories offer the primary explanation of why children are curious. It is a disposition to explore, inquire and seek information in all or most situations. Perceptual theories hypothesize that curiosity is affected by objects, people, and the child's immediate environment that they perceive as new, surprising, incongruous, or complex. Another theoretical perspective, mastery motivational theories are attributed to the need of children to master their environment. From this perspective, exploration is perceived as the core of early childhood experience: given a safe environment with many things to explore, children will express their curiosity in many ways. Learning theories, on the other hand, emphasize the role of learning on curiosity development. There is general recognition that socialization agents play a role in children's curiosity behavior by modeling and providing external incentives such as praise, answers to questions, or school grades. Cognitive theories state how children come to reason and transform information to solve problems in new and efficient ways. It emphasizes children's complex problem-solving strategies and children begin to ask more complicated questions when they get older. Finally, according to etiological theories, children's curiosity is attributed to biologically

adaptive behavior that must be learned for survival. It means promoting the acquisition of knowledge needed for survival.

When these theories are considered, curiosity is significant for children's development and learning. In the educational literature, it is emphasized that children's ideas and opinions should be considered in the organizing and planning of the learning environment in early childhood, and teachers need to listen to children to make education more meaningful (Hancock & Mansfield, 2002). The educational setting is important for expressions of the nature of curiosity and educators can develop children's curiosity in the classroom with various concepts (Chak, 2007). In the early childhood classroom, multiple activities should be provided to elicit children's curiosity (Canning, Payler & Gomez, 2017). Curiosity develops children's learning in early childhood settings (Peterson, 2020). Considering all these, this study explores children's curiosity and aims to design an interactive classroom for children to boost their epistemic curiosity. The study also explores in what ways teachers can recognize and engage with children's curiosity-based epistemic questions.

2.3 Research (national/international) on young children's curiosity

Curiosity is generally identified as a distinct characteristic of young children (Chak, 2002). Children are naturally more attentive to paying attention to anything novel (Soydan & Erbay, 2003). Many research studies have attempted to describe curiosity and its components (Bayman, 2005), yet many others focus on how children learn and acquire knowledge (Sobel & Letourneau, 2015).

According to Chak (2002), in the context of curiosity, the child engages with an attractive stimulus and tries to find answers to several epistemic questions to

explore the phenomena in the world. While the children explore the phenomena in the world, they ask different types of epistemic questions, such as what can I do with the object, how does it work, why does this happen, and what does this idea mean (Chak, 2002). In other words, if children focus on stimuli in the world, it means they need to research some missing information.

There are studies that focus on curiosity from different perspectives. Jirout (2011) examines the relationship between children's curiosity and question-asking behavior. According to her findings, children with high levels of curiosity asked more questions to discover unknown information than children with low levels of curiosity.

Callanan and Oakes (1992) analyzed preschoolers' questions and parents' explanations. Findings from this study indicate that as age increases during preschool years, children ask more causal questions, and the topics of their questions are mostly related to biological issues, motivation/behavior, and cultural conventions.

2.4 Question-Asking in Childhood

Chak (2002) states that questioning is often perceived as an indication of curiosity, which is then combined with exploration to search for the answer. Bloom, Merkin, and Wootten (1982) examined the process of children's language development in terms of question types in everyday talks. Their study revealed that children begin to ask "what" and"where" question types and "who" questions types around 26-28 months; they ask "why" and "how" question types around 33-35 months.

Ronfard, Zambrana, Hermansen, and Kelemen (2018) distinguished four categories for question-asking behaviors displayed by children (infancy and toddlerhood, preschool, elementary school), which are: (1) initiation, (2)

formulation, (3) expression, and (4) response evaluation and follow-up. Initiation refers to requests for information as children access information through communication. Formulation is the ability to decide what information to ask for and to request the information. Expression means in order to obtain useful information, preschoolers identify available people to provide reliable information and decide whether it is appropriate to ask a question at that moment in that particular setting. Response evaluation and follow-up part include evaluating the answers and deciding whether additional information is needed. In the study, initiation has been well examined in all age groups, formulation has been mostly analyzed in preschoolers and elementary school children. Expression, as well as response evaluation and follow-up, have been almost exclusively examined with preschoolers. In their review of the literature, Ronfard, Zambrana, Hermansen, and Kelemen (2018) highlighted age-related developments and individual differences in children's question-asking behavior, including the number of questions children ask and the quality of questions.

Children learn a lot from questioning and their learning depends on how satisfactorily their questions are answered (Chouinard, 2007). According to Chouinard, children ask questions to access factual information about names (What is this?), functions (What does it make?); locations (Where is my toy?); action (What is she doing?). When children get older, they start to ask explanation-seeking questions and they use 'why' and 'how' questions, such as "why you put some water in there, Mom?" and "How come I cannot go outside?" The question-asking plays a significant role in children's learning in problem-solving contexts. Children actively participate in information search by adopting their questions, which support their learning process (Ruggeri, & Lombrozo, 2014).

Chouinard (2007) evaluated children's questions in two categories, which are information-seeking and non-information-seeking questions. Her study demonstrated that children's information-seeking questions were separated into fact-seeking and explanation-seeking question categories. Fact-seeking questions include acquiring factual information about knowledge such as "What is this?", "Is it fish?" and explanation-seeking questions include searching for explanations such as "How does it work?", "Why does it have a long tail?" and "What is it for?" According to Chouinard, non-information-seeking questions include questions that are asked for permission or confirmation.

Caregiver-child interaction and everyday conversation have an effect on children's information-seeking questions. Kurkul and Corriveau (2018) analyzed the interactions between children and caregivers in terms of the types of questions children ask, the quality of the caregiver response, and children's follow-up reaction to the caregiver response. They found in the study that socioeconomic status is related to children's question-asking behavior. Although the capacity to ask questions is largely universal, children from low-SES families may be less likely to persist on question-asking as a strategy for knowledge acquisition, because low-SES families do not provide adequate explanation for children's questions. Parent's satisfactory explanation for children's questions influences children's learning process.

Ünlütabak, Nicolopoulou, and Aksu-Koç (2019) analyzed children's question-asking behavior and evaluated children's questions across two socioeconomic statuses in Turkish cultural context. Their study showed that Turkish preschoolers ask more fact-seeking questions than explanation-seeking questions and they also ask more information-seeking questions when they receive informative/high quality

answers. However, the study indicates that there is a significant relationship between children's asking ability and SES. In their study, children in middle-SES families asked more information-seeking questions (particularly more explanation-seeking questions) than children from low-SES families.

Conversational settings at home and at school have been shown to predict how frequently children ask questions to access knowledge. (Ronfard, Zambrana, Hermansen & Kelemen, 2018). According to researchers, children may eventually improve the quality of their questions in rich conversational settings by increasing their knowledge about a range of topics, especially, at schools where the teachers may create a supportive classroom climate by inspiring children to ask and generate questions and to refine their questions by scaffolding conversation.

Haber, Puttre, Ghossainy, and Corriveau (2021) analyzed teacher/child conversation on children's knowledge acquisition. Their study presents that if the teacher provides opportunities for children to ask questions by scaffolding and reinforcements, children may take an active role in constructing knowledge in the preschool. In their study, the teacher asked more questions at the beginning of the inquiry to increase children's participation in the inquiry, and then the number of information-seeking questions asked by children increased.

2.5 Adults' Role in Children's Curiosity

As the environment is an essential component of child development, it is important to consider teacher's views and conceptions of children's curiosity in shaping the environment for children (Chak, 2007). Teachers and parents play a significant role in encouraging and arousing children's curiosity.

Parents' conception about children's curiosity is a critical issue. Saxe and Stollak (1971) examined whether children's curiosity has an effect on parent-child relationships. In this study, they found a high correlation between child curiosity and parents' positive attitudes towards children's curiosity. According to Saxe and Stollak, parents' positive feelings about children's curiosity, parents' reinforcement and parents' own curiosity are influential factors that positively affect children's curiosity.

Teachers are among one of the most significant actors in children's lives, and teachers' beliefs and characteristics make differences in educational practices and shapes classroom climates (Rubie-Davies, Flint, & McDonald, 2012).Teachers' beliefs are related to their interactions with children and teachers' beliefs about how children learn, their goals of early education, and their classroom behaviors are strongly correlated (Wilcox-Herzog, 2002).

Most teachers agree that educators play an important role in fostering children's curiosity in the classroom (Aronoe, 2003). Teachers have a role in providing guidance and creating opportunities for exploration to children with high levels of curiosity. In addition, they have a role in stimulating curiosity in the classroom for children who show low levels of curiosity and interest.

According to Arnone (2003) there are some instructional methods to foster children's curiosity in the classroom. These methods are listed below.

Method 1: Curiosity as a Hook

In this method, at the beginning of an activity, curiosity is used as a main inspiratory factor. Teachers start the activity with a thought-provoking question and an interesting sentence.

Method 2: Conceptual Conflict

In this method, teachers provide a conceptual conflict for children. With the help of the conflict, children will experience exploration and sense a feeling of satisfaction.

Method 3: An Atmosphere for Questions

In this step, teachers make some changes in the classroom environment to foster children's curiosity. Teachers create a classroom atmosphere where children can comfortably ask their questions and where they discuss and search their questions.

Method 4: Time

Children need time for exploration of a topic. Teachers' role is important in providing efficient time for exploration for children, because children insist that curiosity is stimulated adequately in the classroom.

Method 5: Choices

Children have some interests, and their interests help sustain curiosity. When these interests are considered, teachers create an opportunity for children to choose a topic that intrinsically motivates them.

Method 6: Curiosity-Arousing Elements

Children are more willing to explore the source of the incongruity, contradiction, novelty, uncertainty, complexity, and surprise that lead to the arousal of children's curiosity. Teachers use these elements in their activities and daily routine.

Method 7: The Right Amount of Stimulation

In the learning environment, the teacher provides stimulation to arouse curiosity. However, the degree of stimulation is a critical issue. The teacher considers the individual differences among children and the stimulus should not be too complex and too uncertain.

Method 8: Exploration

Exploration plays an important role in children learning and the teacher provides opportunities for children for exploration in the classroom.

Method 9: Rewards

Exploration has its own rewards. The classroom environment encourages children for exploration and discovery, which makes exploration its own reward.

Methods 10: Modeling

It is important for the teacher to model curiosity in the classroom. The teacher asks questions, reaches questions, and shows enthusiasm.

Chak (2007) argues that children's immediate environment consists of parents and teachers, thus, it is significant to consider the parents' and teachers' roles and views to encourage children's curiosity. According to the study, parents and teachers have positive views about curiosity, but teachers show higher tendency to encourage curiosity in children. Teachers support children's curiosity at schools by creating rich conversational classroom environments in which children have an opportunity for generating questions and obtaining feedback for their questions (Ronfard, Zambrana, Hermansen & Kelemen, 2018).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research setting

The data on children's questions in the classroom was collected in the Early Childhood Education Center located on a university campus in Istanbul. The preschool includes different classes that include different age groups ranging from 1-5. There is one teacher in every class, and Turkish is the main language of the school. Each classroom in the school consists of approximately 10 children. This study was conducted in one classroom for children whose ages were 5-6. In the classroom, there were 6 boys and 4 girls. These children were mainly from middle socioeconomic status (SES) backgrounds. Their parents were either academics or administrative staff working at the university.

The school applies High Scope Educational philosophy and adopts a child-centered education atmosphere for children. The teachers write their own daily plans and identify activities based on the topics. The plans shape children's interests and their development. The school tries to create a child-centered learning environment. Children's voices, their rights, and participation are important for the educational philosophy of the school.

The education starts at school around 9:00 am and it ends at 5:00 pm. The daily routine of the school consists of free play, garden time, breakfast and lunch time, and rest time.

Children in the classroom where I conducted this study consisted of 10 5-6-year-old children. Due to the pandemic, this classroom was newly created in the beginning of the semester. Specifically, four of the children had been in the same classroom since they were three years old. Three children have been transferred to

this classroom from one of the other classrooms last year. Four of the children started school that year. Thus, the classroom itself was brand new, and I was a new teacher to the entire class.

There are different corners in the classroom, such as art, blocks, housing, quiet, and book and literacy corners. In the free play time, children select the corner they want to spend time in and plan their times.

3.2 Research context

The table shows the general daily schedule of the preschool class. There might be some changes in the routine. Considering children's interests, the teacher makes changes to the routine. The time is flexible, and the activity times might change considering children's interests. There are some special days in a week. Monday is toy day, and children come to school with a toy. They play and share their toys with their friends. Tuesday is book day, and children bring a book from their homes. They tell about the book to their friends, and we read it together. Wednesday is "show and tell" day. Children bring objects from their homes and tell the functions and features of the objects. Thursday is letter day; children bring an object associated with the letter of the week and present their objects to their friends. Friday is riddle and puzzle day. Children come to class with a puzzle and different riddles. Children ask riddles to each other and play with their puzzles. There is also a movie day once a month.

Table 1. The General Daily Schedule of the Preschool Class

08:30-9:00 a.m.	Arrival time (Children play in classroom centers.)
09:00-09:30 a.m.	Breakfast time
09:30-09:45 a. m.	Meeting time (It is a circle time that children and teacher talk about weather, days, children's emotions or thoughts on the day)
09:45-10:05	Circle time (Activities around weekly themes)
10:05-10:15 a. m.	Planning time
10:15-10:50 a. m	Free Choice time
10:50-11:00 a. m.	Reflective time
11:00-11-50 a.m.	Outdoor time
12:00-12:30 p.m.	Mealtime
12:30- 12:45 p.m.	Academic work time
12:45- 14:45 p.m.	Rest time
14:45- 15:30 p.m	Snack time
15:30-15:45 p.m	Music and Movement time
15:45-16.10 p.m	Key Experiences
16:10-16:30 p.m	Free Choice Time
16:30-17:15p.m.	Outdoor Time/Leaving Time

Before starting the research, I have conducted observations in order to assess the necessities of children. I have discerned from the conversations of children that their participations in their classrooms were low. I have observed that children had a low tendency to debate, question, and express their thoughts on a given subject.

I have followed certain steps to increase the participation of children in classrooms. I have encouraged them to talk by abundantly engaging in discussion with them. I have joined their breakfast and lunch chats chitchats. By initiating discussions on various topics and asking questions regarding them, I have provided them with an area of discussion where they can express their thoughts and ideas. I have represented myself and my curious personality to them, and we have produced ideas and conducted research together with children on the subjects and concepts that I am intrigued and curious about. When children were talking with each other on any given subject, via questions such as "How does this occur/happen?" or "I wonder how this is made and from what it is made.", I attempted to encourage them into questioning and thinking about the subjects that they were discussing. After there was an increase in the table chatsof children, I encouraged them to ask questions about concepts and subjects that they themselves were interested in. I have, occasionally, asked questions aimed at learning about these concepts and subjects. I have increased the width and the depth of the chats of children by asking questions such as "what, how, and why". As the discussions of children regarding curiosity saw an increase, I have organized a "curiosity corner" in the classroom where children, at the end of the day, made drawings and paintings on the concept of curiosity. By asking questions myself, I have encouraged children to ask questions themselves. As I have became engaged more in the chats of children, the discussions between children also increased over time. With the increase of discussions and chats

between children themselves, I have ceased to be the initiator of discussion, but rather took the role of the listener. I have joined the chats between children as much as they allowed me in.

At the start of this research, the tendency of children to initiate discussions, their talk time about a given subject, and their tendency to ask questions regarding these subjects were low. I have attempted to encourage them to ask questions regarding their curiosities and interests. During their table and lunch talks and chitchats, I have guided them to ask questions about the subject of the talk. I have used encouraging remarks to spark curiosity on the subjects at hand. In the "curiosity corner", children have made drawings about their talks/chats, interests, and curiosities. Moreover, by different activities in class, I have conducted exercises that aim to support and encourage the question-forming abilities of children. We have prepared a "concept map" with children in the classroom before we have prepared the "experience plans" regarding the weekly themes in our educational program. I have collected the questions of children about the subjects by asking them about what they are curious about the weekly themes. We have done this process before each weekly experience plan to support the question-asking abilities of the children. In addition, I have tried to encourage children to ask questions during our daily activity routines. I have attempted this encouragement through not only discussions during table chats but also by drawing attention to the daily routines, transitions, and everyday situations. The following situation can be provided as an example. In one of our classes, the windows that were situated near the lockers of children had a view of Hisar (, a fortification complex built in the Middle Ages in Istanbul). When we were leaving the classroom for the yard, one child exclaimed: "Look, a tower!" Then, all of the children gathered at the window, talking about the Hisar Castle. By

involving in the discussion myself, I have tried to support their questions and question-forming process. They have asked questions such as “That’s not a tower, that’s a castle. Isn’t it right, teacher?”, “I wonder how it was built.”, “Who built this?”, “When was it built?” By creating a field of discussion from everyday situations like this, I have supported their question-forming and -asking capabilities.

I have integrated different activities to our weekly schedule in order to create a classroom environment based on curiosity and to support and to encourage the curiosity of children, in addition to the “curiosity corner”. We have planned certain days of the week as bring-your-toy day, book day, show-and-tell day, riddle day, and sound day.

Monday was the bring-your-toy and children were to bring the toys they liked to the classroom. Different and intriguing toys brought by the children increased the talks and chats about curiosity and what they were curious about. For instance, one child was bringing a different dinosaur toy each Monday, and this has led to an increase in the interest and curiosity of children about dinosaurs. Over time, there was an increase in the questions of children about the lives and lifetimes of dinosaurs. On another day, one other child has brought a Transformers toy, and together we have explored together how the toy was manufactured and made. Tuesday was our book day. The children were to bring different books from their homes, and we were to read the books together in the classroom. Children were explaining the books they brought to each other and were looking through the illustrations together. The different books that were brought sparked curiosity about different subjects and inspired interest.

Wednesday was the show-and-tell day. Children were to bring an object that they deemed as intriguing and explain its use, properties, and its areas of use. The

questions that children asked during the show-and-tell were about understanding what the object was used for, and what it actually was.

Thursday was assigned as the riddle day. Riddle days were of especial importance, aimed to support the children's question-asking, question-forming, questioning, and guessing capabilities. Especially during breakfast chats, children were asking the riddles that they have learnt to each other. Initially, children mostly learnt the riddles at home. However, later on they have developed and created their own riddles. They have played guessing games with a variety of riddles based on different subjects. In riddle days, I myself also supported these questioning capabilities of children with different riddles. The riddle day was such a day, which supported and encouraged the curiosity and interest of children.

Friday was the sound day. In this day, children were to bring objects to the classroom relevant to the sound that we have learnt about that week. After showing the objects brought, we were playing a game of finding the different objects relevant to the sound at hand. During the games, we were analysing different objects and were creating a field of discussion that promoted interests and curiosity.

By utilizing the "curiosity corner" and the other different activities, I have created a classroom which supported the children's epistemic curiosity. This classroom environment with its focus and base on curiosity and interest, has affected the learning processes and the learning environments of the children from many different angles.

As the study progressed, the children's interest and questions about curiosity and objects of curiosity increased. Initially, children were mostly producing ideas and asking questions only during lunch chats and in the "curiosity corner". However, as the study/research progressed, the questions have extended to and over to the daily

routine actions and to the different time periods in the program. As time passed, children started to ask different questions in a variety of times and environments regarding their objects of curiosity and interest.

Example 1:

Child 1: Teacher, where are the homes of [*sic*] the hives of the bees?

Teacher: Where do you think that they can be?

Child 1: Maybe it is behind the trees, the forest?

Teacher: Maybe it is. Should we ask to your friends as well? Maybe they have an idea [about where the hives are].

Child 1: Lisa where are the homes of [*sic*] the hives of the bees? Do you know [where they can be]?

Child 2: Their homes are too, too far away?

Child 1: No, my mom told me that they were behind those trees.

Child 2: How do the bees build those hives? Do they make these hives themselves?

This (translated) transcript shows the chat and discussion of two children during yard time about beehives and how beehives are built. From this chat we have decided to research where beehives are located and how they were built.

Such as this example, there has been an increase in questions about objects of curiosity and interest in different times of the day and in various environments. The children, also during transitions in their daily routines and in their activities have performed with their other teachers such as English or arts, expressed their curiosity and asked questions regarding them, and have drawn their drawings and paintings for

the “curiosity corner”. All of this have supported the learning process of children and provided them with an enriching learning environment.

The interest of children to the “curiosity corner” also saw an increase alongside their increase in asking questions within the school environment. Each day, children started to come up with different questions for the “curiosity corner”. They came up with suggestions such as “I have thought about this for the ‘curiosity corner’” or “Let us also do this for the ‘curiosity corner’”. They have hanged pictures related to their different questions within the day. Some children have shared what they have learnt about their question in the “curiosity corner” with their friends and the classroom. Children have stated that they have learnt these answers from their families, mobile games, books, and/or videos. At times, children have brought to the classroom books and journals about the topics that they are interested in. We have read books about the topics that they are interested in and have researched about these topics through the Internet. To provide an example, in one of the days, the main and continuous topic of discussion between children were peafowls. They had questions such as “How many feathers does a peafowl have?”, “Is there a baby peafowl?”, and “Why do peafowl open their fans (i.e., tails)?” We have noted down these questions in the “curiosity corner”. Within the day, one child found a journal about peafowls in the book corner and brought it to the classrooms. We have read the journal together and learnt about the lives of the peafowls.

I have attempted to support the learning processes of children by planning activities aimed towards their topics of interest. I have designated and integrated some of the topics which sparked the most interest during the discussions to in class activities.

3.2.1 Dinosaur day

One of the topics that children have inquired the most and were curious about were the dinosaurs. They had many questions regarding the different dinosaur species, their characteristics, lives, and their extinction. In order to promote learning and researching abut the questions they had, we have assigned a day as the Dinosaur Day. In that day, children have brought different toys and books about dinosaurs from their homes. The ones who had, worn clothes with dinosaur imprintings and illustrations on them. Using these materials, we have learnt the names of different species of dinosaurs. We have learnt about their diets from songs and videos about dinosaurs. We have watched together a documentary about the lives of the dinosaurs. In art class, with the help of the arts teacher, we have made 3D dinosaur heads from leftover cardboard boxes, cartons, and coloured papers. We have painted a variety of large dinosaur figures on the classroom walls. These paintings stayed for the entirety of the semester.

3.2.2 A day without paper

Another topic that sparked interest was recycling. The children had many questions regarding nature conservation, trash and garbage, and recycling. In order to encourage them to learn about this subject, we have organized “a day without paper” in the classroom. At first, we have talked about how we could paint and draw without any paper. Children have brought from their homes various surfaces made out of fabric, stone, wood etc. For that day, they have painted on only these surfaces. They have even painted over the unused wooden toys in the classroom. We have watched a film together which was about garbage collection and disposal. We have learnt about dumping grounds and about the separation (parsing) of garbage. For recycling,

children have brought from their homes recyclable materials such as glass, plastics, scrap metals, and paper, and we have separated these items together.

With the aforementioned activities, I have supported the curiosity of children and encouraged them to ask questions about their topics of curiosity and interest. These activities proved positive, as it supported the children to learn and increased their class participation, alongside providing an enriching environment of learning that is based on curiosity.

3.3 Data collection process

The study was designed as action research using qualitative and descriptive quantitative methods. The study continued for 5 months and was based on observations and activities implemented in the classroom. The study was conducted in the school where I work as a teacher. Before the study began, I made observations about the interests and informational needs of the children in the classroom. Based on my observations, as a teacher, I realized that children needed to participate more in classroom discussions. I also needed to create a classroom environment where children could show their curiosity and ask questions. Thus, I aimed to create a more child-oriented classroom environment where children's interests, ideas, and thoughts are included in classroom practices and routines.

After identifying the needs that should be supported and improved in my classroom, I reviewed the literature and learned about the best practices to boost curiosity-based learning in the classroom. Then, I developed a plan to implement these practices in classroom context. Below, I list my observations and my action plan to address the needs and concerns in the classroom:

i. As a teacher, I realized that the first step is to be a good role model for students. Thus, I tried to model a curious personality/exploratory stance and curious behavior in the classroom (Harris, 2012).

ii. I participated in children's conversations in the breakfast and lunch time and communicated with them about topics that I was curious about and found interesting. In daily routines, I spontaneously mentioned different and interesting topics to children. Also, during the activity time, I provided some guidance for questioning.

iii. Based on my classroom observations, I noticed that children needed a specific time and place to share their interests and talk about topics related to their curiosity and interests. To this end, we created a curiosity corner in the classroom, and I wrote children's questions on a board and children made drawings about their questions. Children's questions affected my classroom practices as a teacher. I realized that children learned best when classroom practices were based on their questions and initiations. Also, children were active participants in their learning and became an important part of the classroom community.

iv. To elicit children's curiosity, I actively listened to the children's conversations, let them initiate conversational turns and participated in their conversations, and guided them to ask more questions by providing elaborations and explanations. Specifically, I encouraged children's participation by prioritizing topics about their curiosity.

Overall, these steps in my action plan helped me provide opportunities to children to show their interests and curiosity. Based on the observations and steps summarized above, the study was designed as action research in that it includes a

plan that meets the classroom's needs. As a teacher, I identified the problem and needs in the classroom and developed a plan to solve the problem.

3.3.1 Teacher as researcher

Being the teacher and the researcher at the same time was challenging. I have worked as the teacher in this classroom for one year. As mentioned above, due to the pandemic, the new classroom was created at the beginning of the semester. Four children had been in the same classroom since they were three years old. Three children attended the classroom used to be from a different class. Four of the children started school this year. The classroom was new and I was a new teacher for all children. In the first semester of the year, the children and I had a process of getting to know each other. I tried to establish a classroom climate. As the study began, I tried to create a curiosity-based learning environment.

My role as the teacher in the classroom was designing a classroom environment that boosts children's epistemic curiosity. My role was to increase children's participation in the classroom by supporting peer and teacher communicative interactions. To this end, I tried giving children spaces to express themselves, encouraged them to ask questions and gave responses (elaborations and explanations) to their questions.

Establishing a curiosity-based classroom environment was my primary role as a teacher in this study. As a teacher, I modeled curiosity in the classroom. I tried to show my curious personality in the classroom. I mentioned the topics I am more curious about and asked some questions about related topics. I thought aloud about the questions and tried to get the children's attention. We searched for answers to my

questions with the children. Also, I encouraged children to communicate and express their opinions.

To encourage curiosity, before preparing the weekly plan, we made a concept map about the topic of the week. I asked children what they were curious about and I wrote their questions and statements. I prepared the daily plans for the week by considering children's curiosity. I integrated questioning into everyday activities. I created a curiosity corner in the classroom. At the end of each day, we worked on it, and the children made some drawings based on topics that they were curious about.

As a teacher, I tried to follow the children's lead and give importance to the topics they wanted to learn about on the classroom agenda. I constantly communicated with children during mealtimes, such as breakfast, lunch, and snack times. I participated in their conversations, and we talked and discussed the issues together.

There were advantages and disadvantages of being both the teacher and the researcher. I tried to reflect on and write my feelings on my reflective notes. When I analyzed these, I realized that there were changes in my emotions during the study. At first, I was anxious about implementing the action plan in the classroom. I tried several possibilities before deciding on how to proceed. For instance, first, I selected a theme of the week for every week. Then I realized it was limiting and unproductive. Based on feedback from students, I decided to focus on the children's natural conversations and interactions.

During the data collection process, my role as a teacher gradually decreased, whereas my role as a researcher increased. At the beginning of the research, I made more initiations to encourage children's conversation, but my initiation role as a

teacher gradually declined. After the children adapted to the new classroom environment, I elaborated on the children's conversations and their questions.

Being both a teacher and researcher was challenging for me. I had difficulty deciding on when to engage in children's communication and answer their questions. As a teacher, I avoided interfering with children's question-asking and peer conversations.

3.3.2 The role of the researcher

Researching with children and being the researcher in the early childhood classroom is challenging. Some spontaneous events might occur in early childhood classrooms. Some challenges might be experienced in preschools. Because of the school programs, events, and organizations, I experienced difficulties in collecting data. During the study, my role as the researcher gradually became more substantial in listening and observing children's conversations, identifying the topics they were curious about and collecting their questions about them.

As the researcher, the most significant part of my role was to listen to the children. I listened to their conversations, ideas, and questions about their curiosity during every breakfast, lunch, and snack time during the semester. I also observed children's peer and teacher communicative interactions. I put the voice recorder close to the children at every breakfast, lunch, and snack time. I listened to their conversation and took notes.

My other role was being a participant in research questions. Children wanted to ask me questions and seek the answers with me. They needed help while discussing the answers to their questions. They asked me about ideas and predictions about the answers. When recording the children's conversations, I was in the role of

the researcher. I asked children about the topics, and they shared their questions with me in the curiosity corner.

3.3.3 Teacher and peer interaction

Before the study began, I tried to create a positive relationship between children and me. I tried to ensure the existence of a positive classroom climate in the early childhood setting. I created a classroom environment where children feel safe, happy, and valued. I have established a positive and trusting attachment with children. Children were happy being a part of the classroom; I was also happy being with children.

Before the study began, I explained to children that we would create a curiosity class, and they would be researchers in the classroom. I told them there would be research in the classroom during the semester. I mentioned that we would collect questions about topics and search for answers to their questions. I told them the details about the study, and they were interested and excited to participate in the study.

The children helped me a lot during the data collection process. At the beginning of the study, they experienced confusion when asking questions while working in the curiosity corner. In the study process, children were more interested in the study. They asked more questions about the topics. Conversations between them increased, and their question types were enhanced. At the beginning, I made remindings about children's conversations while they drew their questions in the curiosity corner. I took notes on their questions and their initiated topics. The children reminded me of their conversation topics and questions during the time.

As a teacher, I tried to create positive relationships and attachments between children. I tried to increase peer communication in the classroom. At the beginning of the study, peer communicative interaction was low. However, throughout the study, peer communicative interaction increased.

3.4 Theoretical background of the methodology

Qualitative research is an approach to the study of social phenomena and is interpretive and grounded in the lived experiences of people (Marshall &Rossman, 2016). Qualitative research is an approach for exploring and understanding individuals and groups attributed to a social or human problem. The researcher tries to establish the meaning of a phenomenon from the participants' views (Creswell, 2013). Qualitative research is naturalistic and is associated with people's ideas and acts in their everyday lives. Observing people in their daily lives and viewing the documents they produce give researchers first-hand knowledge of their social life (Taylor, Bogdan & DeVault, 2015;2016).

The action research methodology is applied in the present study. Action research is a research method that is used by teachers in the field of education to investigate problems in the classroom and to improve learning teaching-learning process (Lufungulo, Mambwe & Kalinde, 2021). In the actions research, teachers are actively involved in the research process, enabling them to address the problem and make some changes in the classroom.

There are some guidelines and steps in the action research. Young, Rapp, E. and Murphy (2010) stated that the main cycle of action research includes planning, action, observation, and reflection. In action research, these steps are then used to revise the process in the next cycle. In other words, a plan is created after the

problem is identified in the classroom, activities regarding the problem are implemented, and observations are recorded. The observation record is critically examined and according to the results, classroom activities are revised.

Action research methodology provides some steps for teachers engaging in this research methodology based on the stages of problem investigation, taking action, and fact-finding about the result of action (Lufungulo, Mambwe & Kalinde, 2021). The stages in action research are listed in detail below.

i. Problem identification

This step starts with the identification of the problem. In this process, the teacher focuses on the problem and needs in the classroom.

ii. Data collection in action research

In this step, the teacher collects structured and systematic data using observations, checklists, interviews, journaling, and documentation to identify the problem.

iii. Analyzing data in Action research

This step includes summarizing and defining data to obtain useful information. In this step the researcher identifies relationships and differences between variables and compares variables and forecasts outcomes.

iv. Report Results

In this step, findings are shared and reported to other practitioners.

v. Take Action Based on the Results

After the data collection, action is taken based on the data results. Based on the results, the teacher identifies the new and needed methods to improve teaching practices.

vi. Evaluate and Reflect

This step includes questioning whether or not the action research makes improvements in the educational setting. To notice the improvement, data is evaluated based on the identified criteria for improvement.

3.5 The design of the study

The study was implemented with 10 children in the classroom and lasted 6 months. At the beginning of the study, children were informed about the process and methods of the study. This present study emphasizes children's conversations in the preschool classroom at different times, such as breakfast, lunch, and snack times. The study highlights children's initiations to elicit information from the teacher or their peers, elaborations on questions and statements, and clarifications if a topic, question, or statement is not understood. Thus, I identified the breakfast, lunch, snack, and other free times when children engaged in dialogues with their peers and me, based on their curiosity-based inquiry and recorded these conversations. We also created a curiosity corner with children in the classroom and children put their drawings about the things they were curious about on it and asked me to write their questions on the board, and we had discussions about them.

3.6 Data collection tools

Data was collected using multiple qualitative methods, including interviews, conversations, and observations. These methods were selected because of their fit to the phenomenon of study. Data collection started at the beginning of the semester, and it lasted all semester. For the data collection, a curiosity corner was created in the classroom.

Children’s talks and peer-teacher communicative interactions were analyzed as reflections of children’s curiosity about one topic. Children's conversations in breakfast, lunch, and snack times are recorded every day. The teacher makes notes of children’s questions and sentences. After recording, at the end of the day, we reviewed what children talked about.

In the curiosity corner, each child explained and mentioned the topics they discussed most in breakfast, lunch, and snack time. Children explained what they were curious about. I wrote and recorded each child's utterances and questions. They made drawings about the topics they were interested in and about their questions. I wrote children’s questions on their drawings. Also, observations were made for what children post in the curiosity corner.

3.7 Documents

Documentation was a tool to collect data in this study. Children's drawings and artwork were collected and interpreted for insights about the experiences of the children. These documents are used to arouse and expand children’s curiosity about the topics. In the study, children’s drawings, pictures, and art in the wrapper paper in the curiosity corner were used to reveal children's ideas. In addition to this, a map that was created with children was used to reveal what they are curious about.

The research process was formed by children’s works in the curiosity corner. Children’s inquiries were identified by keeping track of the works in the curiosity corner, and these inquiries were jointly explored.

Figure 1. Curiosity corner in the classroom

This figure shows the curiosity corner in the classroom. Curiosity corner was used to collect children's questions and to enhance children's questions about one topic,. This corner was related to children's breakfast, lunch, and snack time conversations. After the children's conversations were recorded at breakfast, lunch, and snack times, we revised the topics in the curiosity corner. Children explained what they were curious about and asked their questions about the topic. I wrote and recorded every child's utterance and questions. They made drawings about the topics they were interested in and their inquiries. Children's drawings were used as props to expand their curiosity. After they drew about the things they are curious about, they began to verbalize their questions. I kept a record of their questions and placed them on the curiosity corner as well. This corner remained in the classroom throughout the study.

3.7.1 Examples of children’s drawings

Figure 2. Questions about aliens

This picture was drawn by one of the children for the curiosity corner. The picture was drawn based on the child's curiosity and questions about aliens. In their conversations, children have questioned the existence of aliens by asking many questions about them. I chose this picture because aliens are one of the most curiousity-inducing and desired topics for children to learn about. In this picture, the child has drawn an alien. With this picture, the child has asked questions like 'Are there aliens?', 'Where are aliens?', and ‘Are aliens in space?’

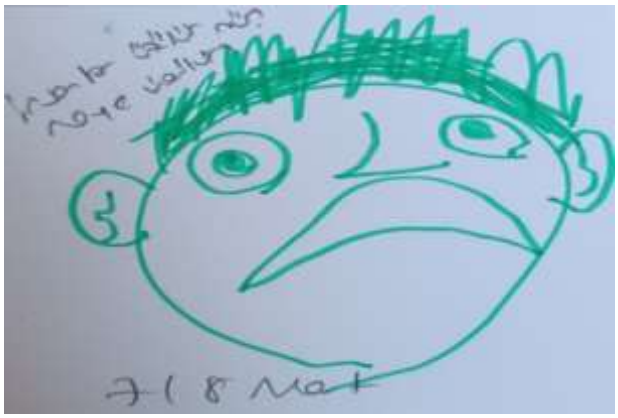

Figure 3. Questions about emotions

Children also communicated about emotions in their conversations. Figure 3 was drawn after a child expressed their sadness during breakfast. Children asked their friend “Why are you upset?”, but the child did not answer and remained silent. After that, children questioned people’s sadness and they communicated about why people are sad. The child made this drawing because they were curious about what upsets people.

Figure 4. Qestions about ghosts

Children have also talked about the existence of ghosts in their conversations. They questioned whether ghosts really exist or not. In Figure 4, one of the children drew a picture of a ghost and hung it on the curiosity corner. The child asked questions about ghosts such as “Do ghosts really exist?”, “What do ghosts look like?”, and “When do ghosts appear?”. They showed interest in learning more about ghosts.

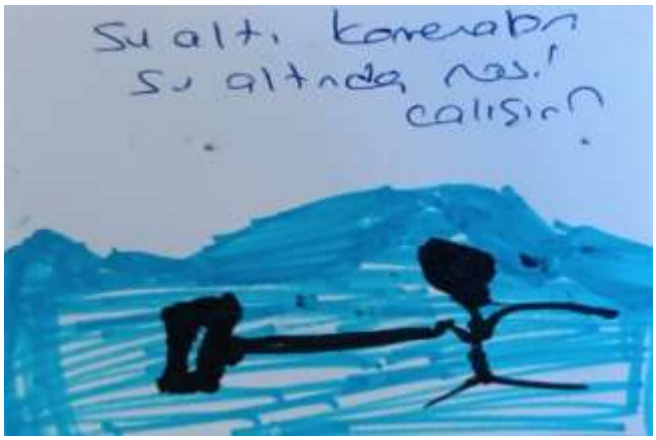

Figure 5. Questions about technological devices

One of the topics that children frequently discussed in their conversations was the features and functions of technological devices. In this picture, the child drew an underwater environmenr and a person using an underwater camera. The child wanted to express their curiosity about how underwater cameras work. With this drawing, the child asked questions such as "How do underwater cameras work?", "How is the camera not broken under the water?", and "How can the camera take pictures underwater?"

3.8 Consideration of Ethical Issues

There were several ethical considerations taken into account when conducting this study. Ethical considerations were considered and followed while conducting the research. Firstly, I planned a document to inform the school administration and requested their approval. This document includes the research projects, data collection tools, and the philosophy of the study. Also, the document includes a consent form. I took permissions from the education coordinator and administrator of the school.

Secondly, I took the approval of the Ethics Community of Boğaziçi University. I applied for approval using the Ethics Committee's application form

(Appendix B). I explained my study in terms of theoretical framework, methodology, and ethical considerations. To get the approval of parents, I prepared a consent form. This form was added to the application form of the Ethics Committee. The consent forms for the parents of each child were prepared (Appendix A). These forms were presented to the Ethics Committee. I received permission from the Ethics Committee and parents of children before I conducted the study.

During the data collection process, all documents were preserved in a folder. Only my advisors and I had access to this folder. Children's names were not indicated in the forms. Signatures and symbols were used for participants.

The preschool authorities, parents, and children were informed about the research process and approved children's participation. The consent forms were collected from the parents**.** Before the study started, I described the process of the study verbally to children and explained to them that they can withdraw from the study at any time, and I received verbal assent from children. I mentioned the data collection tools to children (e.g., curiosity corner).

3.9 Data Preparation and Coding for Conversation Analysis

I used qualitative conversation analysis as my data analysis method. Conversational analysis is known as talk-in-interaction that examines a wide variety of speech exchange systems (Markee, 2007). Bateman (2017) in the educational context, states that conversation analysis offers an opportunity to understand children's interaction with others and to analyze children's role in the social co-construction of knowledge. According to Batemen, conversational analysis provides an opportunity to realize children's voices in everyday situations in early childhood.

First, the audio records of breakfast, lunch, and snack time conversations were transcribed verbatim using Microsoft Office Programs Word and Excel. In each transcript, the record number, the date, and the speakers were included. Then the conversations were coded using Excel based on linguistic type (statement and questions such as how, why, how, yes/no, what, who, when, where), question types (open-closed question), causality (causal-not causal), topics (biology, convention, food/nutrition, motivation/ behavior, physical mechanism), teacher and peer contribution (initiation, elaboration/explanation, clarification).

The coding scheme was developed based on data using a bottom-up approach. When developing a coding scheme, we used several previous coding schemes. For children's questions, we benefited from coding schemes developed by Tizard and Hughes (1984) and Chouinard (2007). For topic coding, we used the coding scheme developed by Callanan and Oakes (1992) based on their examinations of parent-child question-answer exchanges. Finally, for communicative interactions, we benefited from Melzi et al.'s (2011) study, which identifies parental conversational styles based on parental elaborative talk.

Teacher-child conversations were transcribed verbatim. All utterances were divided into sequences which were defined as conversational turns on the same topic. Three coders (the teacher and two research assistants) coded the data for linguistic types, topics, and communicative interactions. They coded an overlapping 25% of the data. Interrater reliability was calculated for each category (ranging from .54-.95). Reliabilities were high for linguistic types and communicative interactions. On several topics, there was moderate reliability. Discrepancies between coders were discussed and resolved for such cases.

Table 2. Codes for Theacher and Child Questions

Code	Definition	Example
Statement	Any speech that contained a declarative statement.	Fish cannot talk as we do.
Question	Any speech that was aimed at eliciting information.	How do fish talk?
What	The questions asked for searching the functions of objects; though not strictly causal, they represent purposes of things	What happens if we pollute the water?
When	The questions asked for searching the time of an event.	When does the color of the potato change?
Who	The questions asked for searching the subject of an action.	Who is the alien? People?
Where	The questions asked for learning the origins or destinations of objects or events, and they reflect thinking about transformations or changes in the world	Where does the taste of food come from?
Yes/No	The questions asked for researching the accuracy of the statement.	Can octopuses walk on land?

Why	The questions asked for the reason for some events, issues, behavior etc.	Why do peacocks have spots on their fans?
How	The questions asked for getting information about how something works or how people do something	How was the world formed?
Quality of Question		
Open	This code involves all statements that mention the causal mechanisms or processes between scientific facts.	How do hiccups occur?
Closed	This code involves fact-based information and questions to achieve a goal rather than explaining a process.	Is there an infinite number?
Topic		
Nature	This code includes issues about natural phenomena.	Do you remember we talked about which animals eat animals?
Cultural/Social Convention	This code involves each communication about cultural/social convention.	Are you curious about prehistory? What are you curious about prehistory?

Food/Nutrition	This code reflects statements, questions, and every utterance about food/nutrition.	What is cola made of?
Biology	This code includes each speech about biological issues.	Flamingos fly very well.
Physical Mechanism	This code includes every question, statements, and utterances about physical mechanisms.	How does spacecraft work?
Motivation/Behaviour	This code involves every speech associated with motivation/behavior.	I went to kung fu class. Kung fu? What did you do there, how was it?

Table 3. Codes for the Teacher-Child Communicative Interactions

Code	Definition	Example
Initiation	All statements, questions and reactions that aim to seek one's attention by making an action or calling others.	Where does the salt of the sea come from?
Elaboration/Explanation	This code involves all scaffolding statements and questions for enhancing communications. It involves turning the question back to the child.	How did people talk in prehistory? How were they fed?
Clarification	This code includes clarifying something that had been said.	Really? I didn't know that. How did you think of that, where did you come up with this? Did you see it somewhere?

CHAPTER 4

RESULTS

The present study aims to design an interactive classroom with children to boost their epistemic curiosity. The study tries to understand how children search for information and what type of questions children ask to reach the information. Data were analyzed utilizing different perspectives including overall talks by speakers, linguistic types of questions, quality of questions, utterances about topics, and types of communicative interactions.

4.1 Descriptive statistics on conversations of teacher and children

This chapter gives detailed information about breakfast, lunch, and snack time conversations in the classroom. It demonstrates the changes in the number of questions and statements that teachers and children use in the classroom during the semester.

4.2 Curiosity-based sequences in the classroom

Teacher-child conversations on the same topic were identified in the transcripts. Overall, early in the semester there were longer conversations on the same topic between teacher and children with an average of 12.49 to 10.41 lines of talk within each sequence in March and April. These sustained conversations on the same topic declined slowly in May and June but still not fewer than 6 lines on average in May and June.

Table 4. Frequency (Percentage) of the Sequences in the Classroom over 5 Months

	March	April	May	June	July	Aggregate
Count	35 (21.21%)	54 (32.73%)	24 (14.55%)	33 (20.00%)	19 (11.52%)	165
Lines	437 (28.6%)	562 (36.78%)	164 (10.73%)	222 (14.53%)	143 (9.36%)	1528
Min length	2	1	1	1	1	1
Max length	37	37	16	23	18	37
Mean length	12.49	10.41	6.83	6.73	7.53	9.26

4.3 Curiosity-based statements and questions

Teacher's and children's utterances were categorized as either statements or questions. The frequencies of statements and questions were calculated for each speaker (teacher or children) and for each month (March to July). Then the percentages were calculated within each month to observe changes in questions and statements by the speaker each month.

Table 5. Frequency (Percentage) of Statements and Questions over 5 Months

Linguistic Type	Speaker	March (%)	April (%)	May (%)	June (%)	July (%)	Total (%)
Total	All	437	559	162	221	143	1522
Statement	Children	230 (52,63%)	290 (51,88%)	80 49,38%	104 47,06%	62 43,36%	766 50,33%
Statement	Teacher	33 (7,55%)	38 (6,80%)	19 11,73%	24 10,86%	13 9,09%	127 8,34%
Question	Children	65 (14,87%)	108 (19,32%)	20 12,35%	31 14,03%	25 17,48%	249 16,36%
Question	Teacher	109 (24,94%)	123 (22,00%)	43 26,54%	62 28,05%	43 30,07%	380 24,97%

Table 5 demonstrates the frequency of statements and questions by speakers (teacher and child) during the semester. Children's questions dramatically increased after the first month (in April) and leveled off afterwards. While questions leveled off, teachers seemed to compensate conversations by asking questions. Conversations were mostly led by children as seen from the number of statements. Below I present an excerpt from conversations to show how children talk and ask questions.

Example 1:

Child 1: There is a fly above.

Child 2: I saw it, it's not a fly, and it's a light.

Child 1: He's a monster.

Child 2: It's also hidden.

Child 1: Hiding in places.

Child 2: I can't see it; what is it?

Child 3: It's a fish. No, it's an alien.

Child 2: Yes, it's an alien.

Child 4: I think aliens are real.

Child 3: Aliens are aliens… Hello alien, we are from Earth! Teacher, are we from Earth?

Child 1: We are aliens.

Child 3: There are aliens in the world, and people are considered aliens.

Teacher: Who is the alien? People?

Child 2: No, no one is an alien.

Child 4: Yes. There is no such thing as aliens.

Child 5: Maybe it's a stingray fish.

This excerpt demonstrates how the teacher and children question whether aliens exist. Children are numbered based on the order of their engagement in the conversation. We see that one of the children initiates this conversation and draws attention to an animal in the classroom with a sharp raise in their voice. The child encourages other children to look and communicate about animals, by asking "what is it?" This communicative interaction shows that children have different ideas about whether aliens exist. This conversation was followed by ananother question directed to teacher: "Teacher, are we from Earth?" Then the conversation continued with the question of "Who is the alien?" This transcript demonstrates the order in which children respond and how they respond to each other. Also, this transcript shows the role of teachers in eliciting children's voices and ideas.

Example 2

Teacher: Yes, there is a recycling mark on the windows as well.

Child 2: On the clocks too.

Child 1: Also on the seats.

Teacher: I don't know if there will be recycling marks on the seats.

Child 1: It might be in chairs.

Child 2: I think it might be on toys.

Teacher: You have to look for the toys of your class carefully. We don't know, it must be on the toys.

This brief excerpt exemplifies talks about recycling between children and the teacher. This is an example of a short speech sequence about recycling. We see that the teacher responds to the child's initiation and draws attention to the child's opinions. This encourages other children to talk about the recycling and follow predictions about where recycling marks are found. This transcript shows the order in which children respond and how they respond to each other. Also, it shows how the teacher takes a role in constructing children's knowledge.

4.4 Linguistic types of questions by speaker

This chapter gives detailed information about child-teacher conversations in terms of linguistic types of questions. To seek information, children asked fact-based questions, or they asked questions based on causality. The fact-based questions include questions of "when, where, who and yes/no". The causal questions were categorized into questions of "why and how". This chapter focuses on what type of questions the teacher and child use in their talks. It shows the distribution of linguistic types of questions during the semester.

Table 6. Frequency (Percentage within questions) of Question Types by Speaker

Type	Speaker	March	April	May	June	July	Total
Total	All	174	231	63	93	68	629
How	Children	5(2,87%)	11(4,76%)	3(4,76%)	5(5,38%)	5(7,35%)	29(4,61%)
How	Teacher	8(4,60%)	24(10,39%)	11(17,46%)	11(11,83%)	6(8,82%)	60(9,54%)
What	Children	13(7,47%)	14(6,06%)	5(7,94%)	3(3,23%)	2(2,94%)	37(5,88%)
What	Teacher	22(12,64%)	34(14,72%)	7(11,11%)	14(15,05%)	10(14,71%)	87(13,83%)
When	Children	0	1(0,43%)	0	0	0	1(0,16%)
When	Teacher	1(0,57%)	0	0	0	1(1,47%)	2(0,32%)
Where	Children	1(0,57%)	6(2,60%)	1(1,59%)	0	4(5,88%)	12(1,91%)
Where	Teacher	2(1,15%)	7(3,03%)	5(7,94%)	5(5,38%)	1(1,47%)	20(3,18%)
Who	Children	1(0,57%)	1(0,43%)	0	0	0	2(0,32%)
Who	Teacher	4(2,30%)	5(2,16%)	0	1(1,08%)	0	10(1,59%)
Why	Children	3(1,72%)	21(9,09%)	2(3,17%)	2(2,15%)	2(2,94%)	30(4,77%)
Why	Teacher	7(4,02%)	10(4,33%)	3(4,76%)	2(2,15%)	5(7,35%)	27(4,29%)
Yes/No	Children	42(24,14%)	54(23,38%)	9(14,29%)	21(22,58%)	12(17,65%)	138(21,94%)
Yes/No	Teacher	65(37,36%)	43(18,61%)	17(26,98%)	29(31,18%)	20(29,41%)	174(27,66%=

Table 6 shows the number of linguistic types of questions both teacher and children asked during the semester. Teacher and children asked fact-based “what, when, where, who and yes/no” types of questions more frequently than causal “why and how” questions. There was an increase in children’s “why and how” questions in the following months, and overall, in the upcoming months they asked more causal questions than the first month. The most frequent question types were yes/no and what questions. The frequency of other questions including “when, who, where” was more or less stable during the semester. Below is an excerpt from a conversation indicating different question types:

Example 3:

Child 3: It is very strong and has sharp teeth.

Child 1: T-rex?

Child 3: Yes.

Child 4: Also, because Albert asked first. I have it now.

Child 2: It gnaws trees. It also lives in nature.

Child 1: Is it a butterfly?

Child 3: Is it a bug?

Child 3: Frog.

Child 5: Let me ask too.

Child 1: Butterfly?

Child 2: It was a squirrel.

Child 5: They have horns. He cries. It lives with dinosaurs.

Child 1: Deer? Deer has antlers.

Child 5: No, mammoth.

Child 4: We didn’t know; it was very difficult.

Child 5: No, actually, I'm not talking about the mammoth, I'm talking about the ice age.

Child 3: You mean the ice age?

Child 5: Yes, ice age.

This excerpt demonstrates children's questions about the riddles that they were asking at breakfast time. We see that children ask different types of questions about different topics. In this transcript, one of the children initiates the discussion with a riddle, attracts other children's attention and encourages them to find the answer to their question. This conversation starts with the "what" question and continues with the "yes/no" question. Children make predictions about the answer to the questions. This conversation shows the peer communicative interactions and how they respond to each other.

Example 4:

Child 7: Teacher, how do we act as we want?

Teacher: Thanks to our hearts.

Child 7: No, I think it's because of our joints.

Child 1: With our blood. Teacher, with our blood. We also have blood in us. Everyone has a heart.

This brief transcript illustrates children asking a question about how our body works. This is an example of a "how" question. The child initiates the interaction with the question "How do we act as we want?". We see that children have different ideas about how the body acts. It demonstrates how children respond to each other and it shows children's knowledge and opinions.

4.5 Quality of questions

The questions asked by teachers and children were further categorized as open vs. closed-ended questions. The questions which cannot be categorized as open or closed-ended questions were categorized as other.

Table 7. Frequency Open vs. Close-Ended Questions by Speaker

Linguistic Type	Speaker	March (%)	April (%)	May (%)	June (%)	July (%)
Total	All	176	221	61	92	67
Open	Children	11 (6,25%)	48(21,72%)	9 (14,75%)	9 (9,78%)	12 (17,91%)
Open	Teacher	31(17,61%)	69(31.22%)	24(39,34%)	32(34,78%)	19(28,36%)
Closed	Children	55(35,25%)	54(24,43%)	11(18,03%)	21(22,83%)	14(20,9%)
Closed	Teacher	79(44,89%)	50(24,62)	17(27,87%)	30(32,61%)	22(32,84%)

Table 7 illustrates the number of the speakers' open and closed questions in their conversations during the semester. Overall, the closed questions have been asked more that open-ended questions during the inquiry. Table 7 displays that the children asked more closed-ended questions than the teacher during March and April. There was a significant increase in the children's open-ended questions in April. It has been increased from 11 to 48. During May, there has been a significant decrease in both the teacher's and children's open and closed questions. Below you can find examples of such questions:

Example 5:

Child 4: Is there an infinite number?

Teacher: Leo says, are there infinite numbers?

Child 2: Yes.

Child 4: Noa are there infinite numbers?

Child 1: No.

Child 4: Teacher, Noa said no, I didn't say no.

Teacher: Let's think, maybe there is.

Child 4: Frank, is there an infinite number?

Child 3: No.

Child 4: Frank said no.

Child 6: There is an infinite number.

Child 2: Yes.

Child 7: There is an infinite number.

This brief transcript displays a communication about numbers. This transcript includes an example of a closed type question. The child initiates the interaction with a closed type question, “Is there an infinite number?” and children try to access fact-based information about the question. We see the order in which children respond to the question and how they build up on each other’s answers.

Example 6:

Child 7: How do humans get into space?

Teacher: Arina said “with a rocket”, Lisa.

Child 7: I'm not saying that. I know they went out with the car. But where do they find clothes and guards?

Teacher: Where do they find clothes?

Child 7: And how does that machine work? And I'm curious about its shape.

Child 8: I know where the clothes are. At the clothing store, of course.

Child 8: Where do they find those markets?

Teacher: I don't know, where is it?

In this transcript, children asked open-ended questions in their communication. The transcript shows the peer and the teacher communicative interaction about space. The child initiates the interaction with an open-ended question and attracts other children's attention. Children need an explanation about how humans get into space, also they need to know how spacecraft works. We see that the answer is given immediately, and children ask different questions related to space. Moreover, the teacher supports children's communication by asking questions.

4.6 Topics of conversations

Children ask questions in order to reach information about their environment, objects, issues, etc. The speakers' talks and utterances were examined in terms of different topics. It includes both statements and questions. In this chapter, the topics were coded as biology, nature, cultural/social convention, physical mechanism, food/nutrition and motivation/behavior. It gives detailed information about the usage of these topics in both the teacher's and children's talks.

Table 8. Total Number of Children's Utterances (Questions and Statements) about Topics

Topic	March (%)	April (%)	May (%)	June (%)	July (%)	Total (%)
Total	286(100%)	397(100%)	102(100%)	136(100%)	87(100%)	1008(100%)
Biology	160(55.94%)	226(56.93%)	69(67.65%)	61(44.85%)	31(35.63%)	547(54.27%)
Convention	37(12.94%)	18(4.53%)	2(1.96%)	7(5.15%)	7(8.05%)	71(7.04%)
Food	3(1.05%)	40(10.08%)	0	7(5.15%)	12(13.79%)	62(6.15%)
Motivation	15(5.24%)	5(1.26%)	11(10.78%)	13(9.56%)	4(4.60%)	48(4.76%)
Nature	53(18.53%)	100(25.19%)	17(16.67%)	43(31.62%)	29(33.33%)	242(24.01%)
Physical Mechanism	18(6.29%)	8(2.02%)	3(2.94%)	5(3.68%)	4(4.60%)	38(3.77%)

Table 8 shows the frequencies and percentages of children's utterances about different topics within months. Looking at the descriptives, we can infer that the topics children inquired about stayed similar during the semester. Children mostly wanted to talk about biology and nature. To a lesser degree, there were questions about physical mechanisms in the world, food/nutrition, motivation, and social conventions. The findings were similar to earlier studies examining parent-child conversations at home (Callanan & Oakes, 1994; Chouinard, 2007).

Example 7:

Teacher: Our topic this week is plants.

Child 4: Is there a topic about plants?

Teacher: Why plants?

Child 2: For example, plants come from seeds.

Child 1: Why plants?

Child 3: Plants are alive.

Child 1: Teacher, I will tell you something. Then let's bring seeds here.

Child 3: Plants are alive.

Teacher: Yes?

Child 2: Alex said that plants are alive. (…) They sway in the winds. They can't move, they just sway in the wind.

Child 4: They open in the rain.

Teacher: What do others think?

Child 3: Plants move very slowly. Like this…

Teacher: What do others think? "Plants are not alive," said Albert.

Child 1: Plants are alive, but they only get sad when we pluck them.

Child 5: They can hear us.

This transcript demonstrates peer/teacher communication about plants included in the topic of biology. The teacher initiates the interaction and attracts children's attention. We see that this transcription allows us to look at the conversation and see the sequences of turns, and how the children ask questions and respond to each other. It allows us to see children's voices, and opinions and it shows their own knowledge.

4.7 Peer/teacher communicative interactions

The communicative interactions were examined in three categories: initiation, elaboration, and clarification. The communicative interactions are evaluated in terms of the interactions between teacher-child and interactions between peers. It is based on the questions, statements, and responses. The specific interactional patterns in the type of responses by teachers and children were analyzed over the course of the extended inquiry. In other words, the study aims to examine how the teacher and children respond to each other. This chapter displays the role of the teacher and children's roles to boost epistemic curiosity in early childhood classrooms.

Table 9. Types of Communicative Interactions

Type	Speaker	March (%)	April (%)	May (%)	June (%)	July (%)	Total (%)
Total	All	436	560	164	220	142	1522 (100%)
Clarification	Children	-	-	1(0,61%)	1(0,45%)	0	2 (0,13%)
Clarification	Teacher	22 (5,05%)	30 (5,36%)	16 (9,76%)	27 (12,27%)	19 (13,38%)	114 (7,49%)
Elaboration	Children	274 (62,84%)	357 (63,75%)	81 (49,39%)	107 (48,64%)	66 (46,48%)	885 (58,15%)
Elaboration	Teacher	116 (26,61%)	121 (21,61%)	39 (23,78%)	52 (23,64%)	33 (23,24%)	361 (23,72%)
Initiation	Children	20 (4,59%)	40 (7,14%)	20 (12,20%)	26 (11,82%)	21 (14,79%)	127 (8,34%)
Initiation	Teacher	4(0,92%)	12(2,14%)	7(4,27%)	7(3,18%)	3(2,11%	33(2,17%)

Table 9 indicates the teacher's and children's communicative interactions and responses during the semester. Children produced more initiation utterances than the teacher during the extended inquiry. Children's initiations increased starting from April, showing that the teacher's modeling of question-asking behavior encouraged children to start conversations by asking questions. The teacher provided elaborations, but again children's elaborations were higher in frequency because they built on each other's responses during conversations. Elaborations were higher in frequency during March and April, but then they decreased in the following months, except for June. There was again a slight increase in elaboration in June. Finally, clarification utterances were used more frequently by the teacher than children. No specific change in the use of clarification utterances was observed across months.

Example 8:

Child 2: Teacher, I have a question. Why do peacocks have spots on their fans?

Teacher: I don't know, I never thought of that.

Child 1: They are sails, not fans.

Teacher: I don't know, what does it do?

Child 1: They are sailing Almira.

Child 3: It is for shooting its cuffs.

Child 2: Actually, do you know what those fan-like feathers are for? It is for show off.

Child 3: I think it shows that they are the most beautiful bird.

Teacher: Ah, good idea Alex.

Child 1: Or to impress someone.

Child 2: It is for show off.

Child 4: I think they show their feathers when they're scared, and people pass by.

Teacher: Oh yeah?

Child 4: I think so.

Teacher: He's asking about the dots, not the feathers. I was wondering too.

Child 1: I think it's to impress them.

This transcript demonstrates the child initiating the communicative interaction. We see that the child initiates the topic with a question, followed by an open-ended question. One of the children initiates the interaction and draws attention to peacocks in the classroom with a sharp raise in their voice. Children have questions about the peacocks, and they have different opinions about peacocks. This transcript shows how children respond to each other and how they voice their ideas about peacocks.

CHAPTER 5

DISCUSSION

The aim of the present study was to design an interactive classroom to boost children's epistemic curiosity. In order to construct a curiosity-based interactive classroom, the children were encouraged to ask questions and to search the answers for their questions. In order to boost children's curiosity, the curiosity corner was created in the classroom, and children were supported with activities in that corner. The main questions were which topics children were more curious about, children's initiation for questioning the information, what type of questions children ask to reach the information, and the role of communicative interaction between teacher-child conversations on children's curiosity.

The present study provides many benefits to my perspective on children's curiosity. My academic background and field experiences as a teacher have enhanced my perspective on how to build an interactive classroom for early childhood education to boost children's epistemic curiosity. Therefore, this present study has taught me to recognize different perspectives. Children's conversations based on their curiosity, the questions they ask to reach the information, and their initiation for questioning the information have broadened my knowledge and experiences in the field with focus on children's curiosity in supporting their learning. In order to reflect my experiences and knowledge about the study, I will discuss my findings under three subtitles: the teacher's statements and questions, topics of communication, and communicative interaction between the teacher and peers.

5.1 Teacher's and children's statements and questions

The major component of this study was to increase children's participation by supporting communication interactions in the classroom. To construct a curiosity based interactive classroom, the children are encouraged to ask questions and search answers for their questions. The present study supports children's curiosity by creating a rich conversational classroom environment. Ronfard, Zambrana, Hermansen, and Kelemen (2018) explained that the teacher supports children's curiosity at school by creating a classroom environment where children have an opportunity to generate questions, engage in rich conversations, and obtain feedback on their questions.

The first question of the study is to examine classroom conversations about curiosity. To analyze this, the teacher and children's conversations were investigated regarding statements, questions, and sequences of talks. Moreover, the first questions explored how the frequency of teacher-child statements and questions changed during the inquiry. Chak (2002) described that questioning is often perceived as an indication of curiosity, which is then combined with exploration to search for the answer. Jirout (2011) claims there is a relationship between children's curiosity and question-asking ability. The findings show that, at the beginning of the study, both teacher and children had few questions, statements, and conversational turns on the same topic. However, there was an increase in the total number of conversational turns in the classroom during the study. Children's adaptation to the study and creating a classroom environment where children's voices and thoughts are valuable, encouraging children to communicate, and listening to children played a role in this increase.

The rich conversational environments children encounter at school also help children to increase the quality and the number of questions (Ronfard, Zambrana, Hermansen, & Kelemen, 2018). The findings of the study are consistent with previous research. Children's questions and elaborations increased during conversations starting from the second month of the study (April), but then there was a slight decrease in questions. This situation can be attributed to two possible factors. One is that the children and the teacher were very excited and interested in the beginning of the project and asked many questions. Then their interest leveled off and they also talked about many topics they were eager to learn about and had difficulty finding new topics and questions. The other possible explanation is the timing of school events. In May and June, there were student graduation and other events going on in the school and students might have been distracted.

Teachers' and children's question types and content were examined in detail in this study. While the child explores the stimuli, they ask different types of epistemic questions such as what can I do with the object, how does it work, why does this happen, what does this idea mean (Chak, 2002). Chouinard (2007) claims that children's questions are divided in two categories as fact-seeking questions and explanation-seeking questions. According to Chouinard, children's fact-seeking questions include acquiring factual information about knowledge such as "What is this?", "Is it fish?" and explanation-seeking questions include searching for explanations such as "How does it work?", "Why does it have a long tail?", and "What is it for?". The findings of the present study show that both teacher and children used more "what and yes/no questions" than other types of questions in their conversations. The findings from this study were similar to the findings from these studies. Children and the teacher asked fact-seeking questions more frequently than

explanation-seeking questions. Yes/no type of questions were the most common type.

There were changes in the frequency of "why" and "how" questions during the semester. Although, at the beginning of the study, the teacher and children did not ask many "how" and "why" questions, their frequency increased after the second month of study. The study's findings show that "when" and "who" questions were not frequently asked by children. Kurkul and Corriveau (2018) indicate that during the preschool years, children's information-seeking questions are primarily fact-based questions. Ünlütabak, Nicolopoulou, and Aksu-Koç (2019) found that Turkish preschoolers ask more fact-seeking questions than explanation-seeking questions. Findings from this study is in line with the findings from prior research. As a teacher in the classroom, I encouraged children to ask why and how questions, and I became a role model for this. As children's conversations increased, children's explanation-seeking questions increased compared to the beginning of the study. However, fact-seeking questions were asked more than explanation-seeking questions. Individual differences among children and their parents 'different attitudes might be a reason for this. Future research should examine child characteristics and family factors in relation to children's question-asking behaviors.

Most teachers agree that educators play an important role in fostering children's curiosity in the classroom (Aronoe, 2003). According to Aronoe, it is important for the teacher to model curiosity in the classroom by asking questions, reaching answers, and showing enthusiasm. In the present study, I, as the teacher, encouraged curiosity in the classroom by asking questions, researching questions with children, and discussing the answers. At the beginning of the study, I asked more information-seeking questions than children. Especially, I asked more fact-

based questions than causal questions. However, throughout the inquiry, the number of my questions declined. As a teacher, I became a good role model for children, and I tried to model a curious personality and curious behavior in the classroom. At first, I asked a lot of questions to help the children adapt to the study, but as the children adapted to the study, I reduced my questions.

5.2 Topics of conversations

The other question of the study is analyzing on which topic children asked more questions. Children ask questions to understand the physical, biological, and social world (Ronfard et al., 2018). In the present study, the preschool children in the study asked questions in different content areas, and they were interested in different topics. Children in that study were very interested in biological phenomena and they asked questions mostly about biological issues. Also, natural phenomena were the other attractive topic in classroom communications. Physical mechanism phenomena did not significantly attract children's attention. Callanan and Oakes (1992) pointed in their study that preschool children were more interested in motivation/behavior phenomena and children asked more questions about physical mechanisms. However, the preschool children in this study were more interested in biological issues and natural phenomena. Children asked more questions about these two topics. In the class, most children were more interested in animals, plants, human body, and nature. These two topics were covered extensively in the school's educational program, and activities were implemented related to these topics in the class. In the study, children were asked more questions about these topics.

5.3 Communicative interaction between teacher and peers

The other main component of this study is to examine teacher/peer communicative interactions in the early childhood classroom. The present study focuses on the teacher and peer communicative interaction's role in children's curiosity. Another question of the study is how the teacher and peers encourage and support curiosity in the classroom. I will discuss peer/teacher communicative interactions in terms of initiation, elaboration, and clarification.

Haber, Puttre, Ghossainy, and Corriveau (2021) defined that initiation includes all statements, questions, and utterances that aim to attach one's attention by initiating an action or calling others. It means one starts a conversation about a topic by attracting others' attention. Aronoe (2003) pointed out that it is essential for the teacher to model curiosity in the classroom by asking questions, reaching answers, and showing enthusiasm. At the beginning of the study, the teacher asked more questions than the children in the class. Also, by initiating an action and asking questions children were encouraged to communicate and express their opinions. The present study findings show that at the beginning of the study, the teacher's initiation was more prevalent in conversational interactions. The teacher asked more questions than children to capture children's attention and to adapt children into the study. Throughout the study, the teacher's initiation interaction styles declined, and children's initiations increased as children adapted to the study. At the beginning of the study, as a teacher, I participated in children's conversations in the breakfast and lunch time. I communicated with them about topics that I was curious about and found interesting. In daily routines, I spontaneously mentioned different and interesting topics to children. In the beginning, I initiated conversations to increase children communication interaction and to adapt to the study.

The present study demonstrated that children produced more initiation utterances than the teacher during extended inquiry. The study confirmed the previous study (Ronfard et al., 2018) demonstrating that preschoolers have important developments in their ability to request information when there were uncertain. Throughout the study, the preschool children asked more questions when they are not confident in their knowledge. Especially in April, children initiated more new topics in their communications than the teacher. This present study confirms the previous work (Haber, Puttre, Ghossainy, & Corriveau (2021)) demonstrating that children might continue their investigations independently if the teacher engages with children and asks more questions at the beginning of the inquiry. In the study, children's questions and initiations in the communication interactions increased as they adapted to the study. To elicit children's curiosity, I actively listened to the children's conversations, let them initiate conversational turns and specifically, I encouraged children's participation by prioritizing topics about their curiosity.

The study findings demonstrate that the degree of elaboration interaction style in both peer and teacher communication was significantly high throughout the inquiry. Elaboration means scaffolding and expanding narrative skills with questions and statements, and it aims to increase children's participation in the communicative interactions (Melzi, Schick, & Kennedy, 2011). The teacher might create a supportive classroom climate by inspiring children to ask and generate questions and to refine their questions by scaffolding conversation (Ronfard, Zambrana, Hermansen & Kelemen, 2018). The present study findings revealed that the teacher mostly used elaborative interaction talks to support children's curiosity. This result is consistent with the previous work (Haber, Puttre, Ghossainy, & Corriveau, 2021) demonstrating that teachers provided a greater number of explanations in the early

weeks of the inquiry to increase children's participation in the study, and then teacher used mostly scaffolding language in order to help children to construct their own knowledge as the inquiry progressed. In the class, I actively listened to the children's conversations, participated in their conversations, and guided them to ask more questions by providing elaborations and explanations.

The present study also demonstrated that children also used mostly elaboration interaction styles in their communications. Peer communicative interactions were highly observed in elaborative interaction style. Children mostly enhanced and supported their communication with questions, statements, and responses, which aroused children's curiosity. The present study's results confirm that the previous study (Haber, Puttre, Ghossainy, & Corriveau, 2021) which illustrated that children play an active role in their own learning. In the class, as a teacher, I encouraged communication among children and provided them specific time and places to share their interests and talk about topics related to their curiosity and interest.

The findings of the study illustrate that the degree of clarification interaction style in peer/teacher communication remained at a low level. Clarification was applied to all statements intended to provide clarification (e.g., "what?" and "this way?") and the teacher's "What do you mean?" questions (Haber, Puttre, Ghossainy, & Corriveau, 2021). In the present study, the teacher produced a small number of clarification statements and questions in communicative interactions. There was no significant change in children's clarification interaction type on their conversations. Haber, Puttre, Ghossainy, and Corriveau (2021) found that children used more clarification statements during the inquiry whereas the teacher used a small number of clarification statements. However, the present study displays that the frequency of

clarification statements and questions were preceded at least throughout the study. The study is based on children's questions and children made drawings about their questions in the curiosity corner. The study is conducted in a specific time and place, because clarification interaction style was not used much.

5.4 Conclusion

The aim of the present study was to design an interactive classroom to boost children's epistemic curiosity. In order to boost children's curiosity, the rich conversational classroom environment was created, and children were encouraged to ask questions and to search answers to their questions. By supporting communicative interactions, children's participation in the classroom increased. In order to examine children's curiosity, peer and teacher talks were evaluated in different perspectives.

The study aimed to understand how children question the information and what type of questions children ask to reach the information. At the beginning of the study, both teacher and children had few questions, statements, and conversational turns on the same topic. However, there was a significant increase in the total number of conversation and conversational turns in the classroom during the study. Moreover, teachers and children mostly used "what and yes/no questions" rather than other types of questions in their conversation. These questions have always been the most frequently asked questions in communications. Children asked more fact-seeking questions than explanation-seeking questions. During the study, children's causal questions increased. At the beginning of the study, the teacher asked more information seeking questions than children.

In the present study, the preschool children in the study asked questions in different content areas and they were interested in different topics. The preschool

children in the study were very interested in biological phenomena and they asked questions mostly about biological issues. The preschool children also asked more questions about natural issues. Children asked questions about different domains such as physical mechanism, food/nutrition, cultural/social convention, and motivation/behavior.

The role of the teacher and peer communicative interaction play a critical role in children's curiosity and their learning. Teacher and peers' communicative interaction encouraged and supported curiosity in the classroom. At the beginning of the study, the teacher asked more questions than children to adapt children into the study process. The teacher's initiation interaction style was more prevalent at the beginning. However, the teacher's initiation interaction styles declined, and children's initiations increased as children adapted to the study. Both children and the teacher mostly used elaborative interaction talks to support curiosity in the classroom. They used mostly scaffolding language in order to construct knowledge. In the study, the degree of clarification interaction style in peer/teacher communication remained at a low level.

In sum, the study is important for creating a curiosity-based classroom environment in early childhood settings. The rich conversational classroom environment at school boosts children's epistemic curiosity at school. Designing a classroom in which children have the opportunity to ask questions and receive responses to their questions increases communicative interactions in the classroom. The present study demonstrated that both the teacher and peer communicative interaction play a significant role in scaffolding children's learning and constructing knowledge. The study offers suggestions to design a classroom to boost children's epistemic curiosity in the preschool settings.

5.5 Significance and implication of the study

This study is important for early childhood education research. The research will contribute to the literature onchildren's curiosity in studies in Turkey. Especially, the study will contribute to the literature on preschool children's curiosity in early childhood settings. The study is an action research study focusing on the problem or the needs in the classroom. The action research enables the teacher to improve the learning process by revising and changing classroom practices. It also contributes to the early childhood education field by providing ways to design curiosity-based classroom environments in practices. Additionally, the study is important for realizing the role of teacher/peer communicative interactions in children's learning and constructing knowledge.

The study provides some implications for early childhood education and research. The study enables teachers to design an interactive curiosity-based classroom environment in early childhood settings and the study increases their awareness about preschool children's curiosity. The study also has implications for teachers to support children's participation in the classroom. Moreover, the study provides researchers with practical implementations of curiosity in the early childhood setting.

5.6 Limitations of the study

The study has some methodological and practical limitations. Firstly, the study was implemented during the second semester of the preschool year. Implementing the study throughout the preschool year can be better in order to design follow-up activities in the classroom based on the children's curiosity. In the study, children's statements and questions were gathered, and the topics about their curiosity were

identified. Because of time restrictions, follow-up activities about children's curiosity were not planned.

Moreover, in order to collect data, children's conversation at breakfast, lunch, and snack time was recorded. Children's conversations include peer group communication and interactions. While children were communicating with each other, some of the children's voices were not heard in the records. Because of this, some of the children's statements and questions could not be transcribed.

Furthermore, the study was only conducted at school. Children's home environment was not included in the study. The role of parents in children's curiosity was not examined in the study. Parents' conceptions and scaffolding in children's curiosity was not taken into account. In the study, the relationship between families SES and children's question-asking abilities were not identified. The relationship between children's curiosity and parents' demographic information might be examined in further research.

In addition, the generalizability of results is limited. The study was implemented with these children, and it examined the curiosity of only these children. In order to identify children's curiosity, multiple methods should be used in future studies.

Furthermore, there are some changes in children's school experiences. Four of the children had been in the same classroom when they were three years old. Three children attended this classroom from one of the classrooms last year. Four of the children started school this year. The class was new and I was a new teacher for all children. This creates a limitation for adaptations of children in the study, and it takes time to increase peer/teacher communicative interactions and children's participation in the classroom.

The preschool where the study was implemented had some special events such as exhibitions and graduation. This created a limitation for the implementation of the study. Because of the preparation of these events, the time and interest declined for the implementation of the study.

5.7 Directions for the further research

The study was implemented with children in the early childhood classroom throughout the semester. The study provides some directions for further research. Firstly, the study might be continued throughout the year. Follow-up activities might be planned in the classroom to extend children's curiosity. The study results show that children's interest in the study declined in some months. In order to maintain children's interest in the study, additional multiple activities might be integrated in the further research.

Moreover, in order to have broader insights on children's curiosity, families can be included in further studies. The role of parents on children's curiosity might be integrated into the studies. Additionally, the study was conducted in a public university preschool center. Further studies might be implemented in different school settings and be applied to children who come from different socioeconomic backgrounds.

APPENDIX A

KATILIMCI BİLGİ VE ONAM FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi

Araştırmanın adı: Okul Öncesi Dönemdeki Çocuklarda Merak ve Merak Konuları

Proje Yürütücüsü: Dr. Öğretim Üyesi Zeynep B. Erdiller Yatmaz

E-mail adresi: zeynep.erdiller@boun.edu.tr

Telefonu: 0 212 359 7374

Araştırmacının adı: Esra Özkara

E-mail adresi: esraozkara10@hotmail.com

Telefonu: 05382659415

Sayın veli,

Boğaziçi Üniversitesi Temel Eğitim Ana Bilim Dalı Erken Çocukluk Eğitimi Programı Yüksek Lisans öğrencisi Esra Özkara tarafından yürütülecek olan "*Okul Öncesi Dönemdeki Çocuklarda Merak ve, Merak Konuları*"adlı proje çalışmasına kızınızın/oğlunuzun katılması istenmektedir.

Bu çalışma okul öncesi dönemdeki çocuklarda merak, merak konularını incelemekle birlikte çocukların merakları doğrultusunda sınıf uygulamaları yapmayı amaçlamaktadır. Bu yüzden çalışmaya katılmayı kabul eden çocuklarla birlikte bir çalışma yapılacaktır.

Araştırmanın yaklaşık 3 ay sürmesi öngörülmektedir. Çalışmada çocukların merak ettiği konuları ortaya çıkarmak için dokümantasyonlar (merak panosu, notlar, resimler, çocukların soruları vb), yarı yapılandırılmış görüşme, katılımcı gözlem, gibi birçok veri toplama yöntemi gerçekleştirilecektir. Çalışmada sınıfta "merak köşesi" oluşturularak çocukların merak ettiği konular bu köşede bir hafta boyunca toplanacaktır. Köşede çocukların merakları sorular, görseller, etiketler vs. yoluyla not edilecektir. Çalışmada çocukların fikirleri araştırmacı tarafından not edilecek olup çalışmaya ait görseller, notlar ve uygulamalar fotoğraflanacaktır. Çalışmada çocukların fotoğrafları çekilmeyecek ve çocuklardan kişisel bilgiler istenmeyecektir, sadece merak köşesi üzerindeki çocuk çalışmaları ve çalışmaya dair çocuk ürünleri fotoğraflanacaktır. Her çocuk kendisi veya siz istediğiniz anda çalışmayı bırakma özgürlüğüne sahip olacaktır. Görüşmelere katılan tüm çocukların ve ailelerin bilgileri gizli tutularak hiçbir kişi, kurum ya da kuruluş ile paylaşılmayacaktır.

Bu araştırma bilimsel bir amaçla yapılmaktadır ve katılımcı bilgilerinin gizliliği esas tutulmaktadır. Çalışmada çocukların ismi yerine bir numara kullanılacaktır.

Araştırmaya dair veriler projemiz süresince şifreli bir bilgisayarda muhafaza edilip araştırma sona erdiğinde silineceklerdir. Bu araştırmaya katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekmek hakkına da sahipsiniz. Bu çalışmada çocukları her hangi bir alanda karşılaştırma ve değerlendirmeye tabii tutmadığımızı vurgulamak istiyoruz. Araştırma projesi hakkında ek bilgi almak istediğiniz takdirde lütfen Boğaziçi Üniversitesi Temel Eğitim Bölümü Öğretim Üyesi Zeynep B. Erdiller Yatmaz ile temasa geçiniz (Telefon: 0 212 359 7374, Adres: Boğaziçi Üniversitesi,34342 Bebek, İstanbul).

Bu formu imzalamadan önce, çalışmayla ilgili sorularınızı sorabilirsiniz. Sonrasında sorunuz olursa, Esra Özkara'ya (Telefon: 05382659415) sorabilirsiniz. Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na (SOBETİK) danışabilirsiniz.

Bir örneğini almış olduğum Bilgilendirilmiş Onam Formu' nu okumuş ve anlamış bulunuyorum. Çocuğun bu araştırmaya katılmasında herhangi bir engel görmemekteyim.

Ben, (katılımcının adı) ....., yukarıdaki metni okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. Çalışma hakkında soru sorma imkanı buldum. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım.

Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Formun bir örneğini aldım / almak istemiyorum (bu durumda araştırmacı bu kopyayı saklar).

Katılımcının Adı-
Soyadı:.....

İmzası:.....

Adresi (varsa Telefon No, Faks No):.....

.....

Tarih (gün/ay/yıl):...../...../.....

Varsa Katılımcının Vasisinin Adı-
Soyadı:.....

İmzası:.....

Tarih (gün/ay/yıl):...../...../.....

Araştırmacının Adı-Soyadı:.....

İmzası:.....

Tarih (gün/ay/yıl):...../...../.....

APPENDIX B

ETHICS COMMITTEE APPROVAL FORM

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME KOMİSYONU
TOPLANTI TUTANAĞI

Toplantı Sayısı	:	2
Toplantı Tarihi	:	16/03/2020
Toplantı Saati	:	14.00
Toplantı Yeri	:	Skype Sanal Toplantı
Bulunanlar	:	Prof. Dr. Feyza Çorapçı, Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen, Prof. Dr. Özlem Hesapçı Karaca, Doç. Dr. Ebru Kaya, Prof. Dr. Fatma Nevra Seggie
Bulunmayanlar	:	

Esra Özkara
Temel Eğitim

Sayın Araştırmacı,
"Okul Öncesi Eğitim Çağındaki Çocuklarda Merak, Merak Konuları ve Çocukların Okul Öncesi Eğitim Planına Katılımı" başlıklı projeniz ile ilgili olarak yaptığınız SBB-EAK 2020/11 sayılı başvuru komisyonumuz tarafından 16 Mart 2020 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya çevrimiçi olarak katılımı ve oybirliği ile alınmıştır. COVID-19 önlemleri kapsamında kurul üyelerinden ıslak imza alınamadığı için bu onam mektubu üye ve raportör olarak Fatma Nevra Seggie tarafından bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Prof. Dr. Fatma Nevra SEGGIE
ÜYE

e-imzalıdır
Prof. Dr.Fatma Nevra SEGGIE
Raportör

APPENDIX C

EXAMPLES OF CHILDREN'S DRAWINGS

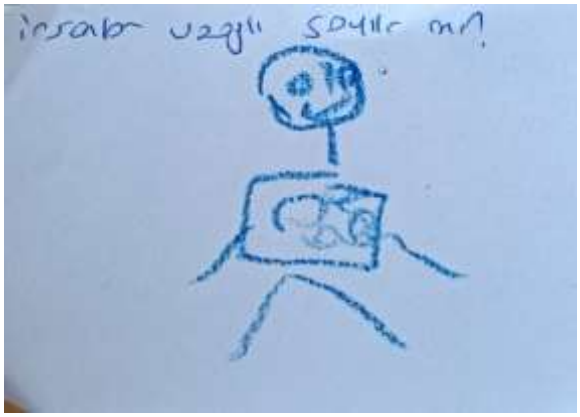

Figure C1. Questions about the space

This picture was drawn based on children's curiosity about aliens. The child drew it to express the question 'If the Earth is in space, are humans also considered aliens?', transcribed and shown in Figure C1. An attempt was made to draw a human as an alien in the picture. I have presented this picture as an example because children have many questions about space and aliens. Children have expressed their curiosity about space and aliens by asking questions like 'What do aliens eat?', 'Do aliens come to Earth?', 'How do aliens come to Earth?', and 'What do aliens look like?'

Figure C2. Questions about the Earth's shape

Children have talked about many topics related to Earth and planets in their conversations. The shape of the Earth and its differences from other planets have been one of the topics that children were curious about. In this picture, the child drew two Earths to express their curiosity about whether the Earth is big or small. This picture was hung in the curiosity corner and different questions were asked by children about the Earth while having a conversation. Children have asked different questions such as 'What do the blue and green areas on Earth represent?', 'Is the Sun bigger or is the Earth bigger?', and 'How close is Earth to the Sun?'

Figure C3. Questions about the Earth' rotataion

In Figure C3, the child questioned the movement of the Earth and asked why the Earth rotates. The child tried to explain that they wanted to learn why the Earth rotates. In addition, children tried to learn the answers to questions such as “What happens when the Earth rotates?”, “Does the Earth orbit around the Sun or itself?”,“What happens to the other side of the Earth when it approaches the Sun?”, “Does the Earth burn out when it approaches the Sun?”

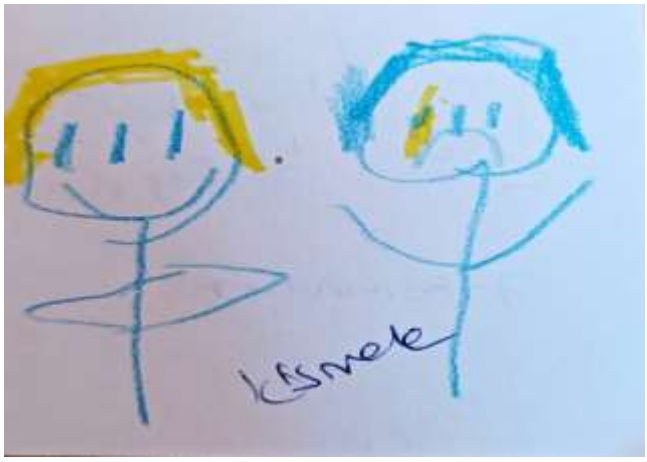

Figure C4. Questions about social relationships

The children have also discussed social relationships in their conversations. They have particularly questioned the issue of falling out with friends after a problem arises. In this picture, two children are offended at each other. The child has asked questions such as “Whether being offended at somebody is a good or bad thing?”, “What happens and how do we feel when people get offended?”

Figure C5. Questions about the extinction of the dinosaurs

Dinosaurs have been one of the most curiousity-inducing subjects of children throughout the period. Figure C5 shows a child's drawing of a dinosaur. With this picture, the child tried to learn about the extinction of the dinosaurs. The child associated the extinction of the dinosaurs with the asteroid depicted in this picture.

Figure C6. Questions about T-rex

Children talked a lot about different types of dinosaurs in their conversations. Children asked many questions to learn about the names and characteristics of different dinosaurs. In this picture, the child asked “Why is T-Rex the king of the dinosaurs?”. In addition, the child asked questions to learn about the strength of the dinosaurs, their physical characteristics, and what they consumed.

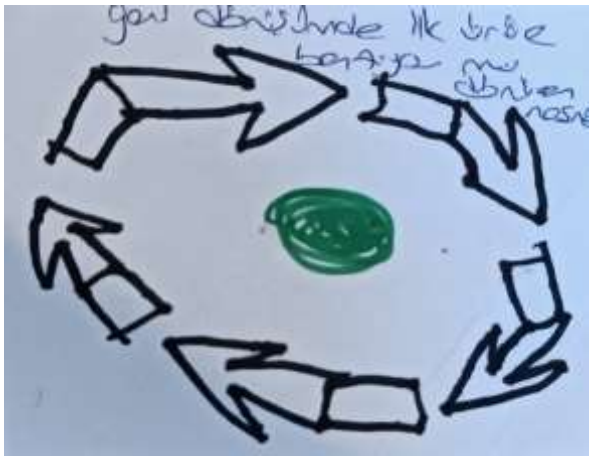

Figure C7. Questions about recyling

One of the topics that children talked about the most in their conversations was recycling. Children asked questions to acquire information about where the garbage goes, what happens to the garbage and how it is recycled. Figure C7 includes a child's recycling symbol. The child wanted to ask if there are any similarities between the first object and the recycled product by drawing a recycling sign in this picture.

Figure C8. Questions about dreams

Children have talked about their dreams in their conversations. They have shared their dreams in class, especially during breakfast time. Figure C8 illustrates a child's dream. The child talks about a journey they took with a caravan in their dream and

shares the scary things that happened to them during the journey. During the conversation, children asked questions such as "Are dreams real?" and "How do we see dreams?"

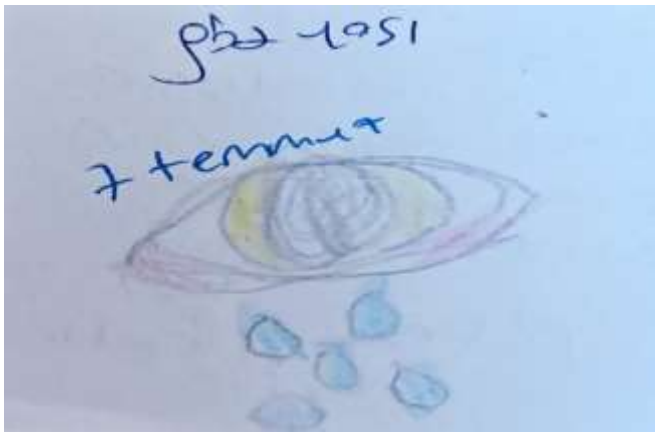

Figure C9. Questions about tears

One of the topics that children were curious about was eyes and tears. In Figure C9, a child has drawn tears. The child wanted to express their curiosity about how tears flow from our eyes when we cry, and how the liquid that looks like water is formed. Children have also discussed the taste of tears and asked questions about whether they are sweet or salty.

Figure C10. Questions about eyes

Children have expressed their curiosity about why we have different eye colors. In this picture, a child has drawn two eyes. They have discussed each other's eye colors and asked questions such as "How do we get colored eyes and black eyes?", "Why

are our eyes different?", "What is the black circle inside the eye?", and "How do eyes get damaged?" about the structure of the eye.

Figure C11. Questions about the Squid Game

Children often talked about digital games in their conversations and were curious about how they are made. Especially, they are interested in mobile and computer games. In this picture, the child drew a figure from the "Squid Game" game. The child asked questions about how the games are made, how they are displayed on the screen, and how the characters in the game speak.

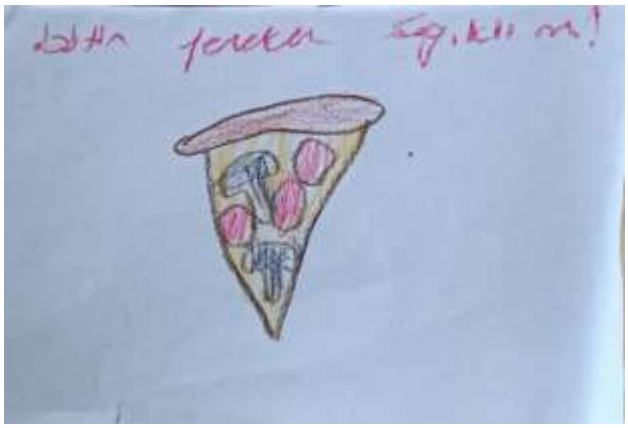

Figure C12. Questions about foods

Children have expressed their curiosity about which foods are healthy and which ones are unhealthy in their conversations. In this picture, a child has drawn a picture of a slice of pizza and asked "Are all foods healthy?" Children have asked questions

such as "Is pizza healthy?", “Is a hamburger healthy?”, and “Would it be healthy if we made hamburgers and pizza at home?"

Figure C13. Questions about candy

During children’s conversations, they have expressed their curiosity about how food is made. In Figure C13, a child has drawn a candy in the shape of a rooster and asked what different shapes of candy there were. Children have asked questions such as “How is candy made?”, “Why is sugar harmful?”, “Does ice cream contain sugar?”, and “If there is sugar in ice cream, is ice cream unhealthy too?"

Figure C14. Questions about blood-sucking animals

Children have frequently discussed different animal species and their characteristics in their conversations. In Figure C14, the child has drawn a blood-sucking animal. The child has expressed their curiosity about blood-sucking animals and the child

asked questions such as “Are there blood-sucking animals?”, “Which animals suck blood?" etc.

Figure C15. Questions about feeding animals

Children have talked about how some animals eat smaller animals in their conversations. They have discussed which animals eat which animals. In Figure C15, the child drew a rabbit and asked if rabbits can eat mice.

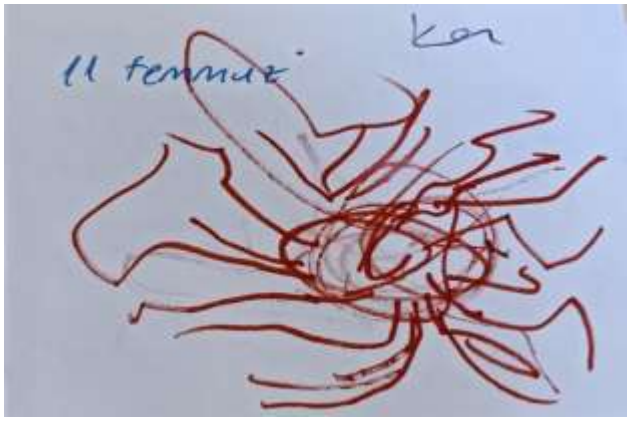

Figure C16. Questions about human body

Children have discussed their curiosity about many topics related to the human body in their conversations. The blood in the human body is one of the topics that children were curious about and they have frequently asked questions about it. In picture C16, the child drew a picture of blood. The child asked questions such as “How does

blood flow in our body?” “How does our blood become red?”, “What is in our blood?”, and “Is there any other color of blood?”

Figure C17. Questions about the blood color of animals

In this picture, the child has asked if the blood color of animals is the same as the blood color of humans. They have asked questions such as "Can blood be green?" and "Are there animals with green blood?" Children have different questions about the color of blood, whether there are different blood colors, and the blood of humans and animals.

Figure C18. Questions about the distribution of light

The children have been curious about how light is produced and distributed. They frequently discuss the production and distribution of light in their conversations. In this picture, a child has asked the question "How does light flow without a cable?"

The child wanted to use this picture to express their curiosity about how a flashlight can produce light without cables.

Figure C19. Questions about the functions of batteries

In their conversations, children have discussed the functions and purposes of batteries and asked questions related to them. In this picture, a child has drawn an image of two batteries inside a device. With this picture, the child wanted to ask the question of how batteries power a device when they are inserted into it. The child is curious about how batteries work and provide energy.

Figure C20. Questions about vaccines

One of the topics that children have been curious about is germs, viruses, and vaccines. They have asked questions about how vaccines protect against germs and viruses. In this picture, a child has drawn a person receiving a vaccine and asked how

the liquid inside the vaccine is made. Children have also asked questions about whether the COVID vaccine destroys the virus and protects against the disease.

Figure C21. Questions about the life of bees

The children mentioned in their conversations that they were curious about the life of bees and how honey is made. In this picture, a child has drawn a picture of a bee and asked how bees make honey. Children have asked questions about what bees collect from flowers, how they collect it, and where their hives are located. They have also discussed the importance of honey for our health, and asked if microbes die when they get into honey, which can protect us from diseases. Children have mentioned their curiosity about where the bee's stinger is located and what happens when it stings.

Figure C22. Questions about ladybugs

One of the things that children are curious about is ladybugs. They have frequently talked about their curiosity about ladybugs in their conversations. In this picture, the child has drawn a ladybug and asked how ladybugs emit light at night. The child has also expressed their curiosity about the spots on the ladybug.

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